ARTIFICIAL INTELLIGENCE AND THE RIGHTS OF OLDER PERSONS

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LIST OF ABBREVIATIONS

AD   Alzheimer's Disease

AI   Artificial Intelligence

AI Act   The Artificial Intelligence Act

ANN   Artificial Neural Network

CAHAI   Ad Hoc Committee on Artificial Intelligence

CDBIO   The Steering Committee for Human Rights in the Fields of Biomedicine and Health

COMEST   World Commission on the Ethics of Scientific Knowledge and Technology

DC   Direct Current

DM   Diabetes Mellitus

DR   Diabetic Retinopathy

DT   Digital Technologies

EC   European Commission

ECHR   European Convention of the Human Rights

EPRS   European Convention of the Human Rights

ESC   European Convention of Human Rights

EU   European Union

IDF   International Diabetes Federation

ML   Machine Learning

NN   Neural Network

OECD   Organisation for Economic Co-operation and Development

SDGs   Sustainable Development Goals

The Charter   The Charter of Fundamental Rights of the European Union

UN   United Nations

UNESCO   United Nations Educational, Scientific and Cultural Organization

WEF   World Economic Forum

WHO   World Health Organisation

SUMMARY

This study aims to explore the impact of Artificial intelligence (AI) on the human rights of older persons. While AI has the potential to enhance the lives of older persons by improving healthcare and fostering independence, it also raises concerns regarding data privacy, algorithmic bias, and digital exclusion.

The first part of the study addresses the technical aspects of AI. It analyses the use of AI in various aspects of older people's lives, focusing in particular on the analysis of two AI products recently developed in the healthcare sector: 1) a product of the Canadian company Winterlight Labs that, by analysing speech, can detect cognitive impairment associated with dementia and mental illness, and 2) the AI-Based Referral System For Patients With Diabetic Retinopathy developed by a company from Mexico. In the second part, the study examines existing literature, legal mechanisms, and ethical considerations to provide a comprehensive understanding of the opportunities and challenges at the intersection of AI and the rights of older individuals. It provides an overview of relevant international hard law and soft law proposals, initiatives, and documents on AI regulation by the United Nations (UN), United Nations Educational, Scientific and Cultural Organization (UNESCO), Organisation for Economic Co-operation and Development (OECD), Council of Europe (CoE), and the European Union (EU). It also offers an overview of relevant documents concerning the regulation of AI at the national Slovenian level.

The study emphasises the need for proactive legal considerations to ensure AI systems promote the rights and inclusivity of older individuals. It highlights the importance of international organisations in establishing global norms and standards for AI regulation. The project also underscores the limited attention given to the perspectives and needs of older persons in AI-related documents. It calls for comprehensive international, regional, and national regulation and the development of dedicated documents addressing the concerns and challenges faced by vulnerable groups, including older persons.

Against this background, the study proposes recommendations for the future development and regulation of AI products, such as the inclusion of the needs of older persons in relevant soft-law and hard-law AI documents to align the use of AI with international and national human rights frameworks; the need for empowerment of older people through access to information and communications technology (ICT) and digital literacy; and more emphasis on ensuring that AI developments are safe, inclusive, and respectful of human rights.

1. INTRODUCTION

Maruša Tekavčič Veber, Matej Kovačič, Lovro Bobnar, Rea Šaina, Barbara Vičič, Una Vukotić, Natalija Zlatanova and Leon Veljković

In an era dominated by technological advancements, artificial intelligence (AI) has emerged as a ground-breaking innovation with the potential to reshape numerous aspects of our lives. From improving efficiency in industries to healthcare, AI has captivated the attention of researchers, policymakers, and society. AI has created many opportunities globally, from facilitating healthcare diagnoses to enabling human connections through social media and creating labour efficiencies through automated tasks.[1] AI can enhance the lives of older persons by augmenting healthcare services, fostering social connections, and facilitating independent living. Advancements in AI-based medical diagnosis and personalised treatment plans have the potential to revolutionise geriatric care, leading to early detection and intervention for age-related ailments. However, using AI also raises concerns about the rights and dignity of older people. As this transformative technology evolves, it becomes crucial to critically examine its impact on the most vulnerable members of our society. Among these groups, older persons, who often face unique challenges and vulnerabilities, stand at the intersection of AI and human rights.[2] Issues such as data privacy, algorithmic bias, and digital exclusion warrant careful examination to ensure that the benefits of AI are not overshadowed by its unintended consequences. Older adults may face challenges navigating and comprehending complex AI systems, exacerbating the digital divide, and perpetuating age-related discrimination. Moreover, the collection and utilisation of personal data by AI systems without proper safeguards pose risks to privacy and autonomy.[3] Societies, institutions and organisations worldwide are working to formulate AI regulations and prevent misuse of AI in general. Still, not enough attention is being paid to the risks that specific vulnerable groups, such as older persons face.

COVID-19 highlighted and accelerated the need for increasing digitalisation and the use of e-media in light of overcoming the difficulties posed by the pandemic. This created two significant problems for older persons: as a vulnerable group, they were most affected by the disease. Moreover, the subsequent risk of infection, in most cases, increasingly isolated them.

Older persons can be divided into two groups: 1) the digitally literate, who belong to the group of younger seniors, and 2) the over-75s, who are relatively poorly equipped with digital knowledge.[4] The lack of these skills is linked to several factors, including lower education, lack

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1 Ittay Mannheim, Ella Schwartz, Wanyu Xi, Sandra C. Buttigieg, Mary McDonnell-Naughton, Eveline J. M., Wouters and Yvonne van Zaalen, 'Inclusion of Older Adults in the Research and Design of Digital Technology', 16(19) Int J Environ Res Public Health (2019), p.1.
2 See for example: Maruša T. Veber, 'Staranje In Uporaba Informacijsko-Komunikacijskih Tehnologij: Politike (In Pravna Ureditev) V Mednarodnih Organizacijah'
3 Justyna Stypińska, 'Ageism in AI: new forms of age discrimination in the era of algorithms and artificial intelligence', EAI (2021), p. 1.
4 Joseph Amankwah-Amoah, Zaheer Kh, Geoffrey Wood, Gary Knight, COVID-19 and the digitalization: The great acceleration, 136 Journal of Business Research (2021), pp. 602-605.

of internet access, lower incomes, and social isolation.[5] Virtually every country in the world is experiencing growth in both the size and the proportion of older persons within their populations. In 2019, there were 703 million persons aged 65 years or over in the global population. According to the United Nations (UN), this number is projected to double to 1.5 billion in 2050.[6]

The first part of the study addresses the technical aspects of AI. It analyses the use of AI in various aspects of older people's lives, focusing in particular on the analysis of two AI products recently developed in the healthcare sector: 1) a product of the Canadian company Winterlight Labs that, by analysing speech, can detect cognitive impairment associated with dementia and mental illness[7], and 2) the AI-Based Referral System For Patients With Diabetic Retinopathy developed by a company from Mexico[8].[9]

In the second part, this study aims to explore the multifaceted impact of AI on the human rights of older persons, shedding light on both the positive and negative dimensions. By critically examining the existing literature and legal mechanisms and engaging in ethical and legal discussions, the authors endeavour to provide a comprehensive understanding of the opportunities and challenges that arise at the intersection of AI and the rights of older individuals. An international convention on the rights of older people that would address the human rights and needs of the vulnerable group has yet to be adopted.[10] This study aims to assess to what extent the rights of older people are taken into account and included in the existing AI documents. In this respect, this study provides an overview of relevant international hard law and soft law proposals, initiatives, and documents on AI regulation, including within the United Nations (UN)[11], United Nations Educational, Scientific and Cultural Organization (UNESCO)[12], Organisation for Economic Co-operation and Development (OECD)[13], Council of Europe (CoE)[14] and the European Union (EU)[15]. It offers an overview of relevant documents concerning the regulation of AI at the national Slovenian level[16].

As AI technologies advance and become more widely available at unprecedented speed, societies worldwide grapple with an ageing population, it is imperative to proactively address the ethical implications of AI systems on older persons. By recognising the potential risks and developing appropriate safeguards, we can strive towards a future where AI-driven innovations promote older individuals' rights, dignity, and inclusivity rather than exacerbate existing inequalities.

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5   Measuring digital development Facts and figures, International Telecommunication Union, (2021), <https://www.itu.int/en/ITU-D/Statistics/Documents/facts/FactsFigures2021.pdf> (21. 5. 2023).
6   United Nations, World Population Ageing, (2019), <https://www.un.org/en/development/desa/population/publications/pdf/ageing/WorldPopulationAgeing2019-Report.pdf> (21. 5. 2023).
7   Monitoring cognitive impairment through speech with Cambridge Condition, Winterlights Labs, <https://winterlightlabs.com> (3. 6. 2023).
8   IRCAI Global Top 100 List, International Research Centre on Artificial Intelligence under the auspices of UNESCO, (2022), <https://ircai.org/top100/entry/artificial-intelligence-based-referral-system-for-patients-with-diabetic-retinopathy-in-jalisco/> (3. 6. 2023).
9   See below, Chapter 3.
10   Vasilka Sancin, Mednarodna konvencija o pravicah starejših, V: Dugar (ed.), Vloga institucij Eu in države pri zagotavljanju pravnega in ekonomskega varstva starejših, Ljubljana, Pravna fakulteta, Založba Pravne fakultete (2022), pp. 216–218.
11   See below, Chapter 4.
12   See below, Chapter 4.5.
13   See below, Chapter 5.
14   See below, Chapter 6.
15   See below, Chapter 7.
16   See below, Chapter 8.

The study emphasises the need for proactive legal considerations to ensure AI systems promote the rights and inclusivity of older individuals. It highlights the importance of international organisations in establishing global norms and standards for AI regulation. The project also underscores the limited attention given to the perspectives and needs of older persons in AI-related documents. It calls for comprehensive international, regional, and national regulation and the development of dedicated documents addressing the concerns and challenges faced by vulnerable groups, including older persons. It is essential to establish clear principles and legal instruments that protect the rights of older people in AI and prevent possible negative effects that AI may have on the lives of older persons.

Against this background, the study proposes recommendations for the future development and regulation of AI products, including the inclusion of the needs of older persons in relevant soft-law and hard-law AI documents to align the use of AI with international and national human rights frameworks; the need for empowerment of older people through access to information and communications technology (ICT) and digital literacy; and more emphasis on ensuring that AI developments are safe, inclusive, and respectful of human rights.[17]

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17 See below, Chapter 9.

2. ARTIFICIAL INTELLIGENCE AND HOW IT WORKS

Natalija Zlatanova, Leon Veljković

2.1. Introduction

AI technological developments are rapid and bring many benefits to our everyday life. However, the increasing and widespread use of AI in various fields raises questions and concerns about its reliability and trustworthiness. In this Chapter, this study defines AI, presents how it works, including the life cycle of AI and introduces some uses of AI in medicine, focusing on the analysis of two AI products recently developed in the healthcare sector: product of the Canadian company Winterlight Labs that detects changes in neurological and psychiatric symptoms with the aim of early diagnosis of dementia, and the AI-Based Referral System For Patients With Diabetic Retinopathy developed by a company from Mexico.

2.2. The Definition of AI

Explaining the rather complicated technical background of AI has to start with a definition, which, in itself, is unclear. One of the controversies about AI is that there currently does not exist an authoritative, universally adopted definition. Therefore, various legal and policy documents use their own, to some extent differentiating definitions. This study examines definitions provided by the OECD, the European Parliament, UNESCO and Stanford University.

Organisation for Economic Co-operation and Development (OECD) provides the following definition of AI:

> "An AI system is a machine-based system that can, for a given set of human-defined objectives, make predictions, recommendations or decisions influencing real or virtual environments. It does so by using machine and/or human-based inputs to: i) perceive real and/or virtual environments; ii) abstract such perceptions into models through analysis in an automated manner (e.g. with ML, or manually); and iii) use model inference to formulate options for information or action. AI systems are designed to operate with varying levels of autonomy."[18]

European Parliament's definition of AI derives from the OECD definition:

> "AI is the ability of a machine to display human-like capabilities such as reasoning, learning, planning and creativity. AI enables technical systems to perceive their environment, deal with what they perceive, solve problems and act to achieve a specific goal. The computer receives data - already prepared or gathered through its own

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18   Artificial intelligence (AI) technical landscape, <Home | OECD iLibrary (oecd-ilibrary.org)> (25.06.2023)

sensors such as a camera – processes it and responds. AI systems are capable of adapting their behaviour to a certain degree by analysing the effects of previous actions and working autonomously."[19]

Similarly, the United Nations Educational, Scientific, and Cultural Organization's (UNESCO's) World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) defined AI as:

> "an ensemble of advanced ICTs that enable "machines capable of imitating certain functionalities of human intelligence, including such features as perception, learning, reasoning, problem-solving, language interaction, and even producing creative work."[20]

The UNESCO Recommendation on the Ethics of AI acknowledges that the aim is not to provide a single definition. Such a definition would inevitably need to change over time and be adapted to the latest technological developments. Therefore, they decided to address those features of AI systems that are central to ethical debates.[21]

At Stanford University, the term AI was coined by emeritus Stanford Professor John McCarthy in 1955 as "the science and engineering of making intelligent machines" to emphasise that some machines can learn, at least somewhat like human beings do.[22]

Against this background, AI is a machine, device or software capable of collecting, analysing and understanding data and making its own decisions based on the collected data. One of the current concerns posed by AI is the possibility and capacity of AI to change its behaviour and work autonomously, almost without human intervention. While these are valid reasons for concern, AI currently cannot operate without human control or input.

AI is a general-purpose technology that can improve people's welfare and well-being, contribute to positive, sustainable global economic activity, increase innovation and productivity, and help respond to critical global challenges. It is deployed in many sectors, from production, finance and transport to healthcare and security. The Work of the AI system is based on different lifecycle phases, which include: 1) 'Design, data, and models', which is a context-dependent sequence encompassing planning and design, data collection and processing, as well as model building; 2) 'Verification and validation'; 3) 'Deployment'.; and 4) 'Operation and monitoring'. These phases often occur in an iterative manner and are not necessarily sequential. The decision to retire an AI system from operation may occur during the operation and monitoring phase.[23]

AI knowledge refers to the skills and resources required to understand and participate in the AI system lifecycle, such as data, code, algorithms, models, research, know-how, training programmes, governance, processes, and best practices. AI actors are those who play an active role in the AI system lifecycle, including organisations and individuals that deploy or operate AI.

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19 Kaj je umetna inteligenca in kako se uporablja v praksi?, Evropski parlament, (2021), <Kaj je umetna inteligenca in kako se uporablja v praksi? | Novice | Evropski parlament (europa.eu)> (07.05.2023).

20 Preliminary Study on the Ethics of Artificial Intelligence, UNESCO, COMEST Extended Working Group on Ethics of Artificial Intelligence, (2019), <https://unesdoc.unesco.org/ark:/48223/pf0000367823> (21. 5. 2023).

21 Recommendation on the Ethics of Artificial Intelligence, UNESCO, (2022), <file:///C:/Users/Uporabnik/Downloads/UNESCO-AI-Recommendation.pdf> (21. 5. 2023).

22 Artificial Intelligence Definitions, <AI-Definitions-HAI.pdf (stanford.edu) (25.06.2023)

23 AI Development Life Cycle | Explained, Hardik Dave, (2022), <AI Development Life Cycle | Explained (linkedin.com)> (16.05.2023).

2.3. How Does AI Work

2.3.1. Machine Learning (ML)

We cannot talk about AI without talking about ML first, as this is at the centre of its operation. ML is a subfield of AI that involves the development of algorithms and statistical models that enable computers to improve their performance in tasks through experience.[24] A simple definition for ML is: "Machine Learning is the field of study that gives computers the capability to learn without being explicitly programmed."[25]

The primary goal of an ML implementation is to develop a general-purpose algorithm that solves a practical and focused problem and to get a result that is as accurate as possible. It is often used with large, diverse, and rapidly changing datasets.[26]

2.3.2. Data

Data is a crucial component in the field of ML. It serves as the foundational building block that fuels the development and success of ML models. Data holds immense potential, acting as a rich source of knowledge that can be used to make accurate predictions, automate tasks and revolutionise healthcare practices. The performance of ML models greatly depends on the quality, quantity, and diversity of the data available.

We can divide data in several ways, depending on whether we're talking about the organisation of data or if it's labelled.

Based on the organisation and format of data, we can classify it into two types:

1. Structured data – data that is organised in a highly organised and predefined format. It follows a consistent and predefined schema, typically arranged in rows and columns or a tabular structure. Each data element within the structure has a precise meaning and well-defined data types.

2. Unstructured data – data that lacks a predefined structure or format. It does not conform to a specific schema or organised arrangement. Unstructured data is typically in a more free-form or natural language of representation and may contain text images, audio, video, or other formats.

We can divide it into unlabelled and labelled data based on the presence or absence of corresponding output labels for each input sample. To explain them, we will use email spam as an example. Unlabelled data refers to a dataset with missing data or "the raw form of the data".[27] Emails don't have any associated labels indicating whether they're spam or not. Unlabelled data is typically used to group similar emails without explicitly knowing their class labels. On the other hand, labelled data refers to a dataset where each email is labelled with its corresponding class, either "spam" or "not spam". When used for training, it already includes a label or target

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24   Siddharth Pandey, An introduction to Machine Learning, (2023), <https://www.geeksforgeeks.org/> (21.06.2023).
25   Ibid.
26   Sunila Gollapudi, Practical Machine Learning, Packt Publishing Ltd., 2016, p. 4.
27   S. Gollapudi, op. cit., p. 8.

variable[28] that the model tries to predict. Later, that is useful for training an ML model to classify future emails.

If we were to ask which one is better to use, the answer would be, ideally, both. If we only have unlabelled data, then it would be difficult for the ML model to learn, know the correct outputs, and for the evaluator to assess the model's performance. If we were only to use labelled data, we would restrict the amount of data available for training, it is difficult to obtain as it requires labelling by experts, and there is also a risk of incorrect labels, leading to biases. Using both would get an accurate and more robust ML model with improved performance.

The amount of data available is multiplying daily, which is why we need to organise it in datasets. Depending on how complex the problem we're solving is, the algorithms we used and the desired output, one would have to use different numbers of datasets. Generally, two datasets are needed in the context of AI.[29] The first one is one that we manually prepare, which is created when we have already gone through the input data and labelled it with the corresponding output data. In other words, this data set has to be prepared in advance. The second one is a dataset used for prediction, where we only have the input data, which does not include the correct output labels, and our goal is to predict the expected output. With this dataset, we aim to learn patterns from the relationships within the data.

In ML, the given data is often segregated into three datasets:

1. Training dataset – contains data used to train the ML model. The input data and the expected output are available and prepared in advance. The model learns from the patterns and relationships in this dataset to make predictions or classifications on unseen data.

2. Validation dataset – contains the data we use to evaluate the performance of the trained model and monitor its progress. Although it has labelled examples and their corresponding output label, it is separate from the training dataset. It acts as a proxy for unseen data and helps assess how well the model generalises.

3. Testing dataset – contains data that the model hasn't seen during the training or validation. We use this dataset to assess the final performance and generalisation of the trained model and how well it performs on new and unseen data.[30]

Raw data is often noisy, incomplete, and inconsistent, which can negatively impact the accuracy and reliability of the insights derived from it.[31] That's why data processing is a crucial step in the ML pipeline, as it prepares the data for use in building and training ML models. The goal of data processing is to clean, transform, and prepare the data in a format that is suitable for modelling.[32]

28 Introduction to Data in Machine Learning, ML, (2023), <https://www.geeksforgeeks.org/> (21.06.2023).
29 S. Gollapudi, op. cit., p. 5.
30 Ibid.
31 Overview of Data Cleaning, ML, 2023, < https://www.geeksforgeeks.org/> (21.06.2023).
32 Understanding Data Processing, ML, (2023), <https://www.geeksforgeeks.org/> (21.06.2023).

2.3.3. Bias in Data and Transparency

As we already explained, for an accurate ML model, we need big datasets to learn from. The same goes for an AI model. A problem may arise when there are inconsistencies in the dataset, like missing values, fewer attributes, and errors, leading to a biased output.[33] Generally, there exist two types of bias: algorithmic bias and human bias. Sources of bias in AI may be present in most if not all, stages of the algorithmic development process. Algorithms are trained with historical data, and those data sets can contain biases simply because of the selection of data and the features being considered; the algorithm can, therefore, become the amplifier of these biases.[34] An algorithmic bias can emerge due to the use of imbalanced or misrepresentative training data, the implementation of data collection systems influenced by human subjectivity, lack of proper regulation in the design process, and replication of human prejudices that cause algorithms to mirror historical inequalities[35], data blending methods, model construction practices, and how results are applied and interpreted.[36]

Human bias in AI can be hardest to detect and mitigate, as it can result from long-held societal prejudices that may be subtle at the level of society and amplified by AI and large datasets. The medical field has several examples where racial, gender, or age disparities affect clinical decision-making, quality of treatment, and outcome prognosis.[37]

Health care is one of the most challenging industries regarding data, primarily because the industry's operational systems were not designed for modern analytics and are often not fully integrated with internal or external data systems. We are still learning about the full spectrum of factors that determine health outcomes. Most healthcare organisations are still trying to address issues like data quality, data governance, and effective use of Health Information Technology to improve outcomes.[38]

A commonly heard response to bias and value conflicts is a call for more transparency. If an algorithm can lead to bias, then those who use the algorithm must have a good understanding of how it works to detect these biases.[39] However, in the context of AI, due to rapid ML developments and deep learning methods, the issue of explainability and understandability is becoming more and more challenging.

2.3.4. Learning Problems, Learning Algorithms and Types of ML

At the heart of ML lies the notion of learning problems. Learning problems define the goals we seek to achieve with ML and provide a roadmap for designing and implementing intelligent systems. Understanding and effectively addressing learning problems is crucial for develo-

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33 Kiran Maharana, Surajit Mondal, Bhushankumar Nemade, 'A review: Data pre-processing and data augmentation techniques', 13 Global Transitions Proceedings (2022), pp. 91-99.

34 Michela Arnaboldi, Hans de Bruijn, Ileana Steccolini, Haiko Van der Voort, 'On humans, algorithms and data', 19 Qualitative Research in Accounting & Management (2022), pp. 5-14.

35 Natalia Norori, Qiyang Hu, Florence Marcelle Aellen, Francesca Dalia Faraci, Athina Tzovara, 'Addressing bias in big data and AI for health care: A call for open science', 2 Patterns (NY) (2021), pp. 3 .

36 Gregory S. Nelson, 'Bias in Artificial Intelligence', 80 N C Med J. (2019), pp. 220.

37 N. Norori, 'Addressing bias in big data and AI for health care, in: A. Tzovara, op. cit., p.4.

38 G. S. Nelson, 'Bias in Artificial Intelligence', op. cit., p. 220.

39 M. Arnaboldi, 'On humans, algorithms and data', in: H. Van der Voort, op. cit., p. 243.

ping accurate ML models that can successfully uncover hidden patterns and make informed decisions for various real-world challenges.

The following are some considerations for defining a learning problem:

1. Provide a definition of what the learner should learn and the need for learning.

2. Define the data requirements and the sources of the data.

3. Define if the learner should operate on the dataset in its entirety or a subset will do.

The range of learning problems is vast. That said, researchers have identified an ever-growing number of templates that can be used to address a large set of situations.[40] The most frequently used learning problems are as follows: clustering, classification, dimensionality reduction, regression and reinforcement learning. A corresponding ML algorithm is employed for each type of learning problem. In a study published by the European Parliamentary Research Services (EPRS), an algorithm is defined as "A set of rules defining how to perform a task or solve a problem. In the context of AI, this usually refers to computer code defining how to process data."[41]

There are several types of ML, also referred to as learning subfields[42]:

1. Supervised ML is a type of ML in which the algorithm is trained on the labelled dataset. In supervised learning, the algorithm is provided with input features and corresponding output labels, and it learns to generalise from this data to make predictions on new, unseen data.

2. Unsupervised ML is a type of ML where the algorithm learns to recognise patterns in data without being explicitly trained using labelled examples. Unsupervised learning aims to discover the underlying structure or distribution in the data.

3. Reinforcement ML is a type of ML where an agent learns to interact with an environment by performing actions and receiving rewards or penalties based on its actions.

4. Semi-Supervised Learning is an approach to ML that combines small, labelled data with a large amount of unlabelled data during training. Semi-supervised learning falls between unsupervised learning and supervised learning.[43]

2.3.5. Artificial Neural Networks (ANN) & Deep Learning

A neural network (NN) is a series of algorithms that endeavours to recognise underlying relationships in a data set through a process that mimics how the human brain operates. In this sense, NN refers to systems of neurons, either organic or artificial. NN can adapt to changing input so that the network generates the best possible result without needing to redesign the output criteria.

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40   Alex Smola, S.V.N. Vishwanathan, Introduction to Machine Learning, Cambridge University Press, 2008.
41   Philip Boucher, Artificial intelligence: How does it work, why does it matter, and what can we do about it?, Scientific Foresight Unit (STOA), European Parliamentary Research Service, 2020, p. 6.
42   Sunila Gollapudi, op. cit., (2016), p. 21.
43   What is Machine Learning?, ML, (2023), <https://www.geeksforgeeks.org/> (21.06.2023).

An Artificial Neural Network (ANN) behaves in the same way. It works on three layers. The input layer takes input. The hidden layer processes the input. Finally, the output layer sends the calculated output.[44]

Deep learning is an area of ML that focuses on unifying ML with AI. This field is more of an advancement to ANN that works on large amounts of common data to derive practical insights. It builds more complex neural networks to solve problems classified under semi-supervised learning and operates on datasets with little labelled data.[45]

44 Batta Mahesh, 'Machine Learning Algorithms – A Review', International Journal of Science and Research (2019), p. 382.
45 Sunila Gollapudi, op. cit., (2016), p. 23.

3. EXAMPLES OF CURRENTLY DEVELOPING AI USES IN THE FIELD OF MEDICINE

Natalija Zlatanova

3.1. Winterlight Labs Project

Winterlight Labs is a company from Canada that has developed a tablet-based assessment that, by analysing speech alone, can detect cognitive impairment associated with dementia and mental illness. Their assessment can be used in life science research, senior care and clinical settings.[46] Their product can quickly and objectively detect changes in neurological and psychiatric symptoms through analysis of speech with the help of natural language processing and AI. Changes in cognitive ability due to neurodegeneration associated with Alzheimer's disease lead to a progressive decline in memory and language quality. Patients experience deterioration in sensory, working, declarative, and non-declarative memory, which leads to a decrease in the grammatical complexity and linguistic content of their speech. Such changes differ from the pattern of decline expected in older adults, which suggests that temporal changes in linguistic features can aid in the disambiguation of healthy older adults from those with dementia.[47]

They use a set of automatically extracted lexicosyntactic, acoustic, and semantic (LSAS) features for estimating continuous Mini-Mental State Examination (MMSE) scores on a scale of 0 to 30, using a dynamic Bayes network for representing relationships between observed linguistic measures and underlying clinical scores.[48]

3.2. AI-Based Referral System for Patients With Diabetic Retinopathy

Diabetes is a global health concern, and its prevalence has increased in recent years. According to the International Diabetes Federation (IDF), in 2019, approximately 463 million adults were living with diabetes worldwide. The IDF estimates that the number of adults with diabetes is expected to rise to 700 million by 2045 if current trends continue. Diabetes is the leading cause of another illness called Diabetic Retinopathy (DR).[49] DR is the primary cause of blindness in developing and developed countries. Early-stage DR detection reduces the risk of blindness

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46 Monitoring impairment through speech with Cambridge Cognition, Winterlight Labs, <https://winterlightlabs.com/> (21.06.2023).

47 Maria Yancheva, Kathleen Fraser, Frank Rudzicz, 'Using linguistic features longitudinally to predict clinical scores for Alzheimer's disease and related dementias', In Proceedings of SLPAT 2015: 6th Workshop on Speech and Language Processing for Assistive Technologies Association for Computational Linguistics (2015), pp. 134-135.

48 See Aparna Balagopalan, Benjamin Eyre, Jessica Robin, Frank Rudzicz, Jekaterina Novikova, 'Comparing pre-trained and feature-based models for prediction of Alzheimer's disease based on speech', 13 Frontiers in aging neuroscience (2021), pp. 1-12.

49 Martina Kropp, et al. 'Diabetic retinopathy as the leading cause of blindness and early predictor of cascading complications—Risks and mitigation' EPMA Journal 14.1 (2023), pp. 21-42.

in Diabetes Mellitus (DM) patients. There has been a sharp rise in the prevalence of DM in recent years, especially in low- and middle-income countries.[50]

In the regional government in Jalisco, Mexico, a team of AI specialists was formed to work on developing an AI system that would detect signs of visual loss caused by DR. The government has their AI Ecosystem, which partners up with big companies, universities, research centres, etc. They aim to make an automated diagnostic system that helps ophthalmologists increase the efficiency of the screening process.[51]

In this context, automated artificial intelligence-based DM screening is a crucial tool to help classify the considerable amount of Retinal Fundus Images. However, retinal image quality assessment has shown to be fundamental in real-world DR screening processes to avoid out-of-distribution data, drift, and images lacking relevant anatomical information.

They use public datasets to train and validate their model. The public dataset repositories used in this work are Kaggle Diabetic Retinopathy Detection provided by EyePACS, the Indian Diabetic Retinopathy Image Dataset (IDRiD), the Methods to Evaluate Segmentation and Indexing Techniques in the field of Retinal Ophthalmology (MESSIDOR II), the Digital Retinal Images for Vessel Extraction (DRIVE) and the Diabetic Retinopathy Images Database for Quality Testing of Retinal Images (DRIMDB). Although they are currently not using any Mexican dataset, they believe that the public datasets have a fair amount of Mexican representatives. They stressed that they use local images to test their product, which are not used to train the model itself. This is how they distinguish between training data and data produced by the product itself, which is anonymised and not used for training the model. Their product has been tested on 1,000 patients.

Their product is still in the production phase, and they are not planning to make it widely accessible yet because they're dealing with two problems. One of which is that they have to compare the model's performance to different data sets from around the world and see how it performs. The other problem is that there aren't any specific regulations for AI systems in Mexico. So, they are currently following regulations on data and health services. Their product is meant to be used by physicians. While the report will be easy to read, it is not for general use and should only be read by a physician.

They are unsure whether there is bias in their product, as they have tested it, and the model has worked very well, with the results for accuracy being 93%, for specificity 93% and for sensitivity 91%.[52] Until recently, they did not have access to the information about the age and gender of the people's images used for the training and validation data. However, they primarily used images from older persons for the testing data. Now, they have been given the information about the age and gender, and they plan to evaluate if there is bias in their product. If the results are positive, they will fine-tune the model.

As there are no laws and regulations on the use of AI in Mexico, the company is following the national regulations on data protection/privacy and health services and corresponding ethical rules. They have an ethical board and ethical protocol. More importantly, they strive to take in-

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50 https://diabetesatlas.org.
51 G. Pinedo-Diaz, 'Suitability Classification of Retinal Fundus Images for Diabetic Retinopathy Using Deep Learning, Electronics', op. cit., p. 1.
52 Slides presented during a meeting with a company on 24.5.2023.

to account international ethical standards for the responsible and trustworthy use of AI, including the OECD recommendations. However, because their product is based on deep learning, they struggle to provide its explainability. Moreover, in the absence of international regulation and competent organs to assess their product, they strive to get a Responsible AI License. This private volunteer-driven initiative aims to empower developers to restrict the use of their AI technology in order to prevent irresponsible and harmful applications.[53]

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53 Presentation made during a meeting with a company on 24.5.2023.

4. THE UNITED NATIONS: THE ABSENCE OF AN INTERNATIONAL LEGAL FRAMEWORK AND THE ADOPTION OF SOFT LAW DOCUMENTS ON THE RIGHTS OF OLDER PERSONS AND AI

Rea Šaina, Barbara Vičič

Problems relating to the protection of the rights of older persons in international law in the context of AI are twofold. First, AI technologies are developing rapidly, whereas the legal regulations of these technologies are lagging. Second, the ageing of the world population is also progressing rapidly. However, no international legal treaty currently addresses their rights, as is the case. for example, with the Convention on the Rights of the Child.[54] However, older persons' rights are nevertheless protected through the general human rights treaties through, e.g., non-discrimination provisions. For example, the International Covenant on Civil and Political Rights recognises the right of non-discrimination, which applies to all people, including older people. Even though in Article 2, age is not listed as a status directly, the article leaves room for other circumstances that could be the base for discrimination.[55] Similarly, the International Covenant on Economic, Social and Cultural Rights recognises the right of everyone to enjoy the highest attainable standard of health[56], which can, at least in some respect, only be attained with the use of AI as outlined above in the presentation of the products for patients with DR and early diagnosis of diseases such as Dementia.[57]

Arguably, the most important and the most extensive protections of the rights of older persons derive from the Convention on the Rights of Persons with Disabilities.[58] According to the UN, 46 % of older persons (people aged 60 years and over) have disabilities. Therefore, this Convention applies to a considerable segment of the older population.[59] Among other things, the Convention stipulates age as a ground for prohibited discrimination and also covers the field of electronic services and other services.[60] Nevertheless, various UN bodies have stressed that this Convention offers inadequate protection for the rights of older persons and that in the absence of the specific conventions, there exist significant gaps in the human protection of older persons. In recent years, especially after the COVID-19 pandemic, the voices for adopting a specific convention on older persons' rights are becoming more vocal. In this respect, The Open-ended Working Group on Ageing was established with two General councils' resolutions: Resolution No. 65/182 and No. 67/139, with the aim to examine the adequacy of the inter-

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54   Convention on the Rights of the Child (20. 11. 1989), Treaty Series, vol. 1577.
55   International Covenant on Civil and Political Rights (19. 12. 1966), Treaty Series, vol. 999.
56   International Covenant on Economic, Social and Cultural Rights (16. 12. 1966), Treaty Series, vol. 993.
57   See Chapter 3 above.
58   Convention on the Rights of Persons with Disabilities (13. 12. 2006), A/RES/61/106.
59   Ageing and Disability, United Nations, <https://www.un.org/development/desa/disabilities/disability-and-ageing.html> (24. 5. 2023).
60   Convention on the Rights of Persons With Disabilities (13. 12. 2006), A/RES/61/106, Article 9, Paragraph 1.

national human rights framework for older people and propose how best to address the existing gaps and limitations.[61]

An example of good practices in this respect can be found at the regional level, whereby at the Organization of the American States level, an Inter-American Convention on the Rights of Older Persons was adopted and entered into force in January 2017.[62] Another example is the protocol to the African Charter of Human and Peoples' Rights on the rights of older persons at the African Union level, however, due to insufficient ratifications, this document is not yet in force.[63]

4.1. Soft Law Documents Concerning Older Persons

To mitigate the absence of an international treaty for the protection of the rights of older persons, numerous soft law documents were adopted at the UN level. Even though the UN principles for older persons were adopted in 1991, some of them are relevant to the rights of older persons in the context of digitalisation. For example, principle number 4 stipulates that "older persons should have access to appropriate education and training programmes."[64] According to the National Health Services (NHS), one of the main ways to reduce the social isolation and loneliness of older persons is "learning to love computers."[65] Therefore, teaching older people and offering them different courses to learn about AI and the digitalisation process is yet another quite simple way to protect them, prevent them from infringing their rights, and ensure they are not left behind in the fast-moving modern world. This is also important for ensuring the implementation of principle number 7, which aims towards older people staying integrated into society and other principles.[66]

The Madrid International Plan of Action on Ageing, adopted at the Second World Assembly on Ageing in 2002, prioritises older persons and development, advancing health and well-being into old age and ensuring enabling and supportive environments. Even though AI is not explicitly addressed, the Plan of Action provides an essential framework for addressing the rights of older people in AI and digitalisation.[67] This soft-law document and its implementation are not binding, however, it remains an important resource for policymaking.[68] In this respect, Article 17 urges Governments to provide leadership on ageing matters and implement the International Plan of Action on Ageing.[69] It stresses the importance of older people's access to technological development and its relevance to realising their rights. If this is not given sufficient attention, it

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61   UN Open-Ended Working Group on Ageing – OEWG, AGE Platform Europe, (2019), <https://www.age-platform.eu/un-open-ended-working-group-ageing-oewg> (26. 5. 2023).
62   Inter-American Convention on the Rights of Older Persons, Inter-American Commission on Human Rights, (2015), <https://www.oas.org/en/IACHR/jsForm/?File=/en/iachr/r/pm/bdocuments.asp> (24. 5. 2023).
63   Let's RATIFY the Protocol on the Rights of Older Persons in Africa, Protocol on the Rights of Older Persons in Africa, <https://www.chr.up.ac.za/images/campaigns/2018/AgeWithRights/images/Abbreviated_Toolkit_AgeWithRights_2019_web.pdf> (24. 5. 2023).
64   United Nations Principles for Older Persons (16. 12. 1991), A/RES/46/91.
65   Loneliness in older people, NHS, (2022) <https://www.nhs.uk/mental-health/feelings-symptoms-behaviours/feelings-and-symptoms/loneliness-in-older-people/> (24. 5. 2023).
66   United Nations Principles for Older Persons (16. 12. 1991), A/RES/46/91.
67   Ageing, Second World Assembly on Ageing 2002, United Nations, <https://www.un.org/development/desa/ageing/madrid-plan-of-action-and-its-implementation/second-world-assembly-on-ageing-2002.html> (24. 5. 2023).
68   Ageing, Madrid Plan of Action and its Implementation, United Nations, <https://www.un.org/development/desa/ageing/madrid-plan-of-action-and-its-implementation.html> (24. 5. 2023).
69   Report of the Second World Assembly on Ageing, A/CONF.197/9, Article 17.

can lead to the marginalisation of older persons.[70] The Plan of Action also calls on States to take positive measures to enable older people to access new technologies, including by promoting the acquisition of technological skills and the implementation of training programmes to provide skills in the use of information and communication technologies, assistance in the use of technologies in everyday life and the promotion of the development of technologies adapted to older people.[71]

In 2017, a report by the Independent Expert on the enjoyment of all human rights by older persons, Rosa Korndeld-Matte, addressed the opportunities and challenges of robotic technology, AI, and automation for older people's enjoyment of human rights.[72] The independent expert advocated for a human rights-based approach and stressed that robotics and AI will significantly impact the daily lives and care of older people in the future, particularly in health, assistance with daily tasks and social interaction.[73]

Rights mentioned in the report that are also relevant to the use of AI are older people's autonomy, the right to free and informed consent to using such technologies and, by extension, the right to refuse a particular form of support.[74] To achieve that, the person consenting to anything needs to have an understanding of their options, which can only be achieved through educating one in regards to one's options, this being a prerequisite for autonomy. The right to privacy, the protection of personal data and informational self-determination are all tightly connected to AI and are a significant concern in relation to new technologies.[75] The report also highlights the non-discrimination in access to assistive technologies and equality in the sense of equal access to assistive technology without discrimination.[76]

Similarly, a working paper prepared by the Office of the High Commissioner for Human Rights explicitly addresses robotics, AI, and technology. Drawing on the thematic report of the Independent Expert on the human rights of older persons, it pinpoints the opportunities and challenges of assistive and robotics technology, AI and automation for the full enjoyment of human rights by older persons. It also reiterates that no international human rights treaty has addressed emerging issues of AI and their relevance to the human rights of older persons.[77]

The UN Secretary-General's report "Road Map for Digital Cooperation: Implementation of the High-level Panel on Digital Cooperation Recommendations" includes five sets of recommendations for optimising the use of digital technologies and mitigating the risks, including protection of human rights and human agency.[78] The report recognises the importance of digital technologies in promoting, defending, and exercising human rights and, simultaneously, the risk of suppressing, limiting, and violating human rights. It addresses the importance of adequ-

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70   Ibid, Article 6.
71   Ibid, Article 12.
72   Report of the Independent Expert on the enjoyment of all human rights by older persons, A/HRC/36/48, Paragraph 1.
73   Ibid, Paragraphs 13 and 14.
74   Ibid, Paragraphs 25 and 39.
75   Ibid, Paragraphs 49 and 56.
76   Ibid, Paragraphs 57 and 64.
77   Update to the 2012 Analytical Outcome Study on the normative standards in international human rights law in relation to older persons, United Nations Human Rights Office of the High Commissioner, (2021), <https://www.ohchr.org/sites/default/files/2022-01/OHCHR-HROP-working-paper-22-Mar-2021.pdf> (26. 5. 2023).
78   Road map for digital cooperation: implementation of the recommendation of the High-level Panel on Digital Cooperation, A/74/821, Paragraph 1 and 2.

ate due diligence that ensures that products, policies, and practices comply with human rights principles. These are all crucial aspects when it comes to the rights of older persons.[79]

4.2. The World Health Organization: The Concept of »Ageing« as a Good Practice in Protecting the Rights of Older Persons in Relation to Telecommunications

Ageism is a global phenomenon[80], which, according to the World Health Organization (AI), refers to stereotypes (how we think), prejudice (how we feel), and discrimination (how we act) towards others or oneself based on age.[81] As the Global Report on Ageism reflects[82], this issue affects people throughout their lives and pervades many institutions and sectors of society, including health and social care. According to this report, ageism affects everyone. Children as young as four years old become aware of their culture's age stereotypes. From that age onwards, they internalise and use these stereotypes to guide their feelings and behaviour towards people of different ages. Ageism intersects and exacerbates other forms of disadvantage, including sex, race, and disability.[83] WHO offers three strategies for reducing or eliminating ageism: policy and law, educational activities, and intergenerational interventions. Policy and law can address discrimination and inequality based on age and protect the human rights of everyone, everywhere. Educational activities can enhance empathy, dispel misconceptions about different age groups and reduce prejudice by providing accurate information and counter-stereotypical examples. Intergenerational interventions, which bring together people of different generations, can help reduce intergroup bias and stereotypes. In addition to these WHO strategies, the Authors state that it is necessary to start thinking about these things at an early stage so that the rights and obligations of older persons, who are indeed a vulnerable group, are not marginalised or undefined.

In a specific policy brief entitled "Ageism in Artificial Intelligence for Health," [84] the WHO examines the use of AI in medicine and public health for older people. This report addresses the conditions in which AI can exacerbate or introduce new forms of ageism. It presents legal, non-legal, and technical measures that can minimise the risk of ageism in AI and maximise AI's benefits for older people as these technologies become more commonly used worldwide. The term »gerontechnology«[85] means technological software and devices that collectively focus on older people's needs. For now, many digital applications classified as the explained concept do not include AI. However, AI has potential in two areas: remote monitoring to facilitate community care and long-term care and the development of drugs related to ageing. This limited fo-

79 Ibid, Paragraphs 38–42.
80 World Population Ageing 2019, United Nations, (2019), <https://www.un.org/en/development/desa/population/publications/pdf/ageing/WorldPopulationAgeing2019-Report.pdf> (21. 5. 2023).
81 <https://www.who.int/news-room/questions-and-answers/item/ageing-ageism> (21. 5. 2023)
82 Global Report on Ageism, Geneva, World Health Organization, (2021), <https://www.who.int/teams/socialdeterminants-of-health/demographic-change-and-healthy-ageing/combatting-ageism/global-report-onageism> (22. 5. 2023).
83 Ibid.
84 Ageism in Artificial Intelligence for health, WHO, (2022), <file:///C:/Users/Uporabnik/Downloads/9789240040793-eng%20(2).pdf> (22.5.2023).
85 IttayMannheim, Ella Schwartz, Wanyu Xi, Sandra C. Buttigieg, Mary McDonnell-Naughton, Eveline J. M., Wouters and Yvonne van Zaalen, 'Inclusion of Older Adults in the Research and Design of Digital Technology', 16(19) Int J Environ Res Public Health (2019), pp. 3-4.

cus may reflect age-based stereotypes about older people and the types of AI technologies they may benefit from.[86]

AI technologies are revolutionising many healthcare fields, including public health and medicine for older people, where they can help predict health risks and events, enable drug development, support the personalisation of care management, and much more. If left unmonitored, AI use in health care could further ageism and challenge the quality of healthcare that older individuals receive. Older individuals are often underrepresented in AI data, and there are flawed assumptions surrounding how older people live or interact with technology.[87]

The following eight considerations could ensure that AI technologies for health address ageism and that older people are fully involved in the processes, systems, technologies, and services that affect them:

- Participatory design of AI technologies by and with older people[88],

- Age-diverse data science teams[89],

- Age-inclusive data collection[90],

- Investments in digital infrastructure and digital literacy for older people and their healthcare providers and caregivers. The developers must ensure that older people understand how AI technologies could affect their lives, understand the risks and also how to use and assess them.[91],

- Rights of older people to consent and contest[92],

- Governance frameworks and regulations to empower and work with older people[93],

- Increased research to understand new uses of AI and how to avoid bias[94],

- Robust ethics processes in the development and application of AI.[95]

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86   M. Ittay, 'Inclusion of Older Adults in the Research and Design of Digital Technology', in: E. Schwartz, W. Xi, S. C. Buttigieg, M. McDonnell-Naughton, E. J. M., W. and Y. van Zaalen, op. cit., p. 3-4.

87   M. Ittay, 'Inclusion of Older Adults in the Research and Design of Digital Technology', in: E. Schwartz, W. Xi, S. C. Buttigieg, M. McDonnell-Naughton, E. J. M., W. and Y. van Zaalen, op. cit., p. 3-4.

88   Andrea Rosales, Mireia Fernández-Ardèvol, 'Ageism in the era of digital platform', in: Andrea Rosales (ed.), 26(5-6) The International Journal of Research into New Media Technologies (2020), pp 7-8.

89   Ethics and Governance of Artificial Intelligence for Health, WHO, (2021), <https://www.who.int/publications/i/item/9789240029200> (22. 5. 2023).

90   Eirini Ntoutsi, Pavlos Fafalios, Ujwal Gadiraju, Vasileios Iosifidis, Wolfgang Nejdl, Maria-Esther Vidal, Salvatore Ruggieri, Franco Turini, Symeon Papadopoulos, Emmanouil Krasanakis, 'A survey on datasets for fairness-aware machine learning', 10 Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery (2022), pp. 1-14.

91   Report of the independent expert on the enjoyment of all human rights by older persons, United Nations Human Rights Council, 2017, <https://ageplatform.eu/sites/default/files/Report%20of%20the%20UN%20Independent%20Expert%20on%20digitalisation%20and%20use%20of%20robots_2017.pdf> (22. 5. 2023).

92   Ethics and governance of artificial intelligence for health, WHO, (2021), <https://www.who.int/publications/i/item/9789240029200> (22. 5. 2023).

93   Koene L., Dowthwaite L., Seth S., IEEE P7003TM standard for algorithmic bias considerations. In: 2018 IEEE/ACM International Workshop on Software Fairness (FairWare), (2018), <https://fairware.cs.umass.edu/papers/Koene.pdf > (22. 5. 2023).

94   Alberto Pilotto, Raffaella Boi, Jean Petermans, 'Technology in geriatrics, Age Ageing', in: Rowan H Harwood (ed.), 47 Age and Ageing, Oxford University Press on behalf of the British Geriatrics Society (2018), pp. 1-2.

95   Report of the independent expert on the enjoyment of all human rights by older persons, United Nations Human Rights Council, 2017, <https://ageplatform.eu/sites/default/files/Report%20of%20the%20UN%20Independent%20Expert%20on%20digitalisation%20and%20use%20of%20robots_2017.pdf> (22. 5. 2023).

4.3. Lithuania as an Example of a Good Practice

Lithuania can be pinpointed as an example of a country that started to systematically address the rights of older persons in the context of digitalisation within the framework of the Project named »Connected Lithuania« from 2018.[96]

The Project is implemented by the Lithuanian association "Window to Future" ("Langas į ateitį"), the Information Society Development Committee, the Martynas Mažvydas National Library of Lithuania, the Ministry of the Interior, the Communications Regulatory Authority and the National IFAP Committee of Lithuania. The project is co-financed by the European Regional Development Fund and the budget of the Republic of Lithuania. This Project gives older persons the opportunity to discover and be connected through social networks and the use of the Internet in general. An important part of the Project is raising awareness of the need to educate older people about information and communication technologies and offer free online information literacy courses in libraries across the country. People living in rural areas, lower-income individuals, less educated, older persons, disabled, and the unemployed are the least active internet users and lack digital skills.[97] The Project targets these individuals and aims to help Lithuanians discover the Internet and its opportunities and aims to do it effectively and safely.[98]

From all the above described, the Authors can conclude that Lithuania can be seen as an example of a good practice whereby a strong emphasis on digitalisation is put on vulnerable groups (including older persons) who are typically unfamiliar with communication technologies.

4.4. The UN Sustainable Development Goals

When discussing older persons, AI and the UN, one has to mention the Sustainable Development Goals of the 2030 Agenda, which explicitly references older persons regarding economic growth and intentional inclusion of older people along with dignity and equality.[99] It is generally recognised that while on the one hand, AI can enable the accomplishment of numerous targets across all the SDGs, in particular within SDG 3 on "good health and well-being", on the other hand, it may also inhibit some of them:

> "The more we enable SDGs by deploying AI applications, from autonomous vehicles to AI-powered healthcare solutions and smart electrical grids, the more important it becomes to invest in the AI safety research needed to keep these systems robust and beneficial so as to prevent them from malfunctioning, or from getting hacked. It is very important to raise awareness on the risks associated with possible failures of AI systems in a society progressively more dependent on this technology."[100]

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96   Connected Lithuania working towards an inclusive knowledge society, UNESCO, (2023), <https://www.unesco.org/en/articles/connected-lithuania-working-towards-inclusive-knowledge-society> (21. 5. 2023).
97   Ibid.
98   Ibid.
99   Transforming our world: the 2030 Agenda for Sustainable Development, United Nations, (2015), <https://sdgs.un.org/2030agenda> (26. 5. 2023) and Ageing and disability, United Nations <https://www.un.org/development/desa/disabilities/disability-and-ageing.html> (26. 5. 2023).
100 Ricardo Vinuesa, et al. 'The role of artificial intelligence in achieving the Sustainable Development Goals' Nature communications 11.1 (2020), pp. 1–10.

This is especially the case with the AI systems that are being developed for the healthcare sector and older persons. As stressed by the International Research Centre in Artificial Intelligence in collaboration with UNESCO (IRCAI), AI solutions have great potential in achieving the SDGs. However, they must be designed in a way to help to address and achieve SDGs.[101]

4.5. UNESCO Recommendation on the Ethics of AI

The UN Secretary-General's Strategy on New Technologies underlines that, in the absence of a specific regulation, technologies like AI must be aligned with the values enshrined in the UN Charter, the Universal Declaration of Human Rights, and that the norms and standards of international law underline a need to ensure that AI becomes a force for good.[102] According to the Strategy, principles and policy recommendations must be firmly grounded in the international human rights framework. Furthermore, there is a need to promote dialogue on normative and cooperation frameworks by supporting the implementation of existing agreements and recommendations and strengthening established multi-stakeholder mechanisms.[103]

It is against this background that a UN-specialized agency, UNESCO, developed the first global ethical framework on AI. In November 2021, UNESCO's 193 member states adopted the »Recommendation on the Ethics of Artificial Intelligence«, which establishes a series of common values and principles to guide healthy development and responsible AI, stressing the importance of human oversight of AI systems. [104] This document addresses the general bias in AI and, more specifically, the rights of older persons.[105]

Already in 2018, Audrey Azoulay, Director-General of UNESCO, launched an ambitious project to give the world an ethical framework for the use of AI.[106] He has described the importance of AI in the following way:

> »AI could help humanity overcome many of the serious social problems it faces. But at the same time, AI presents a series of complex challenges, particularly in terms of ethics, human rights, and security. Yet, no international ethical framework that applies to all AI developments and applications currently exists. An international regulatory tool is indispensable.«[107]

The question posed by the Authors of this paper and by COMEST is to what extent does the Declaration on the Ethics on AI bring added value vis-a-vis other ongoing declarations and initiatives.[108] The declaration provides abstract, general, and non-binding rules. Still, it carries a

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101 UNESCO/IRCAI - SDG Innovation Framework < https://ircai.org/wp-content/uploads/2022/05/UNESCO_IRCAI-SDG-Innovation-Framework-.pdf> (21.6.2023).
102 UN Secretary-General's Strategy on New Technologies, United Nations, (2018), <https://www.un.org/en/newtechnologies/> (21. 5. 2023).
103 Toward a draft text of a recommendation on the ethics of AI, United Nations, (2020), <file:///C:/Users/Uporabnik/Downloads/373199eng%20(1).pdf> (21. 5. 2023).
104 Recommendation on the Ethics of Artificial Intelligence, UNESCO, (2022), <file:///C:/Users/Uporabnik/Downloads/UNESCO-AI-Recommendation.pdf> (21. 5. 2023).
105 UNESCO member states adopt the first ever global agreement on the Ethics of Artificial Intelligence, UNESCO, <https://www.unesco.org/en/articles/unesco-member-states-adopt-first-ever-global-agreement-ethics-artificial-intelligence> (23. 5. 2023).
106 Ibid.
107 Audrey Azoulay: Making the most of artificial intelligence, UNESCO, <https://en.unesco.org/courier/2018-3/audrey-azoulay-making-most-artificial-intelligence> (21. 5. 2023).
108 Preliminary Study on the Ethics of Artificial Intelligence, UNESCO, COMEST Extended Working Group on Ethics of Artificial Intelligence, (2019), op. cit., p. 23.

considerable moral force and could serve as a clear indication of the commitments of the international community with respect to AI. This is a soft law instrument[109] and thus not subject to Article 102 of the UN Charter.[110] Such documents come »into effect« quickly and generally without any parliamentary involvement and can easily be amended and terminated.[111] Even though it is questionable whether such an instrument will immediately establish itself as an international reference, we believe that because all 193 UN member states endorsed the UNESCO Recommendation, it carries a significant value at the international level. Moreover, it has been referred to in policy instruments of other international organisations and national AI policies.[112] In particular, WHO has established an expert group to prepare a Guidance Document on Ethics and Governance of AI for Health and is engaged in developing documents aimed at national and sub-national governments to encourage them to have appropriate policy and governance mechanisms to ensure ethical and safe use of AI in healthcare without hindering innovation.[113] The United Nations Conference on Trade and Development (UNCTAD) has recognised the ethical dimension of the development of new technologies and AI, especially since most developing countries do not have the capacity to make comprehensive risk assessments. The German Commission for UNESCO supports the implementation of the UNESCO Recommendation on the Ethics of AI, which defines the conditions for the Implementation in Germany.[114]

Even if recommendations are not binding under international law, according to Article IV (The General Conference) of the UNESCO Constitution[115], Member States are obliged to submit recommendations to their competent national authorities within one year of adoption for any possible steps (legislative or other) which may be required in conformity with their constitutional practice and the nature of the specific matter. UNESCO makes recommendations and invites Member States to take measures and apply the provisions of this recommendation in accordance with the legislation of each Member State to ensure the proper implementation of the principles and norms of international law and human rights law. It would be beneficial to involve companies and state authorities dealing with AI technologies in this process so that they coordinate and arrive at reliable scientific research that can reduce the issue of ethical concerns.[116] UNESCO Member States also undertake to submit to the Organization periodic reports on the action taken upon recommendations.[117] In the following, the Authors of this study will present essential aspects and possible shortcomings of this Recommendation from the point of view of older persons.

The UNESCO Recommendation stresses that we can no longer disregard that rapid changes raise profound ethical concerns. These arise from the possibility that AI systems embed bia-

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109 The Practical Guide to Humanitarian Law, Médecins Sans Frontières, <https://guide-humanitarian-law.org/content/article/3/soft-law/> (11. 06. 2023).
110 United Nations, Charter of the United Nations, San Francisco, 1 UNTS XVI, Article 102.
111 Possible indirect legal effects of non-legally binding instruments, Juristische Fakultät, (2021), <https://rm.coe.int/1-2-zimmermann-indirect-legal-effects-of-mous-statement/1680a23584> (21. 5. 2023).
112 Preliminary Study on the Ethics of Artificial Intelligence, UNESCO, COMEST Extended Working Group on Ethics of Artificial Intelligence, (2019), op. cit., p. 23.
113 Working Document: Toward a draft text of the Recommendation on the Ethics of AI, UNESCO, (2020), < file:///C:/Users/Uporabnik/Downloads/373199eng%20(2).pdf> (11. 06. 2023).
114 UNESCO Recommendation on the Ethics of AI – Conditions for the implementation in Germany, German Commission for UNESCO, <https://www.unesco.de/sites/default/files/2022-04/DUK_Broschuere_KI-Empfehlung_EN_DS_web_final.pdf> (11. 06. 2023).
115 Constitution of the United Nations Educational, Scientific and Cultural Organization, UN Doc. 52.
116 Recommendation on the Ethics of Artificial Intelligence, UNESCO, (2022), <file:///C:/Users/Uporabnik/Downloads/381137eng%20(3).pdf> (23. 5. 2023).
117 Article IV - Secretariat.

ses, contribute to climate degradation, and threaten human rights, resulting in discrimination, inequality, digital divides, exclusion, and further social or economic divides and may pose a threat to cultural, social, and biological diversity. Such risks associated with AI have already begun compounding on top of existing inequalities, further harming already marginalised groups.[118]

The protection and respect of human rights, fundamental freedoms and dignity are the cornerstones of the Recommendation, which are the starting point for advancing fundamental principles such as transparency and fairness and the importance of human oversight of AI systems. It should be stressed that older persons are explicitly addressed throughout the Recommendation and have not been left out. The Recommendation emphasises that human dignity »relates to the recognition of the intrinsic and equal worth of each individual human being, regardless of race, colour, descent, gender, age, language, religion, political opinion, national origin, ethnic origin, social origin, economic or social condition of birth, or disability and any other grounds.«

It highlights the fact that older persons, in addition to all other groups listed, should interact with AI systems throughout their life cycle and receive assistance from them. They should never be objectified, nor should their dignity be otherwise undermined, or human rights and fundamental freedoms violated or abused. Therefore, the respect, protection and promotion of human rights and fundamental freedoms throughout the life cycle of AI systems in connection with older persons is stressed in the document.[119] The UNESCO Recommendation also emphasises the need to give special and particular attention to the use of robots in health care and the care of older persons. Furthermore, it stresses that human-robot interactions must comply with the same values and principles that apply to any other AI systems, including human rights and fundamental freedoms, the promotion of diversity, and substantially protecting vulnerable people or people in vulnerable situations.[120]

In the past, scholars have stressed that including a variety of older users in the research and development of technology may provide a better and broader understanding of the subject at hand. Involving older adults in research and design processes may produce research and digital technologies (DTs) that are considered more relevant by older adults (e.g., enhance face validity), ensure a more significant impact, and challenge ageist assumptions.[121] Involving older adults in the AI processes derives from the right of older adults to be involved in research and design that can potentially improve their quality of life.[122]

What makes the Recommendation exceptionally applicable are its extensive Policy Action Areas, which allow policymakers to translate the core values and principles into action with respect to data governance, environment and ecosystems, gender, education and research, and health and social well-being, among many other spheres.

One of the indicators of good practice and experiences around implementing the UNESCO Recommendation on the Ethics of Artificial Intelligence is an online seminar held on April 25,

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118 Ibid.
119 Ibid.
120 Ibid.
121 Good Practice Guide, Involving Older People in Research: Examples, Purposes and Good Practice, **ERA-AGE** European Research Area in Ageing Research, HSPRC, University of Brighton, (2007), <http://envejecimiento. csic.es/documentos/documentos/eraage-guide-01.pdf> (23. 5. 2023).
122 Alan Walker, »Why involve older people in research?«, 36 Age and Ageing, Oxford University Press on behalf of the British Geriatrics Society (2007), pp. 481-483.

2023, organised by UNESCO's Ibero-American Business Council on Artificial Intelligence and Ethics. The seminar focused on best practices for governance and new organisational roles that might be required for the successful implementation of responsible and sustainable AI.[123]

Authors believe that UNESCO Recommendations should be considered in efforts to adopt an international convention on the rights of older persons, which would thoroughly and comprehensively deal with this particularly vulnerable group.[124]

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[123] Best practices for governance and new organizational roles for the successful implementation of responsible Artificial Intelligence, UNESCO, <https://www.unesco.org/en/articles/best-practices-governance-and-new-organizational-roles-successful-implementation-responsible?hub=32618> (23. 5. 2023).
[124] Recommendation on the Ethics of Artificial Intelligence, UNESCO, (2022), <file:///C:/Users/Uporabnik/Downloads/381137eng%20(3).pdf> (23. 5. 2023).

5. THE OECD PRINCIPLES AND RECOMMENDATIONS

Barbara Vičič

This chapter will present the rights of older people in AI based on the principles and recommendations of the OECD. OECD is an international organisation whose mission is finding solutions for everyday challenges, developing global standards, and sharing the best practices to promote better policies.[125]

5.1. OECD Council Recommendation on AI

The OECD was one of the first international actors to adopt the intergovernmental standards on AI guiding the development and use of AI in the Recommendation on Artificial Intelligence.[126] The instrument, adopted in 2019, recognises AI's rapid development and implementation and the need for a stable policy environment.

While AI systems have the potential to benefit older people in numerous ways, on the other hand, they can pose risks to the rights and dignity of older people, for example, by perpetuating stereotypes and discrimination. To prevent this, the OECD urges everyone who adheres to this instrument to promote and implement the principles enshrined in the document. The Recommendation also includes five guidelines for developing national policies and international cooperation for trustworthy AI: investing in AI research and development, fostering a digital ecosystem for AI, shaping and enabling policy environment for AI (this guideline promotes experimentation periods for AI systems in which they can be tested to adapt and review their policy and regulatory frameworks to ensure, that no one's rights are infringed); building human capacity (here, governments are encouraged to empower people to use and interact with AI system effectively. This guideline is strongly intertwined with the rights of older people, who will most likely need extra education on how to use AI systems and safely use them); and prepare for labour market transformation and international cooperation for trustworthy AI.[127]

5.2. OECD Principles

The OECD principles on AI were adopted to promote responsible development and use of AI and are grounded on the importance of respecting human rights and democratic values.[128]

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125 Discover the OECD, Better Policies for Better Lives, OECD, <https://www.oecd.org/general/Key-information-about-the-OECD.pdf> (18. 4. 2023).
126 Forty-two countries adopt new OECD Principles on Artificial Intelligence, OECD, <https://www.oecd.org/science/forty-two-countries-adopt-new-oecd-principles-on-artificial-intelligence.htm>, (6. 5. 2023).
127 Forty-two countries adopt new OECD Principles on Artificial Intelligence, OECD, (6. 5. 2023) op. cit. and Recommendation of the Council on Artificial Intelligence, OECD Legal instruments, (22. 5. 2023) op. cit.
128 OECD. AI Principles overview, OECD.AI Policy Observatory, <https://oecd.ai/en/ai-principles> (6. 5. 2023).

While older persons are not directly addressed in the principles, this document nevertheless includes fundamental safeguards and recommendations to prevent the backsliding of the rights of older persons due to the development and the use of AI. The first principle, »inclusive growth, sustainable development and well-being«, is based on the understanding that AI systems should be designed and implemented in a way that does not perpetuate existing inequalities,[129] including possible discrimination of older people. The second principle, »human-centred values and fairness«, recognises the importance of protecting the rights and dignity of older people. More precisely, AI systems should aim to protect freedom, dignity, autonomy, privacy, and other rights and contain appropriate mechanisms and safeguards to uphold respect for these rights continuously.[130] The third principle, »transparency and explainability«, emphasises the importance of making AI systems understandable to older people. This means that AI systems should be designed and implemented to enable older people to understand how they work and how they are being used. In addition, AI systems should be accompanied by clear explanations of their purpose, function, and limitations.[131] The fourth principle, »robustness, security, and safety«, recognises the importance of ensuring that AI systems are reliable and safe. This means that AI systems should be designed and implemented to minimise the risk of harm to older people. In addition, AI systems should be subject to regular testing and evaluation to ensure that they remain safe and effective (a systemic risk management approach should be applied to AI systems).[132] The fifth principle, "accountability," emphasises the importance of ensuring that those responsible for developing and using AI systems are accountable for their actions. This means that those developing and using AI systems should be transparent about their decision-making processes and held responsible for any possible harm caused by their systems. In addition, transparent processes should be in place for addressing complaints and resolving disputes related to AI systems.[133] The OECD principles are the foundation on which many other AI international, regional, and national legal sources stand today. For example, the G20 AI principles[134] and OECD principles are also mentioned in the Foreword of the work from the Alan Turing Institute (Council of Europe's research institute): Artificial intelligence, Human rights, Democracy, and the Rule of law.[135] Other related types of policy instruments for international cooperation are national strategies, agendas and plans, public consultations of stakeholders and experts, emerging AI-related regulations and others.[136]

129 Inclusive growth, sustainable development and well-being (Principle 1.1), OECD, <https://oecd.ai/en/dashboards/ai-principles/P5> (17. 5. 2023).

130 Human-centred values and fairness (Principle 1.2), OECD. AI Policy Observatory, <https://oecd.ai/en/dashboards/ai-principles/P6> (17. 5. 2023).

131 Transparency and explainability (Principle 1.3), OECD. AI Policy Observatory, <https://oecd.ai/en/dashboards/ai-principles/P7> (17. 5. 2023).

132 Robustness, security and safety (Principle 1.4), OECD. AI Policy Observatory, <https://oecd.ai/en/dashboards/ai-principles/P8> (17. 5. 2023).

133 Accountability (Principle 1.5), OECD. AI Policy Observatory, <https://oecd.ai/en/dashboards/ai-principles/P9> (17. 5. 2023).

134 The Global Partnership on AI takes off – at the OECD, OECD. AI Policy Observatory, (2020), <https://oecd.ai/en/wonk/oecd-and-g7-artificial-intelligence-initiatives-side-by-side-for-responsible-ai>, (11. 6. 2023).

135 David Leslie, Christopher Burr, Mhairi Aitken, Josh Cowls, Mike Katell, Morgan Briggs, Lord Tim Clement-Jones, 'Artificial intelligence, Human Rights, Democracy, and the Rule of Law: A primer', The Council of Europe's as Hoc Committee in Artificial Intelligence, 2021, p. 4.

136 International co-operation for trustworthy AI (Principle 2.5), OECD. AI Policy Observatory, <https://oecd.ai/en/dashboards/ai-principles/P14> (11. 6. 2023).

5.3. OECD Framework

The OECD also developed a framework for classifying AI systems. This tool aims to help po-
licymakers, regulators, legislators, and others assess the opportunities and risks of different AI
systems. This tool is based on the OECD AI principles and can be of significant importance in
promoting and implementing AI policies concerning older people and helping to protect the-
ir rights. The framework allows users to explore specific risks typical for AI (for example, bias,
explainability and robustness). It can, therefore, alert policymakers, regulators, and legislators to
gaps in protecting the rights of older people in specific AI systems. The framework provides a
baseline to help support and advance a common understanding of AI and metrics, registries or
inventories of AI systems, sector-specific frameworks, risk assessment, incident reporting and ri-
sk management. [137]

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[137] OECD Framework for the Classification of AI Systems: a tool for effective AI policies, OECD. AI Policy Observatory,
(2022), <https://oecd.ai/en/classification> (22. 5. 2023).

6. COUNCIL OF EUROPE'S APPROACH TO THE AI AND NEW TECHNOLOGIES

Una Vukotić

Development and the use of AI systems in our everyday lives can be assessed through the existing legal provisions as enshrined in the European Convention of Human Rights[138] (ECHR) and the European Social Charter[139] (ESC), including specific guarantees regarding liberty and justice, privacy, freedom of expression, equality and non-discrimination, and social and economic rights.[140] However, due to risks that the AI systems pose to human rights, the Council of Europe has been a leading international actor stressing the need for a specific convention addressing human rights, democracy and the rule of law in the context of AI, which would supplement the existing international human rights legal framework. This led to the preparation of the draft Convention on Artificial Intelligence, Human Rights, Democracy, and the Rule of Law,[141] which is currently being negotiated within the Council of Europe.

The Draft convention has been informed by extensive discussions on AI and its implications on human rights held within the Ad Hoc Committee on Artificial Intelligence, the Committee on Artificial Intelligence, as well as the Steering Committee for Human Rights and the European Committee for Social Cohesion. The work of these committees is particularly relevant for this study, as it specifically addresses issues pertinent to the rights of older persons.

6.1. Ad Hoc Committee on Artificial Intelligence

The first body formed within the Council of Europe to tackle the regulation of AI was the Ad Hoc Committee on Artificial Intelligence (CAHAI), which was formed in 2019 and later succeeded in 2021 by the Committee on Artificial Intelligence (CAI). The goal of CAHAI was to explore the challenges and opportunities of AI and to produce frameworks for the development of AI that would align with the values of the Council of Europe, including the highest regard for democracy, human rights, and the rule of law.

Expert groups were formed to work on specific areas of the regulation of AI. These groups were composed of experts from member (and observer) states, Council of Europe bodies and in-

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138 European Convention on Human Rights (ECHR), Council of Europe, ETS 5, Article 1.
139 European Social Charter (ESC), Council of Europe, 529 (p.89), Article 23.
140 David Leslie, Christopher Burr, Mhairi Aitken, Josh Cowls, Mike Katell, Morgan Briggs, Lord Tim Clement-Jones, 'Artificial intelligence, Human Rights, Democracy, and the Rule of Law: A primer', The Council of Europe's as Hoc Committee in Artificial Intelligence, 2021, p. 13.
141 Committee on Artificial Intelligence (CAI), Revised Zero Draft [Framework] Convention on Artificial Intelligence, Human Rights, Democracy and the Rule of Law, Council of Europe, (2023), <https://rm.coe.int/cai-2023-01-revised-zero-draft-framework-convention-public/1680aa193f> (25. 6. 2023).

stitutions, observers from the EU and different international organisations, observers from civil society/companies/organisations and independent experts.

The mandate of CAHAI was to "examine the feasibility and potential elements, based on broad multi-stakeholder consultations, of a legal framework for the development, design and application of artificial intelligence, based on the Council of Europe's standards on human rights, democracy and the rule of law."[142] Key documents delivered by CAHAI include: Towards regulation of AI systems (2020), Feasibility study on a legal framework on AI design, development and application based on Council of Europe standards (2020)[143] and Possible elements of a legal framework on AI, based on the Council of Europe's standards on human rights, democracy and the rule of law[144] that will be elaborated in the following paragraphs.

On the 26th of October 2021, a conference was held by the Hungarian Presidency of the Committee of Ministers on "Current and Future Challenges of Co-ordinated Policies on AI Regulation,"[145] whereby the following conclusions were adopted.[146]

It was recognised that AI technologies can impact the enjoyment of human rights, democracy, and enforcement of the rule of law, as well as the fact that technological developments are outpacing the development of regulatory mechanisms. Therefore, there is a need for a proactive approach to the development of regulatory frameworks on AI by governments and international organisations that would be coordinated with diverse stakeholders, considering that the stakeholders could be disproportionally affected both by the excessive burdens of overregulation or the uncertainty caused by the lack of legal clarity. AI regulatory model should be based on shared values and consider the specific characteristics of stakeholders, and they should participate in the creation of AI regulation.

The need for cooperation between national policies and instruments of international organisations was also highlighted. There should be a human-centred approach in the design and development of AI to ensure its compatibility with standards on human rights, the rule of law and democracy. Furthermore, it was concluded that an integrated and coordinated approach is needed to establish an international framework to address the challenges posed by AI.

The mandate of the CAHAI was concluded in 2021 with the Committee providing its final document, "Possible elements of a legal framework on artificial intelligence, based on the Council of Europe's standards on human rights, democracy and the rule of law",[147] whereby proposals for developing a legal instrument, such as a treaty, relating to the governance and regulation of AI by values promoted by the Council of Europe were put forward. The CAHAI proposed that the future legal instrument should apply to all instances of AI systems development, design, and application, regardless of whether public or private entities carry it out. Mo-

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142 CAHAI - Ad hoc Committee on Artificial Intelligence, Council of Europe
<https://www.coe.int/en/web/artificial-intelligence/cahai> (16. 5. 2023).
143 The feasibility study on AI legal framework adopted by the CAHAI, Council of Europe, (2020), <https://www.coe.int/en/web/artificial-intelligence/-/the-feasibility-study-on-ai-legal-standards-adopted-by-cahai> (26. 6. 2023).
144 Ad hoc Committee on Artificial Intelligence (CAHAI), Possible elements of a legal framework on artificial intelligence, based on the Council of Europe's standards on human rights, democracy and the rule of law, Council of Europe, (2022), <https://search.coe.int/cm/Pages/result_details.aspx?ObjectID=0900001680a4e8a5> (16. 5. 2023).
145 Ibid.
146 Conclusions, Current and Future Challenges of Coordinated Policies on AI Regulation, Council of Europe, (2021), <https://www.coe.int/en/web/artificial-intelligence/conclusions> (16. 5. 2023).
147 Ad hoc Committee on Artificial Intelligence (CAHAI), Possible elements of a legal framework on artificial intelligence, based on the Council of Europe's standards on human rights, democracy and the rule of law, op. cit.

reover, the new legal regulation should not weaken the current international human rights framework.[148] A risk-based approach to evaluating the impacts of AI systems is suggested, as well as the necessity of conducting an initial review of all AI systems to identify potential risks to human rights. A comprehensive human rights impact assessment would be required if risks are identified. This two-stage approach, which involves triaging all AI systems, is crucial in ensuring that no systems are overlooked or bypassed by the review. Examples of high risk are put forward, including AI systems that employ biometrics to make inferences about individuals' characteristics or emotions, especially when these systems contribute to mass surveillance. AI systems are utilised for social scoring to determine access to critical services.[149] Furthermore, the proposal mentions safeguards during the design of AI systems that should encompass elements such as transparent usage of AI systems, prevention of discrimination and equal treatment, effective data governance, and ensuring the robustness, safety, cybersecurity, transparency, explainability, auditability, and accountability of AI systems. Additionally, they emphasise the importance of maintaining an appropriate level of human oversight throughout the entire lifecycle of AI systems and their impacts.[150] Also, the need to protect persons when AI is used to decide or inform a decision that can impact their human rights, legal rights or other important interests is mentioned. There has to be an effective remedy before a national authority is available for such situations., Persons should have the right to be informed about the application of an AI system in the decision-making process, the right to choose interaction with a human in addition to or instead of an AI system, and the right to know that one is interacting with an AI system rather than with a human. However, it is noted that it should be up to national governments to determine how these rights can be exercised and that these rights can be restricted if the restrictions are provided for by law and are necessary and proportionate in a democratic society.[151] Lastly, the proposal notes that "matters relating to national defence fall outside the scope of the Council of Europe and are therefore not covered in the scope of a legally binding (or non-legally binding) instrument of the Council of Europe."[152]

6.2. Committee on Artificial Intelligence

After thoroughly examining the feasibility and potential components of a legal framework on AI within the Council of Europe, the task of elaborating a [Framework] Convention on the development, design, and application of AI has been assigned to CAI. This international instrument is expected to be adopted by November 2023. It will be founded upon the Council of Europe's standards on human rights, democracy, and the rule of law while fostering an environment favourable for innovation, as was already outlined by CAHAI.[153] The Council of Europe has also involved several committees to work on recommendations and assessment of various aspects of AI and their implication on human rights, democracy and the rule of law. The steering Committee for Human Rights in the Fields of Biomedicine and Health has done meaningful research and recommendations applicable to the two products developed by Winterlight Labs and Coordinacion General de Innovacion del Gobierno de Jalisco that are analysed in

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148 Ibid.
149 Ibid.
150 Ibid.
151 Ibid.
152 Ibid.
153 The Council of Europe and Artificial Intelligence, Council of Europe <https://rm.coe.int/brochure-artificial-intelligence-en-march-2023-print/1680aab8e6> (16. 5. 2023).

this study. On the other hand, the Committee for Social Cohesion has drawn attention to specific needs and concerns regarding older persons' status concerning AI. In the following text, the authors will examine the work carried out by the Committees mentioned above relevant to the scope of this study.

6.3. The Steering Committee for Human Rights in the Fields of Biomedicine and Health

The Steering Committee for Human Rights in the Fields of Biomedicine and Health (CDBIO) has been responsible for producing a report that examines the utilisation of AI in healthcare and its implications for the doctor-patient relationship. The report aims to emphasise the significance of healthcare professionals in upholding patient autonomy, ensuring the right to information, and maintaining transparency and patient trust as crucial elements of the therapeutic relationship.[154]

The CDBIO stresses in the report from 2022 that the uneven implementation of AI systems in healthcare, coupled with uncertainties regarding their impacts on access and quality of care, introduces the potential for new health disparities among member states. There is a concern that regions historically affected by unequal access or lower quality care may become primary testing grounds for AI-mediated healthcare. While patients in these areas may gain improved accessibility to AI systems like chatbots or telemedicine, they may still face limitations in accessing human care or in-person clinical encounters. The likelihood of this risk largely depends on the strategic positioning of AI systems. If they are regarded as potential substitutes for face-to-face care rather than tools to support healthcare professionals, disparities in access to human care will inevitably worsen.[155]

The Oviedo Convention, the only international legally binding instrument on the protection of human rights in the biomedical field, addresses professional standards that healthcare professionals should adhere to when delivering care to patients. Whether AI system developers, manufacturers, and service providers will be subject to the same professional standards described in Article 4 of the Convention remains unclear.[156] These standards vary in different countries but are generally described in codes of ethics, codes of medical conduct, health legislation or medical ethics. Although they vary in content, fundamental principles of medicine are the same in all countries. They affirm that the doctor's role is not only healing patients but also promoting health, relieving pain, and considering the patient's psychological well-being. Competence is primarily determined by scientific knowledge and clinical experience relevant to the profession or speciality at a given time. Professional standards are determined by the current state of the art in medicine and evolve with new developments. Furthermore, professional standards allow for multiple possible forms of intervention and some freedom of choice in methods or techniques. Each intervention should be assessed based on the specific health problem of the patient, considering criteria of relevance and proportionality between the aim pursued and the means employed. Also, a patient's confidence in their doctor is crucial to the success of medical treatment

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154 Ibid.
155 The Impact of Artificial Intelligence on the Doctor-Patient Relationship by Consultant expert Brent Mittelstadt, Senior Research Fellow and Director of Research at the Oxford Internet Institute, University of Oxford, United Kingdom, Council of Europe, (2021), <https://www.coe.int/en/web/bioethics/report-impact-of-ai-on-the-doctor-patient-relationship> (26. 6. 2023).
156 Convention for the protection of Human Rights and Dignity of the Human Being with regard to the Application of Biology and Medicine: Convention on Human Rights and Biomedicine (ETS No. 164).

and respecting the patient's rights is an essential element of the doctor's duties that contributes to building mutual trust.[157]

The Convention's Explanatory Report indirectly raises this question by highlighting that Article 4 pertains only to healthcare professionals involved in performing medical acts and not to individuals, such as in emergencies. This raises the query of whether, for example, Winterlight Labs'[158] product that assesses cognitive health or Jalisco's AI-Based Referral System for Patients With Diabetic Retinopathy[159] can be considered a "person" carrying out a "medical act." If it is not classified as such, how can the adequate involvement of a suitably bounded healthcare professional be ensured?[160] The main risks posed by AI and assessed in the Report include transparency, social bias, diminishing significance of the patient's perspective, automation bias and privacy.

6.3.1. Transparency

As stated in Article 5 of the Oviedo Convention, patients have the right to receive easily understandable explanations of medical interventions or research they are subject to to give the necessary consent. When AI systems offer clinical expertise, such as suggesting a specific diagnosis or interpreting medical scans, the responsibility to provide explanations for decision-making would seemingly shift from the doctor to the AI system itself or, at the very least, to the manufacturer of the AI system.[161] This can pose a challenge since AI uses large volumes of data and complex procedures, which can be difficult to explain to patients and, in that case, difficult for patients to fully and freely assess their position and consent.

6.3.2. Social Bias

System developers and manufacturers inherently shape systems based on their values and applicable regulations, leading to variations in biases across manufacturers and member states. However, regarding biased and unfair decision-making in AI systems, the root causes often stem from underlying social biases and inequalities rather than purely technical or regulatory reasons.

Many biases can be attributed to datasets that lack a proper representation of the population targeted by a system. Clinical trials and health studies are predominantly done on white male subjects, so the findings are less applicable to other people.

Furthermore, disparities in outcomes among different populations or demographic groups due to bias can result in an unequal distribution of benefits. Any bias in algorithmic functioning can lead to inadequate treatment prescriptions and expose entire population groups to unjustified risks, jeopardising their rights and their lives.[162]

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157 Ibid.
158 Monitoring impairment through speech with Cambridge Cognition, Winterlight Labs, op. cit.
159 Coordinación General de Innovación Gubernamental, Jefatura de Gabinete, Coordinación General de Innovación del Gobierno de Jalisco < https://innovacion.jalisco.gob.mx/> (10. 6. 2023).
160 Steering Committee for Human Rights in the fields of Biomedicine and Health (CDBIO), Council Of Europe, <https://www.coe.int/en/web/bioethics/cdbio> (26. 6. 2023).
161 Convention on Human Rights and Biomedicine, op.cit.
162 Ibid.

6.3.3. Diminishing Significance of The Patient's Perspective

Doctor's reliance on data can limit their comprehension of the patient's situation only to measurable characteristics. Patient data representations may be perceived as an "objective" indicator of health and well-being, diminishing the significance of contextual health factors and the patient's perspective as a socially embedded individual.[163]

6.3.4. Automation Bias

Medical professionals can become reliant on AI systems due to their perceived objectivity and not proven clinical efficiency, which can lead to decision-making being completely automated. The Council of Europe has already recognised the importance of preventing automation bias in calling for guarantees that "AI-driven health applications do not replace human judgement completely and that thus enabled decisions in professional health care are always validated by adequately trained health professionals."[164]

6.3.5. Privacy

Using patient data to train AI models is a challenge specific to AI usage in medicine. Also, patients may be exposed to the risk of data leakage because clinicians may be encouraged to order additional tests and analyses not primarily for their clinical value but to contribute to AI systems' training or testing. The Council of Europe is currently responding to these and other potential threats to privacy through amendments to the Convention for the Protection of Individuals about Automatic Processing of Personal Data.[165]

6.4. European Committee for Social Cohesion

The work of the European Committee for Social Cohesion is also very important for the rights of older persons in the context of AI. Among numerous other conclusions, the Report on the Impact of Digitalisation and its Developments on Social Rights and Social Cohesion from February 2022 notes that universal internet access cannot be guaranteed for everyone, and even in cases where it is available, not everyone can afford this service. Additionally, older persons often have limited digital skills. Consequently, not all digital services are suitable for everyone. As governments increasingly rely on e-services, it becomes evident that certain social rights are inadequately protected and accessible to some extent.[166]

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163 Ibid.

164 CDDH comments on the Parliamentary Assembly Recommendation 2185(2020) - ARTIFICIAL INTELLIGENCE IN HEALTH CARE: MEDICAL, LEGAL AND ETHICAL CHALLENGES AHEAD, Council of Europe, (2021), <https://rm.coe.int/recommandation-2185-2020-artificial-intelligence-in-health-care-medica/1680a2dcfa> (26. 6. 2023).

165 The Impact of Artificial Intelligence on the Doctor-Patient Relationship by Consultant expert Brent Mittelstadt, Senior Research Fellow and Director of Research at the Oxford Internet Institute, University of Oxford, United Kingdom, Council of Europe, (2021), op. cit.

166 Report on the Impact of Digitalisation and IT Developments on Social Rights and Social Cohesion, Council of Europe, (2022), <https://www.coe.int/en/web/european-social-charter/-/report-on-the-impact-of-digitalisation-and-it-developments-on-social-rights-and-social-cohesion> (26. 6. 2023).

The report points to an important piece of research that indicates that in Europe, 80% of the young population (ages 16–24), 84% of persons with high formal education qualifications and 87% of students have at least basic digital skills. On the other hand, only 33% of persons aged between 55 and 74 and 28% of the retired population have at least basic digital skills.[167] This significant disparity identifies an obvious problem regarding the cohesive use of digital technologies and AI. It also points out the need to assess these technologies' impact on older persons' rights.

When it comes to digital welfare policies, the Report suggests that there should always be a genuine non-digital option available to access welfare services. At the same time as programs for digitalising welfare are developed, they should be accompanied by programs designed to promote and teach the required digital skills. There should also be programs in place to ensure reasonable access to the necessary equipment and effective internet access. Lastly, digital welfare systems should be co-designed by their intended users and evaluated in a participatory manner to make them as accessible as possible to disadvantaged groups.[168]

The final recommendations of the Committee highlight the need for lifelong learning programs on digital skills for vulnerable groups such as older persons. They are especially needed in cases of rapid digitalisation, such as at the time of the COVID-19 pandemic when almost all activities became digital. Digital literacy must also be one of the priorities, namely for older people, to make the benefits of digital technologies accessible as widely as possible.[169]

6.5. Proposal for the Convention on Artificial Intelligence, Human Rights, Democracy, and the Rule of Law

The CAI has made public the revised "Zero Draft" [Framework] Convention on Artificial Intelligence, Human Rights, Democracy, and the Rule of Law[170] in February 2023. It represents an important step in creating an internationally binding legal document that will safeguard a human-rights-based approach to AI.

The Convention should be regarded primarily as a comprehensive framework that can be complemented by additional obligations in specific areas.[171] Zero draft Convention defines obligations for the use of AI systems by public authorities and private entities. Specific requirements are outlined for preserving individual freedom, human dignity, autonomy, public health, and the environment. Key principles such as equality, non-discrimination, privacy, personal data protection, transparency, oversight, safety, and responsible innovation should guide the design, development, and application of AI systems. These principles should be subject to public discussion and multi-stakeholder consultation, considering different economic, social, economic, legal, and ethical implications. As the Committee for Social Cohesion highlighted, promoting digital litera-

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167 Digital Economy and Society Index (DESI), Human Capital, European Commission, (2021), <https://ec.europa.eu/newsroom/dae/redirection/document/80551> (26. 6. 2023).

168 European Committee for Social Cohesion (CCS), Council of Europe, <https://www.coe.int/en/web/european-social-charter/european-committee-for-social-cohesion> (26. 6. 2023).

169 Ibid.

170 Revised Zero Draft [Framework] Convention on Artificial Intelligence, Human Rights, Democracy and the Rule of Law, op.cit.

171 Council of Europe Draft Convention on Artificial Intelligence, Human Rights, Democracy and the Rule of Law , Team AI Regulation, (2023), <https://ai-regulation.com/council-of-europe-draft-convention-on-ai-human-rights-democracy-and-rule-of-law/> (9. 6. 2023).

cy and skills across all population sectors is also deemed important, especially affecting the older population. The document also includes measures and safeguards to ensure accountability and redress for individuals affected by AI systems, including those with disabilities. State signatories must ensure that affected individuals can seek redress for unlawful harm or damage resulting from the application of AI systems on human rights and fundamental freedoms.[172]

Although there is no explicit mention of older persons as a specially vulnerable group, Article 3 outlines that "the implementation of the provisions of this Convention by the Parties shall be secured without discrimination on any ground such as sex, gender, sexual orientation, race, colour, language, age, religion, political or any other opinion, national or social origin, association with a national minority, property, birth, state of health, disability or other status, or based on a combination of one or more of these grounds".[173]

Furthermore, Article 12 notes that each party has a responsibility, within their jurisdiction and following their national laws, to ensure that AI systems are created and used in a way that treats everyone fairly. This includes ensuring that women and marginalised or vulnerable groups are treated equally and protected from discrimination, even if they face challenges or disadvantages.[174]

The broad formulations of the provisions of the Zero Draft [Framework] Convention on Artificial Intelligence, Human Rights, Democracy, and the Rule of Law allow for interpretations that protect the rights of older persons. However, the final Convention is still in the creation process and should be finalised in November 2023. When adopted, this Convention will follow in the footsteps of the EU's AI Act and further strengthen the protection of human rights in the age of AI in Europe.

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172 Revised Zero Draft [Framework] Convention on Artificial Intelligence, Human Rights, Democracy and the Rule of Law, op.cit.

173 Revised Zero Draft [Framework] Convention on Artificial Intelligence, Human Rights, Democracy and the Rule of Law, op.cit., Article 3.

174 Revised Zero Draft [Framework] Convention on Artificial Intelligence, Human Rights, Democracy and the Rule of Law, op.cit. Article 12.

7. EUROPEAN UNION (EU)

Lovro Bobnar

7.1. The EU Approach to AI

Recently, new technologies, including AI, have been rapidly advancing worldwide. This necessitates responses from States and other entities, including the EU, one of the leading international actors actively engaged in developing the regulation of emerging technologies, particularly AI.

In 2016, the EU's global foreign and security policy strategy recognised the necessity for establishing global regulations regarding AI. Subsequent Council meetings in 2017 further emphasised the importance of giving more attention to AI. The European Commission (EC), as stated in the Digital Single Market's mid-term review report, acknowledges the need to adapt current legislation and commits to positioning the EU at the forefront of developing AI technologies, platforms, and applications.[175]

The EC emphasises the importance of an approach to AI that focuses on excellence and trust, promoting research and industrial progress while ensuring security and respect for fundamental rights.[176]

From the perspective of the EC, as the executive branch of the EU, the regulation of AI also aims to safeguard the rights of individuals, including older persons.[177] Older people, a vulnerable group with varying proficiency levels in using new technologies, require additional attention to protect their rights. Simultaneously, efforts are made to enable them to harness the benefits of AI, making their daily lives easier. Consequently, new AI-supported systems are being developed continuously to address the needs of older persons.[178]

From various EU policy documents, such as the European AI strategy, several key goals of the EU related to new technologies and AI can be derived. Firstly[179], the EU aims to ensure that AI and its applications are trustworthy and human-centric, aiming to assist and simplify people's lives.[180]

Secondly, AI regulation is considered a crucial goal. In April 2021, the EC proposed the AI Act, which seeks to establish a legal framework for AI systems within the EU. The Act encompas-

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175 Gonçalo Carriço, 'The EU and artificial intelligence: A human-centred perspective', 17(1) 29–36 European View (2018), p. 32.
176 A European approach to artificial intelligence, European Commission < https://digital-strategy.ec.europa.eu/en/policies/european-approach-artificial-intelligence> (15. 5. 2023).
177 Artificial intelligence: threats and opportunities, European Parliament, (2023), op. cit.
178 The future of elder care is here – and it's artificial intelligence, The Guardian <https://www.theguardian.com/us-news/2021/jun/03/elder-care-artificial-intelligence-software> (6. 6. 2023).
179 The European AI Strategy provides a more detailed definition of this objective.
180 A European approach to artificial intelligence, European Commission, op. cit., p. 2.

ses provisions concerning transparency, accountability, data management, and the use of high-risk AI.[181]

For example, the AI Act defines the subject matter in Article 1, which is in the general provisions chapter. It states that this regulation lays down "harmonised rules for the placing on the market, the putting into service and the use of AI systems in the EU, prohibitions of certain AI practices[182], specific requirements for high-risk AI systems[183], harmonised transparency rules for AI systems intended to interact with natural persons, emotion recognition systems and biometric categorisation systems, and AI systems used to generate or manipulate image, audio or video content[184] and rules on market monitoring and surveillance[185]".[186]

This study primarily focuses on the implications of the AI Act from the perspective of the rights of older persons, which is further discussed below.

The third important goal of the EU relates to the ethical use of new technologies and AI. Transparency, fairness, and respect for fundamental human rights and freedoms are vital in developing and deploying these technologies. As explained below, the EU advocates for creating ethical guidelines and recommendations for AI, which would incorporate mechanisms for addressing instances where fundamental rights and freedoms of EU citizens, including older persons, are violated.[187]

Lastly, international cooperation is a crucial objective of the EU in the AI domain. The EU seeks to collaborate with other countries and international organisations beyond its region to establish global norms and standards that promote responsible AI use and respect for human rights.[188]

7.2. The EU Artificial Intelligence Strategy

It is clearly stated in the introduction of the EU AI strategy that AI brings benefits, including those that are important for older persons and their rights. In particular, AI can contribute to solving some of the world's most pressing challenges, such as treating chronic diseases, reducing traffic-related fatalities, addressing climate change, and anticipating cyber threats.[189]

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181 The Artificial Intelligence Act, What is the EU AI Act?, Future of Life Institute (FLI) < https://artificialintelligenceact.eu> (15. 5. 2023).
182 See Article 5 of the AI act which defines prohibited AI practices.
183 See Article 6 of the AI act which defines classification rules for high-risk AI systems.
184 See Article 52 of the AI Act which defines transparency obligations for certain AI systems.
185 See Article 63 of the AI Act which defines market surveillance and control of AI systems in the Union market.
186 Proposal For A Regulation Of The European Parliament And Of The Council Laying Down Harmonised Rules On Artificial Intelligence (Artificial Intelligence Act) And Amending Certain Union Legislative Acts, Brussels, 21. 4. 2021, COM (2021) 206 final 2021/0106 (COD), Article 1.
187 Ethics guidelines for trustworthy AI, Independent high-level expert group on artificial intelligence
set up by the European Commission, European Commission < https://www.aepd.es/sites/default/files/2019-12/ai-ethics-guidelines.pdf> (17. 5. 2023).
188 Strengthening International Cooperation on AI, Progress Report, (2021), < https://www.brookings.edu/wp-content/uploads/2021/10/Strengthening-International-Cooperation-AI_Oct21.pdf> (10. 5. 2023).
189 Communication From The Commission To The European Parliament, The European Council, The Council, The European Economic And Social Committee And The Committee Of The Regions Artificial Intelligence for Europe, COM/201/237 final, European Commission, (2018), <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2018%3A237%3AFIN> (26. 6. 2023).

The strategy pinpoints an example of good practice from Denmark to exemplify how AI can assist older persons, specifically through the technology which enables emergency services to identify cardiac arrest or other health issues based on the caller's voice.[190]

Given that health is undoubtedly one of the primary concerns for older persons, it is crucial to establish a foundation within the EU for the responsible implementation of new technologies that will benefit older individuals. This should be accompanied by stringent controls and preventive measures to safeguard against the potential misuse and exploitation of technologies for malicious purposes, which would infringe upon the rights of older EU citizens.

The banking sector serves as another example where Algorithmic discrimination–automatic decision-making (ADM) could adversely affect a large portion of older adults. Among various "protected attributes," age holds significant potential to selectively impact credit access, potentially reducing it for specific segments of society while remaining unaffected for others. For instance, if a mortgage lending model identifies older individuals as having a higher likelihood of default, it may restrict lending options based on age, effectively excluding older adults from accessing those services. The growing recognition of potential biases from such algorithms targeting specific groups is notable. The proposed AI regulation of the EU categorises AI systems used for credit scoring as "high-risk". It subjects them to rigorous regulations, underscoring the need for further research in this domain to gather empirical evidence on how these systems impact older demographic groups.[191]

7.2.1. Preparation for Socio-Economic Changes

It is a well-known fact that the population is ageing, and this phenomenon is particularly prevalent in the EU due to its high standard of living and access to healthcare services. The EU acknowledges that the emergence of new technologies has significantly altered the nature of work, whereby, on the one hand, new technologies have brought immense benefits to our society and economy while at the same time also raising different concerns. In particular, the rise of automation, robotics, and AI is reshaping the labour market, and it is imperative for the EU to regulate this transformation.[192] This is vital for safeguarding workers' rights, which, from the perspective of older persons, pertains to the protection of older workers and the establishment of proactive regulations regarding changing working conditions resulting from the introduction of new technologies.[193]

In an increasingly ageing society, AI can provide new solutions to enable more individuals, including those with disabilities, to remain active in the labour market for longer. This is indeed a significant advantage of the AI. However, it is crucial to ensure that the rights of older persons are always protected. This should not result in situations where individuals who are no longer capable of working are forced to remain in their jobs solely because AI is making it possible. The EU emphasises in the strategy itself that due consideration must be given to social securi-

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190 Ibid.
191 Justyna Stypinska, 'AI ageism: a critical roadmap for studying age discrimination and exclusion in digitalized societies', 38 AI & SOCIETY (2023), pp. 672-673.
192 Communication From The Commission To The European Parliament, The European Council, The Council, The European Economic And Social Committee And The Committee Of The Regions Artificial Intelligence for Europe, COM/201/237 final, European Commission, op. cit. p. 11.
193 Digitalisation and changes in the world of work – literature review, European Parliament, (2022), <https://www.europarl. europa.eu/RegData/etudes/STUD/2022/733986/IPOL_STU(2022)733986_EN.pdf> (6. 6. 2023).

ty in line with European social rights standards. This aspect is of utmost importance for the older population and should not be limited to mere guidelines and recommendations; it should be addressed through more specific regulations.[194]

7.2.2. The Involvement of Older Persons in the Introduction of New Technologies

From the perspective of the rights of older persons, the Strategy highlights the importance of equal access to digital education for all citizens. Given the ever-increasing presence of technologies and AI in our society, educating older persons about new technologies and their benefits is crucial. Failure to do so would result in their neglect. In this respect, the EC prepared the Action Plan for Digital Education[195] to strengthen all citizens' digital skills and competencies. Additionally, the EU is already examining the impact of AI in education. One of the measures taken by the EU and written in the Digital Education Action Plan is the "Launch of AI and learning analytics pilots in education to make better use of the huge amount of data available and thus help address specific problems and improve implementation and monitoring of education policy."[196]

Protecting older persons as consumers is another significant aspect, particularly regarding using AI tools in business-to-consumer transactions. Such usage must adhere to principles of fairness, transparency, and compliance with consumer legislation. Clear information regarding the use, functionalities, and properties of products utilising AI should be provided to consumers, especially older persons who are more susceptible to misinformation. Moreover, individuals should have control over the data generated by these tools and be aware of whether they are interacting with a machine or a human. The EU emphasises the necessity of informing users about the option to contact a person and the need to ensure mechanisms for correcting or reviewing system decisions.[197] This aspect is particularly crucial for older persons.

For instance, when it comes to customer service representatives, it remains critical for individuals to have the opportunity to connect with a human who can explain the workings of the technology, address inquiries and concerns, and assist with the use of new technologies despite the implementation of AI.

7.2.3. Ensuring an Appropriate Ethical and Legal Framework

The Strategy emphasises the importance of creating trust and responsibility in developing and using AI. It is crucial for all citizens, including older persons, that the values outlined in the Tre-

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194 Communication From The Commission To The European Parliament, The European Council, The Council, The European Economic And Social Committee And The Committee Of The Regions Artificial Intelligence for Europe, COM/201/237 final, European Commission, op. cit. p. 12.
195 Communication From The Commission To The European Parliament, The Council, The European Economic And Social Committee And The Committee Of The Regions On The Digital Education Action Plan, European Commission, (2018), <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52018DC0022&from=EN> (27. 6. 2023).
196 Communication From The Commission To The European Parliament, The Council, The European Economic And Social Committee And The Committee Of The Regions On The Digital Education Action Plan, European Commission, (2018), <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52018DC0022&from=EN> (27. 6. 2023).
197 Communication From The Commission To The European Parliament, The European Council, The Council, The European Economic And Social Committee And The Committee Of The Regions Artificial Intelligence for Europe, COM/201/237 final, European Commission, (2018), op. cit. 17.

aty on European Union and the rights enshrined in the EU Charter of Fundamental Rights are respected when utilising AI.[198]

From the perspective of older people, it is essential to establish high standards for product safety and liability. This is particularly important as they are a vulnerable population group susceptible to exploitation. Therefore, clear preventive measures and liability rules must be implemented to prevent this.

It is also vital to guarantee older persons a high standard of personal data protection. The General Data Protection Regulation is already in effect for this purpose, and the EC emphasises in its Strategy that strict adherence to the regulation in relation to AI will be ensured. It also calls upon national data protection authorities and the European Data Protection Board to uphold these standards.[199]

The strategy also highlights the importance of explainability in AI systems, which is particularly significant for older persons and protecting their rights. This group may not possess extensive technological skills, subsequently making it more likely that technologies are incomprehensible to them. Thus, in the interest of older persons, the EU strives to enhance transparency and mitigate the risks of bias or errors, ensuring that AI systems are developed in a way that people can comprehend their functioning.[200]

Addressing the potential malicious use of AI, the strategy proposes ethical guidelines for AI that respect the EU Charter of Fundamental Rights. These guidelines cover various issues related to AI, but for older persons, it is particularly crucial that they address honesty, safety, and social inclusion. Guidelines take into account fundamental rights derived from the Charter, including privacy, dignity, consumer protection, and non-discrimination.[201]

7.3. The White Paper on Artificial Intelligence

The White Paper on Artificial Intelligence is a comprehensive presentation on AI and new technologies. It provides the essential foundation and starting point for the EU, its bodies and institutions, member states, and their citizens. It provides a complex analysis of Europe's strengths, weaknesses, and opportunities in the global AI market.[202] Moreover, the White Paper is significant as it aims to define AI and highlight its advantages in various areas that indirectly impact older persons. These areas include healthcare, security, and agriculture.

While the rights of older persons in relation to AI and its usage are not directly mentioned in the White paper, we can identify similar positions as those found in the Proposal of the AI Act[203] concerning risks to fundamental rights, such as the protection of personal data, privacy, and

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198 Communication From The Commission To The European Parliament, The European Council, The Council, The European Economic And Social Committee And The Committee Of The Regions Artificial Intelligence for Europe, COM/201/237 final, European Commission, (2018), op. cit. 15.
199 Ibid.
200 Ibid.
201 Communication From The Commission To The European Parliament, The European Council, The Council, The European Economic And Social Committee And The Committee Of The Regions Artificial Intelligence for Europe, COM/201/237 final, European Commission, (2018), op. cit. 16.
202 A Summary of The European Commission White Paper on Artificial Intelligence — a European approach to excellence and trust | Ethical Intelligence, Volha Litvinets < https://medium.com/@litvinets/a-summary-of-the-european-commission-white-paper-on-artificial-intelligence-a-european-approach-d386c4b9dce8> (19. 5. 2023).
203 See below to Footnote 198.

non-discrimination. The White paper emphasises that using AI can impact the core values upon which the EU is founded and may lead to violations of fundamental rights, including non-discrimination based on age or disability. These risks can stem from flaws in the overall design of AI systems or data utilisation without addressing potential biases.[204]

7.4. The Artificial Intelligence Act

The Artificial Intelligence Act (AI Act) is a new regulation proposed by the EU and is one of the first attempts at the comprehensive legal regulation of AI. Its objective is to establish regulatory frameworks for AI and its utilisation within the EU.[205] However, it is important to stress that the Act applies to all AI-related technologies employed in the EU, regardless of whether they are developed within the EU or imported from other regions. It equally covers the use of AI in both the public and private sectors.[206]

Some of the main goals of the proposed Act include ensuring that AI systems placed on the market and used are protected and compliant with existing legislation on fundamental rights and EU values. It also aims to enhance governance and effective enforcement of current legislation on fundamental rights and security requirements applicable to AI systems. Additionally, it aims to provide legal certainty to facilitate investment and innovation in the field of AI. It strives to promote the development of a single market for legal, secure, and trustworthy applications of AI while preventing market fragmentation.[207]

7.4.1. AI Act and the Rights of Older Persons

The AI Act is designed to establish standardised regulations on AI and subsequently provides a relatively general framework for this field. It, therefore, does not explicitly emphasise all the links between AI and the rights of older persons. However, certain sections of the Act contain provisions that directly pertain to older persons or can be interpreted in relation to the rights of older individuals residing in the EU. The following are key highlights within the AI Act that are relevant from the older persons' rights perspective and are connected to using AI or related technologies.

7.4.2. Fundamental Rights

The Charter of Fundamental Rights of the European Union (the Charter) encompasses civil and political rights, as well as economic, social, and cultural rights. When institutions, bodies, of-

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204 WHITE PAPER On Artificial Intelligence – A European approach to excellence and trust, Brussels, European Commission, (2020), <https://commission.europa.eu/system/files/2020-02/commission-white-paper-artificial-intelligence-feb2020_en.pdf> (27. 6. 2023).
205 The Artificial Intelligence Act, What is the EU AI Act?, Future of Life Institute (FLI), op. cit.
206 AI Act: a step closer to the first rules on Artificial Intelligence, European Parliment <https://www.europarl.europa.eu/news/en/press-room/20230505IPR84904/ai-act-a-step-closer-to-the-first-rules-on-artificial-intelligence> (20. 5. 2023).
207 Proposal For A Regulation Of The European Parliament And Of The Council Laying Down Harmonised Rules On Artificial Intelligence (Artificial Intelligence Act) And Amending Certain Union Legislative Acts, Brussels, COM/2021/206 final, European Commission, (2021), <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52021PC0206> (27. 6. 2023).

fices, agencies, and member states of the EU act within the scope of binding EU law, they must uphold the rights derived from the Charter.[208]

In connection with this, it is important to consider Article 51 of the Charter, which defines the field of application of the Charter and states:

> "The provisions of this Charter are addressed to the institutions, bodies, offices and agencies of the Union with due regard for the principle of subsidiarity and to the Member States only when they are implementing Union law. They shall therefore respect the rights, observe the principles and promote the application thereof in accordance with their respective powers and respecting the limits of the powers of the Union as conferred on it in the Treaties.
>
> The Charter does not extend the field of application of Union law beyond the powers of the Union or establish any new power or task for the Union, or modify powers and tasks as defined in the Treaties."[209]

In this respect, the Charter serves as a relevant human rights foundation concerning the AI Act, especially from the older person's point of view, as it explicitly addresses their rights.

Indeed, for older people, Article 25 of the Charter is the most important basis for ensuring protection, even when the older person's perspective is overlooked in other EU documents. Article 25 represents an important step forward in protecting older people. However, its impact in practice, especially when reviewing the Court of Justice of the European Union case law, does not seem to be visible.

It is also important that this article is closely linked to other articles of the Charter, which together constitute a whole that is important for protecting the rights of older people. To implement Article 25 of the Charter, it is essential to ensure that Article 21 is respected and that the prohibition of discrimination on grounds of age is guaranteed.[210]

Due to its specific technical characteristics[211], AI can potentially have an adverse impact on numerous fundamental rights outlined in the Charter, and it is the aim of the AI Act to prevent possible detrimental effects, thereby safeguarding the population, including the most vulnerable, such as older persons.

There are various rights protected by the Charter that the utilisation of AI could potentially endanger. From the perspective of the rights of older persons, the most significant rights include the right to human dignity, respect for private life, protection of personal data, gender equality, and, importantly, the prohibition of discrimination.[212]

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208 Prispevek o uporabi Listine Evropske unije o temeljnih pravicah v Sloveniji v letu 2021 (Državni zbor), Državni zbor Republike Slovenije, Raziskovalno-dokumentacijski sektor, (2021), <https://fotogalerija.dz-rs.si/datoteke/Publikacije/Zborniki_RN/2021/Prispevek_o_uporabi_Listine_Evropske_unije_o_temeljnih_pravicah_v_Sloveniji_v_letu_2021_(Drzavni_zbor).pdf> (27. 6. 2023).
209 Charter Of Fundamental Rights Of The European Union, Official Journal of the European Union, (2012/C 326/02), Article 51.
210 Domen Turšič, 'Razlaga 25. člena Listine Evropske Unije o temeljnih pravicah', V: Dugar (ed.), Vloga institucij EU in države pri zagotavljanju pravnega in ekonomskega varstva starejših, Ljubljana, Pravna fakulteta, Založba Pravne fakultete (2022), pp. 247–249.
211 See the chapter 1 on the Artificial intelligence (AI) and how it works.
212 Proposal For A Regulation Of The European Parliament And Of The Council Laying Down Harmonised Rules On Artificial Intelligence (Artificial Intelligence Act) And Amending Certain Union Legislative Acts, Brussels, COM/2021/206 final, European Commission, (2021), op. cit., p. 11.

Older persons undoubtedly belong to one of the groups that frequently face discrimination. This is further supported by the fact that age is frequently included as one of the discriminatory grounds in articles addressing discrimination.[213]

However, this alone serves as a foundation that, without the additional derivation of obligations, for instance, those that the state must positively fulfil or guarantee, may not necessarily yield the desired effect intended by the legislator and can swiftly turn into a mere dead letter.

Therefore, it is essential to recognise the issue of discrimination in connection with new technologies and AI. In light of this, it is crucial to implement all necessary measures to prevent or, at the very least, reduce the possibility of discrimination resulting from the use of AI. As mentioned earlier, the primary objective of introducing AI is to enhance people's lives, not exacerbate their situation.

The EU Agency for Fundamental Rights published a report on Bias in algorithms – Artificial intelligence and discrimination[214] in 2022. The report highlights that the use of AI can affect many fundamental rights and that while algorithms have the potential to be beneficial, they can also infringe upon the right to privacy or result in discriminatory decision-making, significantly affecting individuals' lives.[215]

The report also shows the occurrence of bias in algorithms and its connection to potential discrimination. Moreover, it emphasises the nature of detecting bias and assessing the possibility of discrimination, demonstrating that bias emerges at various stages and manifests in diverse manners.[216]

Furthermore, the proposal of the AI Act also aims to have a positive impact on the rights of various special groups. Regarding the rights of older persons, it is particularly relevant to highlight the inclusion of disabled individuals and a high level of consumer protection, as older persons are a group of consumers who are more susceptible to potential abuse.

Health and safety are also crucial for older persons, and the act addresses these concerns. Even more significant is that the act establishes a foundation for judicial protection in cases of rights violations mentioned thus far.[217]

Although older persons are not explicitly mentioned in the proposal of the act, it can be inferred that the idea behind the AI Act is not only to ensure compliance with the rules and principles derived from the Charter but also to establish avenues for judicial protection and subsequent oversight of the operation of AI systems. For older persons, it is vital that in addition to judicial protection, ongoing supervision by state authorities is foreseen. This would ensure that they and their rights are safeguarded even if they choose not to pursue legal action to prove violations of their rights in court.[218]

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213 Maruša Tekavčič Veber, 'Staranje In Uporaba Informacijsko-Komunikacijskih Tehnologij: Politike (In Pravna Ureditev) V Mednarodnih Organizacijah', p 4.
214 Bias In Algorithms, Artificial Intelligence And Discrimination, European Union Agency for Fundamental Rights, (2022), https://fra.europa.eu/sites/default/files/fra_uploads/fra-2022-bias-in-algorithms_en.pdf (27. 6. 2023).
215 Ibid.
216 Ibid.
217 Proposal For A Regulation Of The European Parliament And Of The Council Laying Down Harmonised Rules On Artificial Intelligence (Artificial Intelligence Act) And Amending Certain Union Legislative Acts, Brussels, COM/2021/206 final, European Commission, (2021), op. cit., p. 11.
218 Ibid.

7.4.3. Proposed Regulation

AI Act highlights the importance of acknowledging that, alongside the numerous benefits brought by the use of AI, this technology can also be susceptible to abuse. Harmful practices of manipulation, exploitation, and social control may arise, which contradict the values of the EU.[219] This is of particular significance for older persons and the protection of their rights since they are especially vulnerable to manipulation, which can compromise their dignity and freedom. It is crucial that such malpractices are effectively regulated and prohibited promptly, preventing irreparable abuses that could worsen their lives.

Another essential aspect addressed in the AI Act, which greatly impacts the rights of older persons, is the potential adverse effect on people's health and safety posed by AI systems, especially when integrated as product components. The proposal explicitly emphasises the need to ensure that increasingly advanced diagnostic and decision support systems are reliable and accurate, particularly in the healthcare sector where the risk to life and health is high.[220] This aspect is of utmost importance for older persons, who often require medical treatment. EU bodies, institutions, and Member States will be responsible for enforcing the AI Act and regulating AI in line with the proposal, ensuring that older persons, along with everyone else, can lead healthy and safe lives – a right derived from the Charter.

The EU is actively working towards prohibiting the introduction of some AI systems into the market or for use, including systems designed to manipulate human behaviour with potential physical or psychological harm. Such systems exploit various characteristics of individuals, particularly targeting older persons or those with physical or mental impairments. Once again, this operation is significant for older persons, making it imperative to ban such practices in the future and prevent the entry of such technology and systems into the market altogether.[221]

Another area where discriminatory effects can arise for older persons are AI's technical inaccuracies, particularly in remote biometric identification of individuals, leading to biased results. The proposal identifies age as the primary characteristic that can result in false outcomes, while disability is also mentioned.[222] This indicates that older persons risk discrimination due to inadequate human control when utilising such technologies. However, it is worth noting that the proposal emphasises the need for establishing sufficient control mechanisms to mitigate these effects.

Discriminatory impacts related to age can also arise in other scenarios. The proposal stresses the need for extreme caution in specific activities, such as assessing individuals' creditworthiness or using AI for job promotions. Due to their age, older persons may be susceptible to discriminatory effects. Hence, the EC proposes to evaluate these systems as high-risk and subject them to special attention in terms of regulation and oversight, which is crucial for safeguarding the rights of older persons.[223]

From the perspective of older persons and their rights, Article 5 of the AI Act plays a significant role. This section addresses prohibited practices in AI, specifically targeting the marketing, usa-

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219 Ibid.
220 Ibid.
221 Ibid.
222 Ibid.
223 Ibid.

ge, or operation of AI systems that exploit the vulnerabilities of particular groups based on age, physical or mental disability, leading to substantial distortion of their behaviour, resulting in or likely to cause physical or psychological harm to the individuals or others.[224]

This article serves as a strong foundation for further regulation aimed at protecting users and ensuring their safety when utilising UI in a user-friendly manner.

7.4.4. AI Act: Different Rules for Different Risk Levels

The EU AI Act introduces a comprehensive framework for ensuring the safety of AI products, categorised into four risk levels. It establishes requirements for market entry and certification of High-Risk AI Systems, which must undergo a mandatory CE-marking procedure. This conformity regime also encompasses the training, testing, and validation datasets used in machine learning. The draft AI Act adopts a risk-based approach, following the pyramid of criticality, and incorporates a modern, layered enforcement mechanism. As the level of risk increases, more stringent rules are applied. Applications that pose an unacceptable risk are prohibited. Companies found to be in violation of the regulations may face fines of up to 6% of their global turnover.[225]

To balance regulation and innovation, the European Commission has introduced legal sandboxes that provide flexibility and support to AI developers. These sandboxes offer a space for experimentation while ensuring compliance with the rules.[226]

The implementation of the new European rules will have a lasting impact on the development of AI. Emphasising the importance of trustworthy AI by design, these regulations promote responsible practices globally, regardless of geographic location. These regulations will also benefit all people within the EU, including older persons.[227]

The proposed rules establish obligations of risk assessment for providers, depending on the level of risk from AI;

- Unacceptable risk: AI systems are systems considered a threat to people and will be banned. The list of prohibited practices comprises all those AI systems whose use is considered unacceptable as contravening Union values, for instance, by violating fundamental rights,

- High risk: specific rules for AI systems create a high risk to the health and safety or fundamental rights of natural persons. In line with a risk-based approach, those high-risk AI systems are permitted on the European market subject to compliance with certain mandatory requirements and an ex-ante conformity assessment (All high-risk AI systems will be assessed before being put on the market and also throughout their lifecycle),

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224 Ibid.
225 Mauritz Kop, EU Artificial Intelligence Act: The European Approach to AI, pages 1,3,4.
226 Ibid.
227 Ibid.

- Low or minimal risk: Limited-risk AI systems should comply with minimal transparency requirements, allowing users to make informed decisions.[228]

In terms of compliance and enforcement, the AI Act introduces a conformity assessment obligation – to ensure that AI systems are legally compliant with the EU Act.

7.5. EU and Investment in AI-Related Projects

The EU recognises the significance of AI and related technologies for the future and development of the community, leading it to allocate substantial resources to research and development in these areas. A key EU program in this regard is Horizon Europe, which aims to fund research and innovation until 2027 with a budget of over 95 billion EUR. Within the project's three pillars, several areas crucial for older persons and ensuring a high quality of life, based on rights derived from the Charter, are addressed. These areas include health, inclusive society, secure society, and digitisation.[229]

Another notable program is the AAL (Active Assisted Living) program, which supports innovations that connect people, health, and activity and facilitate a positive transition into old age. This program finances the development of products and services that can genuinely improve the lives of individuals facing challenges related to ageing, as well as those who care for older persons and require assistance. Alongside the EU, 13 countries participate in the program, which has already funded over 300 projects with a total value exceeding 440 million EUR.[230]

An example of a project funded by Horizon Europe related to AI and beneficial for older persons is the Validation of a Trustworthy AI-based Clinical Decision Support System for Improving Patient Outcome in Acute Stroke Treatment (VALIDATE). The VALIDATE research project, funded by the EU, is dedicated to developing and validating an AI-powered prognostic tool. Its purpose is to predict patient health outcomes, specifically in cases of acute ischemic stroke. By utilising a decision support system, doctors and healthcare professionals will have access to supplementary information, aiding them in selecting the most suitable treatment options to enhance health outcomes and improve the quality of life for patients.[231]

Another example of a project funded by the EU via the AAL program is DOMEO – Domestic Robot for Elderly Assistance. The project aimed to develop and demonstrate an open integration platform for eldercare robots. The platform incorporated recent advancements in software and hardware components, such as modular mobile robotic systems, physical interfaces, physiological sensors, and signal processing libraries. By utilising these technologies, they created various eldercare robots tailored to specific services.[232]

Reviewing the projects funded within these programs reveals a considerable number intended to enhance the lives of older persons and simplify their daily experiences. This demonstrates

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228 EU AI Act: first regulation on artificial intelligence < https://www.europarl.europa.eu/news/en/headlines/society/20230601STO93804/eu-ai-act-first-regulation-on-artificial-intelligence?&at_campaign> (22. 6. 2023).

229 Research and innovation – Horizon Europe, European Commission <https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe_en> (18. 5. 2023).

230 We are living longer than ever before, so we need to ensure we are ageing well, AAL Programme, <https://www.aal-europe.eu> (27. 6. 2023).

231 VALIDATE – Using Artificial Intelligence to improve outcomes for stroke patients, SAFE Stroke Alliance for Europe, (2023), <https://www.safestroke.eu/validate-using-artificial-intelligence-to-improve-outcomes-for-stroke-patients/> (27. 6. 2023).

232 Project: Domestic robot for Elderly Assistance, Era Learn, (2012), <https://www.era-learn.eu/network-information/networks/aal-jp/call-1-2013-chronic-conditions/domestic-robot-for-elderly-assistance> (27. 6. 2023).

that, despite the absence of direct inclusion of older persons rights in EU documents on artificial intelligence, the EU acknowledges the importance of technology for older persons and selects projects to enhance their well-being. Thus, it can be said that the right of older persons to a decent life and dignity, which is a fundamental right derived from the Charter, is also upheld.

8. NATIONAL APPROACHES: THE CASE OF SLOVENIA

Lovro Bobnar

8.1. Slovenian Approach to AI

Slovenia, like other countries and international organisations, is adapting to changes brought about by the development of technology. This means Slovenia is increasingly devoting itself to AI, exploiting its advantages and regulation.

In 2021, the Government of the Republic of Slovenia adopted the National program for the promotion and use of artificial intelligence in the Republic of Slovenia until 2025 (Nacionalni program spodbujanja razvoja in uporabe umetne inteligence v Republiki Sloveniji do leta 2025). With the approval of the program, Slovenia joined the EU countries that had already prepared national strategic guidelines for the field of AI and committed to cooperation in this field at the EU level. In the next step, competent institutions will prepare an implementation plan together with the determination of financial resources and will prepare all participants for the implementation of the planned activities.[233]

Additionally, as a member of the EU since 2004, Slovenia is bound by EU law. Therefore, the aforementioned documents and guidelines adopted at the EU level are relevant to Slovenia, as well as any future ones that Slovenia will have to implement in its internal legislation in accordance with its obligations due to its EU membership.

8.2. Information Society Development Strategy (Strategija Razvoja Informacijske Družbe)

The strategy for developing the information society until 2020 serves as an overarching framework that outlines key strategic directions and connects various strategies into a unified development framework. It is one of three sectoral strategies, along with RISS (Research and Innovation Strategy of Slovenia) and SIP (Slovenian Industrial Policy), collectively establishing the path towards a knowledge-based innovation society. These strategies, in turn, are linked to the Smart Specialization Strategy (SPS), which guides focused investments in priority areas.[234]

Although the strategy does not explicitly mention AI, it places significant emphasis on the digitisation of society, including considerations from the perspective of older individuals. Regarding the strategic development opportunities of the digital society, the strategy highlights the

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233 Vlada sprejela in potrdila Nacionalni program spodbujanja razvoja in uporabe umetne inteligence, Vlada Republike Slovenije, Republika Slovenija, GOV.SI, (2021), < https://www.gov.si/novice/2021-06-03-vlada-sprejela-in-potrdila-nacionalni-program-spodbujanja-razvoja-in-uporabe-umetne-inteligence/> (27. 6. 2023).
234 Digitalna Slovenija 2020 – strategija razvoja informacijske družbe do leta 2020, Vlada Republike Slovenije, Republika Slovenija, (2020), <https://www.gov.si/assets/ministrstva/MDP/DID/Strategija-razvoja-informacijske-druzbe-2020.pdf (27. 6. 2023).

importance of improving the population's digital literacy. This involves informal education initiatives for both younger and older generations and the provision of »better internet« for children and older persons.[235]

Digital literacy holds immense significance for older people, particularly due to the lack of formal training in digital device usage during their school and work years. In an increasingly digitised society, possessing digital knowledge is crucial for accessing various services and exercising rights. Failure to do so could result in discrimination against older persons. Within the chapter on inclusive society, Slovenia acknowledges the pressing issue of older generations' limited skills for integration into the information society. Recognising the rights of older persons, the strategy acknowledges the lack of investment in digital literacy measures during the previous development period, exacerbating the issue.[236]

Encouragingly, the strategy proposes measures to address this concern. It suggests directing activities towards those in the most disadvantaged positions concerning ICT knowledge and skills, focusing on acquiring and maintaining e-competencies. Older persons are among the groups that require specific measures to overcome unequal opportunities in utilising ICT and ensure their inclusion in the digital society.[237]

8.3. Digital Inclusion Promotion Act (Zakon O Spodbujanju Digitalne Vključenosti)

In 2022, the Act on the Promotion of Digital Inclusion was adopted,[238] which outlines the planning and measures aimed at promoting digital inclusion among the population of the Republic of Slovenia. This law aims to enhance digital inclusion and foster the overall progress of the economy and society in Slovenia. From the perspective of senior citizens, the key objectives of the law are to raise awareness about the benefits of using digital tools in individuals' lives and society as a whole, build trust in digital technologies, and promote understanding of responsible and safe use of digital technologies.

Article 5 of the Act establishes the principle of equal access, which ensures that promotional measures are accessible to all members of specific target groups determined by Article 9 of the law. This is particularly important because one of the target groups is based on age criteria. Therefore, the legislator recognises the challenges older persons face concerning digital inclusion, indirectly acknowledging the potential for discrimination against them. From the viewpoint of older persons and their rights, it is crucial that the law promoting digital inclusion is enacted and that the stipulated measures are implemented. One of the measures introduced is the provision of a digital voucher (digitalni bon), which can be obtained by individuals over the age of 55 who meet the specified conditions. However, since the law has been in effect for a relatively short period, it is difficult to draw definitive conclusions regarding its impact on older persons and whether it has facilitated their digital integration into society, thus enabling a more straightforward exercise of their rights.

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235 Ibid.
236 Ibid.
237 Ibid.
238 Zakon o spodbujanju digitalne vključenosti (ZSDV), Pravno–informacijski sistem, <http://www.pisrs.si/Pis.web/pregledPredpisa?sop=2022-01-0653> (27. 6. 2023).

8.4. The National Program for the Promotion of the Development and Use of Artificial Intelligence (Nacionalni program spodbujanja razvoja in uporabe umetne inteligence)

In 2021, the Government of the Republic of Slovenia adopted and approved the National Program for the Promotion of the Development and Use of Artificial Intelligence in the Republic of Slovenia until 2025 (NpUI).[239] By approving the program, Slovenia joined the EU countries that have already prepared national strategic guidelines for AI and committed to cooperation in this field at the EU level. In doing so, Slovenia will capitalise on the extensive experience and knowledge that Slovenian experts possess in this field.[240]

Following the confirmation and acceptance of the NpUI, Slovenia now faces the task of preparing the implementation plan and determining the necessary financial resources. The Government of the Republic of Slovenia has appointed the Ministry of Public Administration to oversee the coordination, implementation, and monitoring of the NpUI measures, in accordance with the defined management structure for the implementation of the NpUI.[241]

In certain parts, the document is also relevant to the rights of the older persons. In general, it contains chapters aimed at providing a legal and ethical framework for the use of AI and strengthening security through the use of AI.[242] Both these areas are, of course, also relevant to older persons. Furthermore, as a goal, the document mentions the analysis of mechanisms and the definition of the legal and ethical framework for managing non-personal data (collection, storage, access, use, modification, etc.) within and between the economy, the public sector, and the research sphere. This includes consideration from the perspective of the right to privacy and in accordance with relevant EU-level activities, which is important for everyone, including older persons.[243]

Concerning the legal and ethical framework for the use of AI, the goal is that Slovenia will establish a legal and ethical framework in cooperation with European partners based on existing European guidelines that regulate the ethical and legal aspects of the development and use of AI. This framework will be founded upon the universal values of the European Union, encompassing human rights and fundamental freedoms, with a particular emphasis on privacy, dignity, the right to fair legal treatment, consumer rights protection, and non-discrimination. Regarding UI, utmost attention must be dedicated to safeguarding personal data privacy and preventing discrimination.

Overall, the objective is to ensure that the development and use of AI adhere to ethical guidelines and criteria, which encompass human performance and control, technical robustness and security, privacy and data management, transparency, diversity, non-discrimination, fairness, so-

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239 Vlada sprejela in potrdila Nacionalni program spodbujanja razvoja in uporabe umetne inteligence < https://www.gov.si/novice/2021-06-03-vlada-sprejela-in-potrdila-nacionalni-program-spodbujanja-razvoja-in-uporabe-umetne-inteligence/> (22. 6. 2023).

240 Ibid.

241 Ibid.

242 Nacionalni program spodbujanja razvoja in uporabe umetne inteligence v Republiki Sloveniji do leta 2025 – (NpUI), page 4.

243 Nacionalni program spodbujanja razvoja in uporabe umetne inteligence v Republiki Sloveniji do leta 2025 – (NpUI), page 43.

cial and environmental well–being, as well as clear accountability.[244] Therefore, it is crucial for ethical principles to be reflected in the appropriate legal regulation of AI.

In the chapter titled »Introduction of Reference AI Solutions in the Economy, Public Sector, Public and State Administration, and Society, « it is stated that introducing AI in health and medicine can have a significant impact. This impact can be seen in the field of personalised medicine, resulting in greater success in treating people and potentially leading to a more efficient and better-functioning health system, especially in shortening waiting lists.[245]

The document explicitly mentions older persons, stating that using AI to support older persons is crucial for Slovenia due to demographic trends. This means that in the future when the national program is implemented, this goal will also be pursued, enabling older to live a better life and exercise their right to a dignified life as an older person, as well as generally respecting their dignity.[246]

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244 Nacionalni program spodbujanja razvoja in uporabe umetne inteligence v Republiki Sloveniji do leta 2025 – (NpUI), page 49.
245 Nacionalni program spodbujanja razvoja in uporabe umetne inteligence v Republiki Sloveniji do leta 2025 – (NpUI), page 34,35.
246 Ibid.

9. CONCLUDING REMARKS AND RECOMMENDATIONS

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AI significantly affects our everyday lives and will undoubtedly further revolutionise many aspects of our lives in the coming years. AI-related technologies will be present in our workplaces, leisure time, and even during medical appointments. Given AI's immense impact on humanity, it is crucial to consider its effects on older persons. Older persons constitute a sensitive group, often less familiar with new technologies, representing a significant portion of the population. As AI systems become increasingly prevalent in various aspects of life, it is crucial to ensure that they are designed, developed, and implemented to uphold fundamental human rights principles and safeguard the dignity and well-being of older individuals.

The rapid development of AI has prompted international, regional, and local efforts to regulate its use and protect the rights of individuals. Given the extraordinary pace of AI development and its transnational nature, international organisations play a crucial role in establishing the foundations for AI regulation. Global norms and standards must be accepted and established internationally, considering AI regulation's potential problems and challenges. However, the AI regulation approach varies among organisations and bodies worldwide, largely influenced by their primary objectives. While a consensus on AI regulation is yet to be reached, a growing number of important views and trends are emerging through documents and discussions at various levels.

Organisations such as the United Nations, the OECD, the Council of Europe and the EU have initiated processes and formulated principles for the responsible development of AI, emphasising its human-centred nature, respect for fundamental rights, transparency, and accountability. These initiatives promote a harmonised approach to AI regulation across borders, including risk-assessment procedures. However, regulating AI remains a significant challenge, with the rapid evolution of technology outpacing the development of regulatory frameworks. Moreover, once binding legal regulation, for example, at the EU level, is adopted, the issue of implementation and oversight will pose another significant challenge.

In the absence of international, regional and subsequently also national AI regulation, companies currently developing AI products seem to be primarily taking into account the existing data protection laws, which, however, do not adequately address all aspects of AI. It is, therefore, a welcome development that companies analysed in this project also strive to adhere to the international ethical AI standards deriving from the OECD and UNESCO recommendations, which advocate for a human-centred approach, transparency, explainability, security and accountability of AI systems.

Over the recent years, the Council of Europe has been promptly developing legal mechanisms to protect human rights in the rapidly evolving technological landscape. Various committees of

the Council of Europe have defined principles of non-discrimination, autonomy, privacy, and accountability in designing and deploying AI systems. This includes safeguarding against age-based discrimination, ensuring meaningful human oversight of AI decisions, protecting privacy in data collection and processing, and providing avenues for recourse and redress in case of harm or violations. In embracing these mechanisms and working towards a human rights-centred approach to AI, the Council of Europe can contribute significantly to shaping a future where artificial intelligence promotes all persons' well-being, autonomy, and dignity.

Moreover, the Council of Europe's work on the future Convention on Artificial Intelligence, Human Rights, Democracy, and the Rule of Law offers a platform for international cooperation, sharing best practices, and fostering dialogue among member states, experts, and civil society organisations. This collaborative approach is essential in addressing the challenges posed by AI technology, as it allows for a collective response that takes into account the diverse perspectives and experiences of numerous stakeholders, which is key to establishing a comprehensive legal mechanism for all generations of European citizens.

The EU is another leading international actor actively working towards the comprehensive regulation of AI. However, the current documents lack direct inclusion of older persons and their rights. This is primarily due to the general nature of the existing documents, which rely on the EU Charter of Fundamental Rights as the principal source and foundation. Sensitive groups, including older persons, are either not specifically addressed or are mentioned marginally, and are therefore only indirectly protected through the EU's risk-based approach.

Although AI-related EU documents do not directly address older persons, this does not imply that these persons lack any protection under EU law. Besides various provisions in the presented documents that indirectly safeguard older persons, their protection, when it comes to implementing the EU law, is also ensured through the EU Charter of Fundamental Rights. Within the Charter, several provisions contribute to securing and promoting the rights of older persons, most notably Article 25 of the Charter.

Establishing a cohesive and efficient governance framework throughout Europe poses a significant challenge in implementing the EU's future AI rules. The complex network of national entities responsible for enforcing the Regulation may encounter budgeting or technical capacity issues. Drawing a parallel, several national data protection authorities in EU member states have faced difficulties enforcing the General Data Protection Regulation, primarily due to insufficient staffing or limited resources. Similarly, EU member states may differ in their approaches to overseeing and enforcing AI rules within their respective jurisdictions, leading to potential divergences.[247]

Therefore, it is of utmost importance that the EU keeps this in mind when creating rules for the regulation of AI. Adopting legislation that equally and effectively applies to all EU member states is crucial. The legislation must effectively address both the realm of innovation and development of AI technologies and the protection of the rights of EU citizens, including the rights of older persons.

Generally, the perspective of older people has not received much attention in AI-related documents, even though we live in an ageing and increasingly digitalised society, whereby older per-

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[247] Dimitar Lilkov, 'Regulating artificial intelligence in the EU: A risky game', 20(2) European View (2021), p. 171.

sons are arguably a more vulnerable social group than others. Older individuals may face difficulties in adapting to new technologies and AI. One of the main reasons for that comes from limited exposure during their education and a general lack of means, confidence or even interest in these developments.

The documents produced at various levels often overlook or give insufficient attention to the positive obligations of states concerning the needs of older persons as well as other specific groups of the population. Furthermore, different organisations exhibit distinct orientations towards various aspects and problems related to AI and its use. While individual protection and human rights are at the centre of the regulation of AI within the UN, OECD and especially the Council of Europe, the EU, on the other hand, places greater emphasis on regulating AI from a business, economic, and free-market perspective.

In conclusion, while existing AI-related documents offer some protection to older persons, further clarity and specific measures are needed to address their rights in a better way and safeguard them from the potential risks associated with AI. A more explicit focus on vulnerable groups, including older people, within dedicated international and regional documents would facilitate the responsible and inclusive use of AI while ensuring their well-being and rights are adequately protected.

The authors of the study propose the following recommendations for the future regulation of AI, which could ensure that the development and the use of AI technologies adequately takes into account the rights of older persons:

Explicit mention and inclusion of the rights and needs of older persons in the AI legislative acts, national AI programs and soft-law documents relating to AI or rights of older persons to align the use of AI with international and national human rights standards;

The need for empowerment of older people through access to information and communications technology (ICT) and digital literacy;

- Participatory design of AI technologies by and with older people;[248]
- Age-diverse data science teams;[249]
- Age-inclusive data collection;[250]
- Investments in digital infrastructure and digital literacy for older people and their healthcare providers and caregivers. The developers must ensure that older people understand how AI technologies could affect their lives, understand the risks and also how to use and assess them;[251]

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248 Andrea Rosales, Mireia Fernández-Ardèvol, 'Ageism in the era of digital platform', in: Andrea Rosales (ed.), 26(5-6) The International Journal of Research into New Media Technologies (2020), pp 7-8.

249 Ethics and Governance of Artificial Intelligence for Health, WHO, (2021), <https://www.who.int/publications/i/item/9789240029200> (22. 5. 2023).

250 Eirini Ntoutsi, Pavlos Fafalios, Ujwal Gadiraju, Vasileios Iosifidis, Wolfgang Nejdl, Maria-Esther Vidal, Salvatore Ruggieri, Franco Turini, Symeon Papadopoulos, Emmanouil Krasanakis, 'A survey on datasets for fairness-aware machine learning', 10 Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery (2022), pp. 1-14.

251 Report of the independent expert on the enjoyment of all human rights by older persons, United Nations Human Rights Council, 2017, <https://ageplatform.eu/sites/default/files/Report%20of%20the%20UN%20Independent%20Expert%20on%20digitalisation%20and%20use%20of%20robots_2017.pdf> (22. 5. 2023).

- Ensuring compliance with the rights of older people to consent and contest;[252]

- Governance frameworks and regulations to empower and work with older people;[253]

- Increased research to understand new uses of AI and how to avoid bias;[254]

- Robust ethics processes in the development and application of AI;[255]

- Comprehensive human rights impact assessment and more emphasis on ensuring that AI developments are safe, inclusive, and respectful of human rights;

- Development of guidelines addressing the use of AI from the perspective of the rights of older persons at the EU level, which would delve into the potential risks of AI concerning fundamental rights derived from the EU Charter, with a particular emphasis on non-discrimination;

- Establishment of mechanisms at a national level for continuous monitoring and evaluation of AI technologies concerning their impact on older persons. Countries should also adapt regulations based on feedback and evolving best practices to address emerging challenges, thus ensuring that the technology aligns with the needs of older individuals.

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252 Ethics and governance of artificial intelligence for health, WHO, (2021), <https://www.who.int/publications/i/item/9789240029200> (22. 5. 2023).

253 Koene L., Dowthwaite L., Seth S., IEEE P7003TM standard for algorithmic bias considerations. In: 2018 IEEE/ACM International Workshop on Software Fairness (FairWare), (2018), <https://fairware.cs.umass.edu/papers/Koene.pdf > (22. 5. 2023).

254 Alberto Pilotto, Raffaella Boi, Jean Petermans, 'Technology in geriatrics, Age Ageing', in: Rowan H Harwood (ed.), 47 Age and Ageing, Oxford University Press on behalf of the British Geriatrics Society (2018), pp. 1-2.

255 Report of the independent expert on the enjoyment of all human rights by older persons, United Nations Human Rights Council, 2017, <https://ageplatform.eu/sites/default/files/Report%20of%20the%20UN%20Independent%20Expert%20on%20digitalisation%20and%20use%20of%20robots_2017.pdf> (22. 5. 2023).

10. BIBLIOGRAPHY:

10.1. Books

Boucher Philip, Artificial intelligence: How does it work, why does it matter, and what can we do about it?, European Parliamentary Research Service, 2020.

Gollapudi Sunila, Practical Machine Learning, Packt Publishing Ltd., 2016.

Smola Alex, Vishwanathan S.V.N., Introduction to Machine Learning, Cambridge University Press, 2008.

10.2. Articles

Amankwah-Amoah Joseph, Khan Zaheer, Wood Geoffrey, Knight Gary, 'COVID-19 and the digitalization: The great acceleration', 136 Journal of Business Research (2021), pp. 602-611.

Arnaboldi Michela, de Bruijn Hans, Steccolini Ileana, Van der Voort Haiko, 'On humans, algorithms and data', 19 Qualitative Research in Accounting & Management (2022), pp. 1-14.

Balagopalan Aparna, Eyre Benjamin, Robin Jessica, Rudzicz Frank, Novikova Jekaterina, 'Comparing pre-trained and feature-based models for prediction of Alzheimer's disease based on speech', 13 Frontiers in aging neuroscience (2021), pp. 1-12.

Batta Mahesh, 'Machine Learning Algorithms - A Review', International Journal of Science and Research (2019), p. 381-386.

Carriço Gonçalo, 'The EU and artificial intelligence: A human-centred perspective', 17(1) 29–36 European View (2018), p. 29-36.

Domen Turšič, 'Razlaga 25. člena Listine Evropske Unije o temeljnih pravicah', V: Dugar (ed.), Vloga institucij EU in države pri zagotavljanju pravnega in ekonomskega varstva starejših, Ljubljana, Pravna fakulteta, Založba Pravne fakultete (2022), pp. 238-250.

Kiran Maharana, Surajit Mondal, Bhushankumar Nemade, 'A review: Data pre-processing and data augmentation techniques', 3 Global Transitions Proceedings (2022), pp. 91-99.

Kop Mauritz, »EU Artificial Intelligence Act: The European Approach to AI«, Stanford - Vienna Transatlantic Technology Law Forum, Transatlantic Antitrust and IPR Developments, Stanford University, Issue No. 2/2021, pp. 1-11.

Kropp Martina, et al. 'Diabetic retinopathy as the leading cause of blindness and early predictor of cascading complications—Risks and mitigation' EPMA Journal 14.1 (2023), pp. 21-42.

Leslie David, Burr Christopher, Aitken Mhairi, Cowls Josh, Katell Mike, Briggs Morgan, Tim Clement-Jones Lord, 'Artificial intelligence, Human Rights, Democracy, and the Rule of Law: A primer', The Council of Europe's as Hoc Committee in Artificial Intelligence, 2021, pp. 1-48.

Lilkov Dimitar, 'Regulating artificial intelligence in the EU: A risky game', 20(2) European View (2021), p. 166-174.

Mannheim Ittay, Schwartz Ella, Xi Wanyu, C. Buttigieg Sandra, McDonnell-Naughton Mary, J. M. Eveline, Wouters and Yvonne van Zaalen, 'Inclusion of Older Adults in the Research and Design of Digital Technology', 16(19) Int J Environ Res Public Health (2019), pp. 1-17.

Nelson Gregory S., 'Bias in Artificial Intelligence', 80 N C Med J. (2019), pp. 1-3.

Norori Natalia, Hu Qiyang, Marcelle Aellen Florence, Dalia Faraci Francesca, Tzovara, Athina, 'Addressing bias in big data and AI for health care: A call for open science', 2 Patterns (NY) (2021), pp. 1-9.

Ntoutsi Eirini, Fafalios Pavlos, Gadiraju Ujwal, Iosifidis Vasileios, Nejdl Wolfgang, Vidal Maria-Esther, Ruggieri Salvatore, Turini Franco, Papadopoulos Symeon, Krasanakis Emmanouil, 'A survey on datasets for fairness-aware machine learning', 10 Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery (2022), pp. 1-14.

Pilotto Alberto, Boi Raffaella, Petermans Jean, 'Technology in geriatrics, Age Ageing', in: Rowan H Harwood (ed.), 47 Age and Ageing, Oxford University Press on behalf of the British Geriatrics Society (2018), pp. 1-4.

Pinedo-Diaz German, Ortega-Cisneros Susana, Ulises Moya-Sanchez Eduardo, Rivera Jorge, Mejia-Alvarez Pedro, Rodriguez-Navarrete Francisco, Sanchez Abraham, 'Suitability Classification of Retinal Fundus Images for Diabetic Retinopathy Using Deep Learning', 11 (16) Electronics (2022), pp. 1-21.

Rosales Andrea, Fernández-Ardèvol Mireia, 'Ageism in the era of digital platforms', in: Andrea Rosales (ed.), 26(5-6) The International Journal of Research into New Media Technologies (2020), pp 1-14.

Sancin Vasilka, 'Mednarodna konvencija o pravicah starejših', V: Dugar (ed.), Vloga institucij EU in države pri zagotavljanju pravnega in ekonomskega varstva starejših, Ljubljana, Pravna fakulteta, Založba Pravne fakultete (2022), pp. 216-226.

Stypinska Justyna, 'AI ageism: a critical roadmap for studying age discrimination and exclusion in digitalized societies', 38 AI & SOCIETY (2023), pp. 665-677.

Stypińska Justyna, 'Ageism in AI: new forms of age discrimination in the era of algorithms and artificial intelligence', EAI (2021), pp. 1-9.

Tekavčič Veber Maruša, 'Staranje In Uporaba Informacijsko-Komunikacijskih Tehnologij: Politike (In Pravna Ureditev) V Mednarodnih Organizacijah', pp. 1-22.

Vinuesa, Ricardo et al. 'The role of artificial intelligence in achieving the Sustainable Development Goals' Nature Communications 11.1 (2020), pp. 1-10.

Walker Alan, »Why involve older people in research?«, 36 Age and Ageing, Oxford University Press on behalf of the British Geriatrics Society (2007), pp. 481-483.

Yancheva Maria, Fraser Kathleen, Rudzicz Frank, 'Using linguistic features longitudinally to predict clinical scores for Alzheimer's disease and related dementias', In Proceedings of SLPAT 2015: 6th Workshop on Speech and Language Processing for Assistive Technologies Association for Computational Linguistics Association for Computational Linguistics (2015), pp. 134-139.

10.3. Web sources

Accountability (Principle 1.5), OECD. AI Policy Observatory, <https://oecd.ai/en/dashboards/ai-principles/P9> (17. 5. 2023).

A European approach to artificial intelligence, European Commission < https://digital-strategy.ec.europa.eu/en/policies/european-approach-artificial-intelligence> (15. 5. 2023).

Ad hoc Committee on Artificial Intelligence (CAHAI), Possible elements of a legal framework on artificial intelligence, based on the Council of Europe's standards on human rights, democracy and the rule of law, Council of Europe, (2022), <https://search.coe.int/cm/Pages/result_details.aspx?ObjectID=0900001680a4e8a5> (16. 5. 2023).

Ageing and disability, United Nations <https://www.un.org/development/desa/disabilities/disability-and-ageing.html> (26. 5. 2023).

Ageing, Madrid Plan of Action and its Implementation, United Nations, <https://www.un.org/development/desa/ageing/madrid-plan-of-action-and-its-implementation.html> (24. 5. 2023).

Ageing, Second World Assembly on Ageing 2002, United Nations, <https://www.un.org/development/desa/ageing/madrid-plan-of-action-and-its-implementation/second-world-assembly-on-ageing-2002.html> (24. 5. 2023).

Ageism in Artificial Intelligence for health, WHO, (2022), <file:///C:/Users/Uporabnik/Downloads/9789240040793-eng%20(2).pdf> (22.5.2023).

AI Act: a step closer to the first rules on Artificial Intelligence, European Parliament <https://www.europarl.europa.eu/news/en/press-room/20230505IPR84904/ai-act-a-step-closer-to-the-first-rules-on-artificial-intelligence> (20. 5. 2023)

AI Development Life Cycle | Explained, Hardik Dave, (2022), <https://www.linkedin.com/pulse/ai-development-life-cycle-explained-ca-hardik-dave> (16. 5. 2023).

An introduction to Machine Learning, Siddharth Pandey, (2023), <https://www.geeksforgeeks.org/> (21.06.2023).

Artificial intelligence, OECD, (2022), <https://www.oecd.org/digital/artificial-intelligence/#:~:text=Developed%20by%20the%20OECD.AI%20Network%20of%20Experts%2C%20the,AI%20strategies%20and%20ensure%20policy%20consistency%20across%20borders> (07.05.2023).

Artificial intelligence: threats and opportunities, European Parliament, (2023), <https://www.europarl.europa.eu/news/en/headlines/society/20200918STO87404/artificial-intelligence-threats-and-opportunities> (31.05.2023).

A Summary of The European Commission White Paper on Artificial Intelligence — a European approach to excellence and trust | Ethical Intelligence, Volha Litvinets < https://medium.com/@litvinets/a-summary-of-the-european-commission-white-paper-on-artificial-intelligence-a-european-approach-d386c4b9dce8> (19. 5. 2023).

Audrey Azoulay: Making the most of artificial intelligence, UNESCO, <https://en.unesco.org/courier/2018-3/audrey-azoulay-making-most-artificial-intelligence> (21. 5. 2023).

Best practices for governance and new organizational roles for the successful implementation of responsible Artificial Intelligence, UNESCO, <https://www.unesco.org/en/articles/best-practices-governance-and-new-organizational-roles-successful-implementation-responsible?hub=32618> (23. 5. 2023).

Bias In Algorithms, Artificial Intelligence And Discrimination, European Union Agency for Fundamental Rights, (2022), https://fra.europa.eu/sites/default/files/fra_uploads/fra-2022-bias-in-algorithms_en.pdf (27. 6. 2023).

CAHAI - Ad hoc Committee on Artificial Intelligence, Council of Europe <https://www.coe.int/en/web/artificial-intelligence/cahai> (16. 5. 2023).

CDDH comments on the Parliamentary Assembly Recommendation 2185(2020) - ARTIFICIAL INTELLIGENCE IN HEALTH CARE: MEDICAL, LEGAL AND ETHICAL CHALLENGES AHEAD, Council of Europe, (2021), <https://rm.coe.int/recommandation-2185-2020-artificial-intelligence-in-health-care-medica/1680a2dcfa> (26. 6. 2023).

Coordinación General de Innovación Gubernamental, Jefatura de Gabinete, Coordinación General de Innovación del Gobierno de Jalisco < https://innovacion.jalisco.gob.mx/> (10. 6. 2023).

Communication From The Commission To The European Parliament, The European Council, The Council, The European Economic And Social Committee And The Committee Of The Regions Artificial Intelligence for Europe, COM/201/237 final, European Commission, (2018), <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2018%3A237%3AFIN> (26. 6. 2023).

Communication From The Commission To The European Parliament, The Council, The European Economic And Social Committee And The Committee Of The Regions On The Digital Education Action Plan, European Commission, (2018), <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52018DC0022&from=EN> (27. 6. 2023).

Committee on Artificial Intelligence (CAI), Revised Zero Draft [Framework] Convention on Artificial Intelligence, Human Rights, Democracy and the Rule of Law, Council of Europe, (2023), <https://rm.coe.int/cai-2023-01-revised-zero-draft-framework-convention-public/1680aa193f> (25. 6. 2023).

Conclusions, Current and Future Challenges of Coordinated Policies on AI Regulation, Council of Europe, (2021), <https://www.coe.int/en/web/artificial-intelligence/conclusions> (16. 5. 2023).

Connected Lithuania working towards an inclusive knowledge society, UNESCO, (2023), <https://www.unesco.org/en/articles/connected-lithuania-working-towards-inclusive-knowledge-society> (21. 5. 2023).

Council of Europe Draft Convention on Artificial Intelligence, Human Rights, Democracy and the Rule of Law, Team AI Regulation, (2023), <https://ai-regulation.com/council-of-europe-draft-convention-on-ai-human-rights-democracy-and-rule-of-law/> (9. 6. 2023).

Digital Economy and Society Index (DESI), Human Capital, European Commission, (2021), <https://ec.europa.eu/newsroom/dae/redirection/document/80551> (26. 6. 2023).

Digitalisation and changes in the world of work – literature review, European Parliament, (2022), <https://www.europarl.europa.eu/RegData/etudes/STUD/2022/733986/IPOL_STU(2022)733986_EN.pdf> (6. 6. 2023).

Digitalna Slovenija 2020 – strategija razvoja informacijske družbe do leta 2020, Vlada Republike Slovenije, Republika Slovenija, (2020), <https://www.gov.si/assets/ministrstva/MDP/DID/Strategija-razvoja-informacijske-druzbe-2020.pdf> (27. 6. 2023).

Discover the OECD, Better Policies for Better Lives, OECD, <https://www.oecd.org/general/Key-information-about-the-OECD.pdf> (18. 4. 2023).

Ethics and Governance of Artificial Intelligence for Health, WHO, (2021), <https://www.who.int/publications/i/item/9789240029200> (22. 5. 2023).

Ethics guidelines for trustworthy AI, Independent high-level expert group on artificial intelligence set up by the European Commission, European Commission < https://www.aepd.es/sites/default/files/2019-12/ai-ethics-guidelines.pdf> (17. 5. 2023).

European Committee for Social Cohesion (CCS), Council of Europe, <https://www.coe.int/en/web/european-social-charter/european-committee-for-social-cohesion> (26. 6. 2023).

Forty-two countries adopt new OECD Principles on Artificial Intelligence, OECD, <https://www.oecd.org/science/forty-two-countries-adopt-new-oecd-principles-on-artificial-intelligence.htm>, (6. 5. 2023).

Good Practice Guide, Involving Older People in Research: Examples, Purposes and Good Practice, ERA-AGE European Research Area in Ageing Research, HSPRC, University of Brighton, (2007), <http://envejecimiento.csic.es/documentos/documentos/eraage-guide-01.pdf> (23. 5. 2023).

Global Report on Ageism, Geneva, World Health Organization, (2021), <https://www.who.int/teams/socialdeterminants-of-health/demographic-change-and-healthy-ageing/combatting-ageism/global-report-onageism> (22. 5. 2023).

Human-centred values and fairness (Principle 1.2), OECD. AI Policy Observatory, <https://oecd.ai/en/dashboards/ai-principles/P6> (17. 5. 2023).

Inclusive growth, sustainable development and well-being (Principle 1.1), OECD, <https://oecd.ai/en/dashboards/ai-principles/P5> (17. 5. 2023).

Inter-American Convention on the Rights of Older Persons, Inter-American Commission on Human Rights, (2015), <https://www.oas.org/en/IACHR/jsForm/?File=/en/iachr/r/pm/bdocuments.asp> (24. 5. 2023).

International co-operation for trustworthy AI (Principle 2.5), OECD. AI Policy Observatory, <https://oecd.ai/en/dashboards/ai-principles/P14> (11. 6. 2023).

Introducing ChatGPT, Open AI, (2022), <https://openai.com/blog/chatgpt> (19. 4. 2023).

IRCAI Global Top 100 List, International Research Centre on Artificial Intelligence under the auspices of UNESCO, (2022), <https://ircai.org/top100/entry/artificial-intelligence-based-referral-system-for-patients-with-diabetic-retinopathy-in-jalisco/> (3. 6. 2023).

Kaj je umetna inteligenca in kako se uporablja v praksi?, Evropski parlament, (2021), <https://www.europarl.europa.eu/news/sl/headlines/society/20200827STO85804/kaj-je-umetna-inteligenca-in-kako-se-uporablja-v-praksi?at_campaign=20234-Digital&at_medium=Google_Ads&at_platform=Search&at_creation=DSA&at_goal=TR_G&at_audience=&at_topic=Artificial_Intelligence&gclid=CjwKCAjw04yjBhApEiwAJcvNob0JYMyt0pVBRERZhc-P4qwl3UdfwcuXWqkSRYpwTU3qlqRAjHw_nBoC7_IQAvD_BwE> (07.05.2023).

Koene L., Dowthwaite L., Seth S., IEEE P7003TM standard for algorithmic bias considerations. In: 2018 IEEE/ACM International Workshop on Software Fairness (FairWare), (2018), <https://fairware.cs.umass.edu/papers/Koene.pdf > (22. 5. 2023).

Let's RATIFY the Protocol on the Rights of Older Persons in Africa, Protocol on the Rights of Older Persons in Africa,<https://www.chr.up.ac.za/images/campaigns/2018/AgeWithRights/images/Abbreviated_Toolkit_AgeWithRights_2019_web.pdf> (24. 5. 2023).

Loneliness in older people, NHS, (2022) <https://www.nhs.uk/mental-health/feelings-symptoms-behaviours/feelings-and-symptoms/loneliness-in-older-people/> (24. 5. 2023).

Measuring digital development Facts and figures, International Telecommunication Union, (2021), <https://www.itu.int/en/ITU-D/Statistics/Documents/facts/FactsFigures2021.pdf> (21. 5. 2023).

Monitoring impairment through speech with Cambridge Cognition, Winterlight Labs, <https://winterlightlabs.com> (21.06.2023).

OECD AI Principles overview, OECD.AI Policy Observatory, <https://oecd.ai/en/ai-principles> (6. 5. 2023).

OECD Framework for the Classification of AI Systems: a tool for effective AI policies, OECD. AI Policy Observatory, (2022), <https://oecd.ai/en/classification> (22. 5. 2023).

Possible indirect legal effects of non-legally binding instruments, Juristische Fakultät, (2021), <https://rm.coe.int/1-2-zimmermann-indirect-legal-effects-of-mous-statement/1680a23584> (21. 5. 2023).

Preliminary Study on the Ethics of Artificial Intelligence, UNESCO, COMEST Extended Working Group on Ethics of Artificial Intelligence, (2019), <https://unesdoc.unesco.org/ark:/48223/pf0000367823> (21. 5. 2023).

Prispevek o uporabi Listine Evropske unije o temeljnih pravicah v Sloveniji v letu 2021 (Državni zbor), Državni zbor Republike Slovenije, Raziskovalno-dokumentacijski sektor, (2021), <https://fotogalerija.dz-rs.si/datoteke/Publikacije/Zborniki_RN/2021/Prispevek_o_uporabi_Listine_Evropske_unije_o_temeljnih_pravicah_v_Sloveniji_v_letu_2021_(Drzavni_zbor).pdf> (27. 6. 2023).

Proposal For A Regulation Of The European Parliament And Of The Council Laying Down Harmonised Rules On Artificial Intelligence (Artificial Intelligence Act) And Amending Certain Union Legislative Acts, Brussels, COM/2021/206 final, European Commission, (2021), <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52021PC0206> (27. 6. 2023).

Report of the independent expert on the enjoyment of all human rights by older persons, United Nations Human Rights Council, 2017, <https://ageplatform.eu/sites/default/files/Report%20of%20the%20UN%20Independent%20Expert%20on%20digitalisation%20and%20use%20of%20robots_2017.pdf> (22. 5. 2023).

Report on the Impact of Digitalisation and IT Developments on Social Rights and Social Cohesion, Council of Europe, (2022), <https://www.coe.int/en/web/european-social-charter/-/report-on-the-impact-of-digitalisation-and-it-developments-on-social-rights-and-social-cohesion> (26. 6. 2023).

Recommendation of the Council on Artificial Intelligence, OECD Legal instruments, (2019), <https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449> (22. 5. 2023).

Recommendation on the Ethics of Artificial Intelligence, UNESCO, (2022), <file:///C:/Users/Uporabnik/Downloads/UNESCO-AI-Recommendation.pdf> (21. 5. 2023).

Robustness, security and safety (Principle 1.4), OECD. AI Policy Observatory, <https://oecd.ai/en/dashboards/ai-principles/P8> (17. 5. 2023).

Research and innovation – Horizon Europe, European Commission <https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe_en> (18. 5. 2023).

Steering Committee for Human Rights in the fields of Biomedicine and Health (CDBIO), Council Of Europe, <https://www.coe.int/en/web/bioethics/cdbio> (26. 6. 2023).

Strengthening International Cooperation on AI, Progress Report, (2021), < https://www.brookings.edu/wp-content/uploads/2021/10/Strengthening-International-Cooperation-AI_Oct21.pdf> (10. 5. 2023).

The Artificial Intelligence Act, What is the EU AI Act?, Future of Life Institute (FLI) < https://artificialintelligenceact.eu> (15. 5. 2023).

The Council of Europe and Artificial Intelligence, Council of Europe <https://rm.coe.int/brochure-artificial-intelligence-en-march-2023-print/1680aab8e6> (16. 5. 2023).

The feasibility study on AI legal framework adopted by the CAHAI, Council of Europe, (2020), <https://www.coe.int/en/web/artificial-intelligence/-/the-feasibility-study-on-ai-legal-standards-adopted-by-cahai> (26. 6. 2023).

The future of elder care is here – and it's artificial intelligence, The Guardian <https://www.theguardian.com/us-news/2021/jun/03/elder-care-artificial-intelligence-software> (6. 6. 2023).

The Global Partnership on AI takes off – at the OECD, OECD. AI Policy Observatory, (2020), <https://oecd.ai/en/wonk/oecd-and-g7-artificial-intelligence-initiatives-side-by-side-for-responsible-ai> (11. 6. 2023).

The Impact of Artificial Intelligence on the Doctor-Patient Relationship by Consultant expert Brent Mittelstadt, Senior Research Fellow and Director of Research at the Oxford Internet Institute, University of Oxford, United Kingdom, Council of Europe, (2021), <https://www.coe.int/en/web/bioethics/report-impact-of-ai-on-the-doctor-patient-relationship> (26. 6. 2023).

The Practical Guide to Humanitarian Law, Médecins Sans Frontières, <https://guide-humanitarian-law.org/content/article/3/soft-law/> (11. 06. 2023).

Toward a draft text of a recommendation on the ethics of AI, United Nations, (2020), <file:///C:/Users/Uporabnik/Downloads/373199eng%20(1).pdf> (21. 5. 2023).

Transforming our world: the 2030 Agenda for Sustainable Development, United Nations, (2015), <https://sdgs.un.org/2030agenda> (26. 5. 2023).

Transparency and explainability (Principle 1.3), OECD. AI Policy Observatory, <https://oecd.ai/en/dashboards/ai-principles/P7> (17. 5. 2023).

UNESCO member states adopt the first ever global agreement on the Ethics of Artificial Intelligence, UNESCO, <https://www.unesco.org/en/articles/unesco-member-states-adopt-first-ever-global-agreement-ethics-artificial-intelligence> (23. 5. 2023).

UNESCO Recommendation on the Ethics of AI - Conditions for the implementation in Germany, German Commission for UNESCO, <https://www.unesco.de/sites/default/files/2022-04/DUK_Broschuere_KI-Empfehlung_EN_DS_web_final.pdf> (11. 06. 2023).

UN Open-Ended Working Group on Ageing – OEWG, AGE Platform Europe, (2019), <https://www.age-platform.eu/un-open-ended-working-group-ageing-oewg> (26. 5. 2023).

UN Secretary-General's Strategy on New Technologies, United Nations, (2018), <https://www.un.org/en/newtechnologies/> (21. 5. 2023).

Update to the 2012 Analytical Outcome Study on the normative standards in international human rights law in relation to older persons, United Nations Human Rights Office of the High Commissioner, (2021), <https://www.ohchr.org/sites/default/files/2022-01/OHCHR-HROP-working-paper-22-Mar-2021.pdf> (26. 5. 2023).

VALIDATE – Using Artificial Intelligence to improve outcomes for stroke patients, SAFE Stroke Alliance for Europe, (2023), <https://www.safestroke.eu/validate-using-artificial-intelligence-to-improve-outcomes-for-stroke-patients/> (27. 6. 2023).

Vlada sprejela in potrdila Nacionalni program spodbujanja razvoja in uporabe umetne inteligence,Vlada Republike Slovenije, Republika Slovenija, GOV.SI, (2021), < https://www.gov.si/novice/2021-06-03-vlada-sprejela-in-potrdila-nacionalni-program-spodbujanja-razvoja-in-uporabe-umetne-inteligence/> (27. 6. 2023).

We are living longer than ever before, so we need to ensure we are ageing well, AAL Programme, <https://www.aal-europe.eu> (27. 6. 2023).

WHITE PAPER On Artificial Intelligence - A European approach to excellence and trust, Brussels, European Commission, (2020), <https://commission.europa.eu/system/files/2020-02/commission-white-paper-artificial-intelligence-feb2020_en.pdf> (27. 6. 2023).

Working Document: Toward a draft text of the Recommendation on the Ethics of AI, UNESCO, (2020), < file:///C:/Users/Uporabnik/Downloads/373199eng%20(2).pdf> (11. 06. 2023).

World Population Ageing 2019, United Nations, (2019), <https://www.un.org/en/development/desa/population/publications/pdf/ageing/WorldPopulationAgeing2019-Report.pdf> (21. 5. 2023).

EU AI Act: first regulation on artificial intelligence, European Parliament (2023), < https://www.europarl.europa.eu/news/en/headlines/society/20230601STO93804/eu-ai-act-first-regulation-on-artificial-intelligence?&at_campaign> (22. 6. 2023).

Vlada sprejela in potrdila Nacionalni program spodbujanja razvoja in uporabe umetne inteligence (2021), < https://www.gov.si/novice/2021-06-03-vlada-sprejela-in-potrdila-nacionalni-program-spodbujanja-razvoja-in-uporabe-umetne-inteligence/> (22. 6. 2023).

Nacionalni program spodbujanja razvoja in uporabe umetne inteligence v Republiki Sloveniji do leta 2025 (NpUI), Vlada Republike Slovenije (2021), < https://www.gzs.si/Portals/Panoga-ZIT/Vsebine/novice-priponke/NpUI-SI-2025.pdf > (22. 6. 2023).