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## **From SHAFE throw the SHELD-ON to the NET4Age-Friendly and Asociation „AESM Seniors”**

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**Abstract:** By 2050, the number of people in the EU aged 65 and above is expected to grow by 70% and the number of people aged over 80, by 170%, which will increase demand and costs for healthcare. Integrating ICT solutions into habitats, along with improved building design, will allow us to live at home longer, as most prefer, despite cognitive or physical impediments. These solutions will provide immediate benefits, and will reduce the healthcare and financial pressures related to the growing elderly population in most European countries. Improving accessibility, functionality, and safety in homes in a way that allows the elderly to stay in their homes longer requires combining many disciplines together to develop solutions that integrate ICT, ergonomics, healthcare (psychological and physical), building and community design. To create healthier and safer environments for the elderly and meet the coming demands related to our ageing population, scientists, practitioners and industry members from a design and architecture, manufacturing, ICT, healthcare, as well as material scientists and others that contribute to healthy environments must come together in an organized and open system to share ideas and improve each other's work.

**Keywords:** maximum 8, the first keyword should be the Congress topic (e.g. Anthropology, Art & Music, Biology, Chemistry, Computer Science, Economy, Engineering, Environment, History, Interdisciplinary Sciences, Law, Linguistics & Literature, Mathematics, Medicine, Politics & Philosophy, Physics, Social Sciences, Theology).

### **1. Introduction**

A new concept was created since 2017, based on the desire to implement Smart Healthy Age-Friendly Environments (SHAFE, Figure 1, Table 1, Table 2) across Europe, fostering happier and healthier people in all communities.

This idea took shape and became a solid movement. That is how SHAFE was born and further launched in 2018, by Cáritas Diocesana de Coimbra and AFEdemy, in close cooperation with several European organizations.

### **2. SHAFE**

SHAFE began as a Thematic Network, approved by the European Commission, with the ambition to draw policy makers, organizations and citizens' attention to the need of better alignment between health, social care, built environments and

ICT, both in policy and funding. The conclusions of this extensive work in 2018, gathering over 160 organizations as partners, was delivered to the European Commission and Member States in a Joint Statement and a Framing Paper in December 2018.

After this, SHAFE evolved to a European Stakeholders Network, which is currently working to achieve better COOPERATION and IMPLEMENTATION, as the major challenges for this next period. This is the main aim of the Position Paper released in 2020, presenting recommendations that aim to promote healthier environments for all citizens and make environments accessible, sustainable and reachable for all, with the support of ICT. The pandemic has uncovered the major opportunities and benefits of turning digital.



**Figure 1.** Smart Healthy Age-Friendly Environments (SHAFE)

Table 1.

**However, single digital solutions are not the panacea to all issues:**

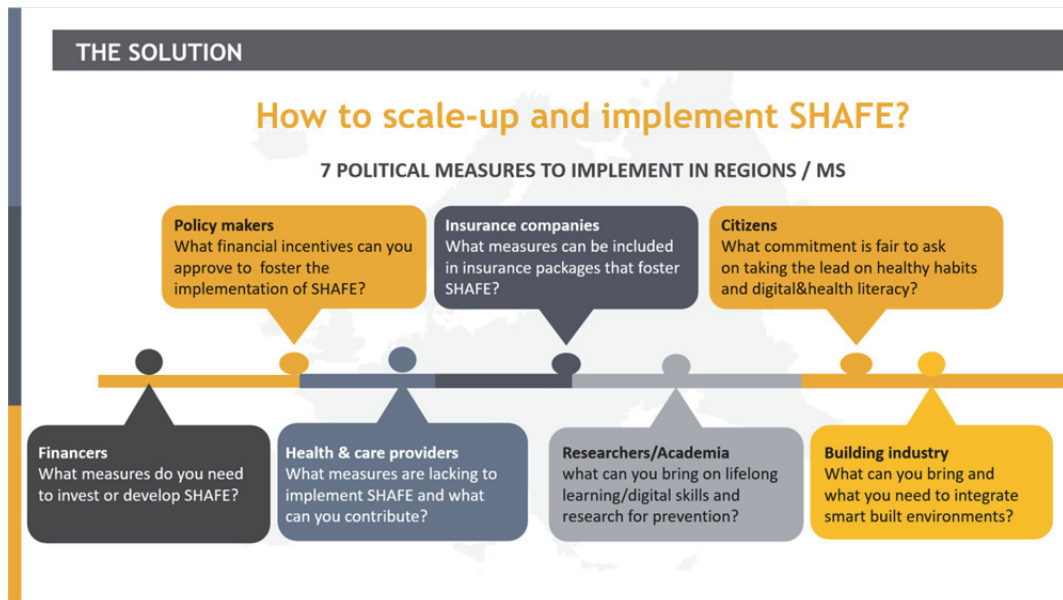
<b>CITIZENS</b> need to improve:	<b>ENVIRONMENTS</b> have as major challenges:	<b>and, finally,</b> <b>HEALTH AND CARE</b> need:
<ul style="list-style-type: none"> <li>• digital skills</li> <li>• health literacy</li> <li>• engagement and democratic participation</li> <li>• Less inequalities on access</li> </ul>	<ul style="list-style-type: none"> <li>• house retrofitting</li> <li>• digital infrastructures</li> <li>• public spaces and transport</li> <li>• climate neutral solutions (in the area of environments)</li> </ul>	<ul style="list-style-type: none"> <li>• reliable and accessible big data</li> <li>• integrated and person-centered solutions (new pathways)</li> <li>• implementation guidelines and long-term funding solutions/business models</li> </ul>

**We acknowledge that all these challenges are interconnected and that a global approach is needed!**

Citizens across different age groups also need personal human contact; they need to meet, to talk to each other, to hug and to love. Digitalization cannot replace this human need but can be a powerful vehicle to support people. The scenario during 2020 is an opportunity for the digital revolution to be well thought and implemented, if all the adequate challenges are well considered and tackled. The Smart Healthy Age-Friendly

**Table 2.**

Environments Network will thus focus on the narrative, debate, disclosure and knowledge translation of smart digital solutions and of solutions to optimize the physical and social environments of individuals in a concerted manner, bringing together also the domains of health and social care. The position paper also provides indicators to measure progress and success on the realization of SHAFE.



**Coordinators:**

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### 3. SHELD-ON

The main aim and objective of the Action **SHELD-ON (COST CA 16226: Brussels, 23 June 2017 COST 037/17)** is to establish a multidisciplinary network to support the development of solutions that allow the elderly to live safely, comfortably, and healthily at home through integrating design, ICT, ergonomics and health knowledge into furniture and building design. This will be achieved through the specific objectives detailed in the **(Figure 2)**.

The present COST action will be a science and technology network where relevant actors from academic, research and industry sectors will utilise networking tools and activities to address the ageing population challenges facing Europe, helping to reduce redundancy in RDI efforts, ensure solutions are developed with a broader set of expertise, and help refine the efforts of diverse group of researchers.

**SHELD-ON** aims to foster knowledge exchange and the development of a joint research agenda in terms of design and development of multifunctional indoor environments to meet the requirements of Europe's ageing population while promoting healthy and safe ageing.

#### 3.1. Specific Objectives

To achieve the main objective described in this MoU, the following specific objectives shall be accomplished: Research Coordination

- RCO1: To define and provide all relevant inputs for the design and development of Smart Support Furniture and habitats from different disciplines: Health care, Psychology, Ergonomics, Construction, etc., and from the users: elderly, caregivers, etc.

- RCO2: To design and create innovative ICT solutions that will be integrated into Smart Support Furniture and habitat environments.

- RCO3: To design, develop and test smart support furniture and habitat environments according to user's needs and further validated by these users (elderly and caretakers) for an active ageing.

- RCO4: To ensure dissemination, evaluation and exploitation of the Action's results together with establishing a strong network with the relevant industrial stakeholders.



**Figure 2.** Description of the Challenge (Main aim)

### 3.2. Capacity Building

- CBO1: To promote the participation and involvement of European researchers, engineers and scholars, regardless of their age and gender, in networking activities aiming to develop multifunctional furniture and living spaces for the elderly. To promote and highlight the presence of participants from less researchintensive countries

- CBO2: To foster International cooperation between researchers from COST member countries, COST Near Neighbour Countries (NNC) and International Partner countries (IPC), bringing together different disciplines to enable breakthrough scientific developments in the field of Active Assisted Living.

- CBO3: To create knowledge alliances between research, user's groups and industry entities to increase the impact of research in the industrial sector and favour the exploitation of new products for making new spaces and environments for an active ageing a reality.

- CBO4: To introduce and familiarize students and young researchers with implementing AAL (Ambient Assisted Living) in the furniture at higher education and vocational levels.

- CBO5: To ensure the correct integration,

dissemination and exploitation of all knowledge and results from SHELD-ON among the research groups of interest, industry sectors, and users.

### 4. International Interdisciplinary Network on Health and Wellbeing in an Age-friendly Digital World

The main aim of NET4Age-Friendly (**Figure 3**) is to establish an international and inter-disciplinary network of researchers from all sectors to foster awareness, and to support the creation and implementation of smart, healthy indoor and outdoor environments for present and future generations.

NET4Age-Friendly further aims to overcome fragmentation and critical gaps at both conceptual and pragmatic innovation level on responsive, age-friendly and sustainable environments in order to address the research-policy future requirements of Europe.

The main approach of NET4Age-Friendly is the establishment of new local or regional ecosystems or by expanding existing ones in each European COST country involved, to work on health and wellbeing in an age-friendly digital world.



Figure 3. CA19136 - NET4Age-Friendly

NET4Age-Friendly will be used as a connector for involving and hosting regular themed sessions with local and regional stakeholders and users' representatives from various countries and backgrounds, as well as for fostering the knowledge creation and sharing among researchers. Particular attention will be devoted to promoting the involvement of Early Career Investigators, entrepreneurs and participants from COST Inclusiveness Target Countries.

Four thematic Working Groups:

1. User-centered inclusive design in age-friendly environments and communities;
2. Integrated health and well-being pathways;
3. Digital solutions and large-scale sustainable implementation;

4. Policy development, funding forecast and cost-benefit evaluations. The outcomes of the thematic Working Groups will be integrated by a dedicated Working Group to create a synergized output as a Reference Framework. NET4AGE-FRIENDLY will be used as a connector for involving and hosting regular themed sessions with local and regional stakeholders and users' representatives from various countries and backgrounds, as well as for fostering the knowledge creation and sharing among researchers. Particular attention will be devoted to promoting the involvement of Early Career Investigators, entrepreneurs and participants from COST Inclusiveness Target Countries.

5. Association „AESM Seniors”

The demographic ratio of old-age dependency (people over the age of 65 compared to those aged 15-64) is expected to increase significantly in the EU in the coming decades, from 25% in 2010 to almost 52% by 2070 [1]. This implies that the EU should transit from 4 working persons per person over the age of 65 in 2010 to around 2 working persons during this period [2]. Added to this, the

proportion of citizens in their working age is decreasing while the relative number of retired citizens is expanding [3]. This, in turn, will lead to an increased burden on working-age people to ensure the social and health costs required by the ageing population for a number of related services [4]. The European Commission approved in 2018 the thematic network on healthy age smart environments, which provided a state of art and a joint declaration to the Commission on the design and development of e-health and e-environments enabling people of all ages and which has now evolved into a network of stakeholders with almost 200 partner organizations [8]. The increasing number of partnerships and activities developed in Europe in recent years demonstrates the growing interest of institutions, stakeholders and citizens, but also underlines the need to jointly encourage the implementation, connection of countries, people and cultures for the development of marketable solutions and implementation in accordance with established standards. The Association "AESM Seniors" represents a new paradigm of senior life: the affiliation within ASEM of the elderly for life, without noticing the transition to retirement.

#### 5.1. AESM is my Home!

The AESM Seniors Association aims to ensure the continuity of the activities of ASEM seniors and to contribute effectively to the advancement of AESM – the common home of seniors and young generations.

The purpose of the Association " AESM Seniors" is that the evolution of AESM is based on an efficient intergenerational activity with all the rights and obligations of employees – its associates - affiliates. The evolution of the AESM intergenerational house is based on an activity of AESM seniors, who have activated, activate and will be able to activate in the future in their

HOUSE – Academy of Economic Studies of Moldova! AESM teachers from the 3 retirement groups, like other people's retirement, have a terrible need for support and protection, a roof, which would ensure his life further without noticing, that he has moved into another state of life. AESM is our home, a home of AESM affiliates. Seniors need to be aware that they have a roof, which is called AESM and which still protects them happily ever after. They are aware that AESM has a great responsibility to its seniors, their HOME OF PRETUTINDENI, which has the intention of advancing towards a University committed in the future. Seniors from AESM affiliate employees fall into the category of AESM affiliates, and from there to AESM affiliates. These 3 categories of teachers are equally responsible (perhaps even more responsible) for the things performed by ASEM and in AESM – their home. The Association "AESM Seniors" is a new paradigm of intergenerational cooperation through its noble purpose: CONTINUITY of Professors' Activities – Seniors AESM from the retirement period to the deep Old Age!!!

### 5.2. My House is AESM!

AESM is our home with all the consequences of continuity of teachers' work to maintain and prosper. The attitude of seniors towards their AESM home is based on the continuity of their activities in the employee-affiliate format of AESM, its associate-affiliate and/or purely affiliated a SEM. Such an effective intergenerational activity is a first in the Republic of Moldova.

Through the Association " AESM Seniors" the psychological tension of passing from the state of activity engaged in a vacuum state is taken out of the of university loneliness, inability to work together in research and education, to which seniors have devoted decades of life, in a state of being of no one, in the state of participation of an old people's home and so on. Association " AESM Seniors" ensures the continuity of AESM seniors' activities with the transition of seniors to the associate-affiliated state of AESM , still being a member of AESM, being under the guardianship of AESM, working on behalf of AESM, still working for the prosperity of AESM, knowing that I am still in their HOUSE – within the Academy of

Economic Studies of Moldova!

The Association "Seniors AESM" (AS AESM) is a structure of AESM, which ensures the sustainability of the life of the members of the Association, the decent senior life, the active life provided psychologically, socially, economically and morally. The Senior is removed from his conscience the notion of "exit from activity", is convinced of his need for the Academic Society and the sustainability of life within the AESM collective, in which he has been active for many years, within the ingenerative collective of AESM. The Association " AESM Seniors" aims to ensure the continuity of the activity of its seniors within the Academy of Economic Studies of Moldova!

### 5.3. Association "AESM Seniors"

The activity of the started with the proposal of the Initiative Committee for the creation of the AESM Seniors Association from 31 October 2019 and continues with the proposals of actual activity from the very first days and the first year of activity of AS AESM. As AESM 's activities were voted on by the First General Assembly of AS AESM on 21 November 2019. They confirm that the actions envisaged in the Agenda are directed towards achieving the Noble Goal of achieving the continuity of senior life within AESM.

Development of strategies for the implementation of artificial intelligence in the lives of the elderly, with the aim of ensuring through the Association "AESM Seniors" information, medical and social support for senior employees (AESM teachers from the pre-retirement period), **associate** seniors (retired teachers with part-time employment in AESM further) and **affiliated** seniors (retired teachers without further employment at AESM) and for elderly people of different ages (young : years 65-74, elderly: 75-84 and older elders: after 85 years [1]).

The Association "AESM Seniors" goal consists in studying of the each of the properties of the creativity and emotionality reflecting the psychological interests of senior professors during the transition period from the pre-retiring life to the post-retiring one. The research has to be finished with proposals for implementation of the creativity's properties and of the emotionality's properties in the process of psychological improving the lives of the elderly people.



Paper employs an exploratory literature review investigating the current state of the art in relation to the properties of the creativity and emotionality as Engine of psychological improving the lives of the elderly people; this literature's review serves as the starting point of subsequent theorizing.

**Creativity** represents the main component part of the Human IQ. It is supported and defined by the Piirto's (7i) intellectual properties: Inspiration, Imagery, Imagination, Intuition, Insight, Improvisation, and Incubation. Each of the properties of creativity evolves according to the Piirto's the (6Top) evolutionary steps: Acquire Knowledge, Develop Curiosity, Become Interested, Passion, Dedication, and Professionalism.

**Emotionality** represents the main component part of the human EQ. It is defined and supported by six elements of known basic emotion: Happiness, Fear, Amazement, Disgust, Sadness, and Anger. Emotional elements support human emotionality through the following stages of emotional evolution: Self-awareness, Managing emotions, Motivation, Empathy, and Handling relationships. Various sources are examined, in which methods of interweaving artificial intelligence in the daily life of the elderly are examined with the sop of exploring the way of intergenerational interaction in society.

Based on the literature review we theorize that the properties of the creativity and emotionality reflecting the psychological interests of senior professors achieves the horizon of psychological improving the lives of the elderly people with creativity and emotions. The properties and characteristics of the Human Creativity (IQ) and of the Human Emotionality (EQ) are considered part of the niche that comprises the Psychological Assisted Living market for the senior professors from the universities. Within this concept, smart and multifunctional questioners used for the investigation of methods of cooperation with seniors for maintaining and evolving the creativity and emotionality of people in the age, plays an important role to manage the promotion of health and wellbeing, to reduce the impact of the cognitive and psychological barriers that impair the senior's ability to remain active and productive in the workplace for longer.

At present, a new conception of aging calls into question the previously widespread image of old

age as the period of inevitable physical and mental decline. People today live longer and better than ever in history. In the context of better health habits and medical care, it is becoming increasingly difficult to draw the boundary between the end of middle age and the beginning of middle age, the boundary that we arbitrarily draw to 65 years. The fastest growing age group is made up of people 80 years of age and older ([5] p. 549). In [6] it is noted, that " ... according to the forecasted statistical data, the share of the elderly is expected to increase from 17.2% today to 33% by 2050", thus the need arises to create jobs for the elderly and to increase the support of information technologies to monitor the evolution of the elderly.

#### 5.4. Suggestions for requesting.

Analysis of the way and level of interaction between seniors and younger generations through information technologies with the aim of developing an effective plan for the implementation of intergenerational co-operation staff. Application value: The study is to provide informational support to specialists in the field and bodies responsible for the "Action Plan on the Implementation of the Active Ageing Principle (2018-2021)" [6] and attached to the "Strategy for the Development of the Information Technology Industry and the Digital Innovation Ecosystem for 2018-2023 and the Action Plan on its Implementation" [7].

In this paper we argue that by looking at each of the properties of the creativity and emotionality as more than just a set of tools for improving the lives of the elderly people, the creativity and emotionality reflect the psychological interests of senior professors during the transition period from the pre-retiring life to the post-retiring one.

#### 5.5. Scientific novelty and originality.

The properties of the creativity and emotionality have been implemented as part of the psychological living continuity interests of senior professors during the transition period from the pre-retiring life to the post-retiring one, and they have used in creating the working intergenerational environment at the university.

The estimate "AESM is my Home" together with the estimate "My House is AESM" reflects the psychological intellectual feeling and emotional

feeling created for the pre-retired, retired and post-retired seniors of the AESM within a new AESM Senior Organization with the name the Association "The Seniors of AESM".

The need to develop strategies for the family of society with the aspect of the progress of information technologies in favor of supporting the well-being of older people.

## **6. International TELECONFERENCE of young researchers "Creation Consciousness Society", 10<sup>th</sup> Edition, March 12-13, 2021 (TELE-2021)**

In the Academy of Economic Studies of Moldova (AESM), which is one of the associated universities to the COST Action CA 16226 and to the COST Action CA 19136, successfully activates the Association "The AESM's Seniors". The International TELECONFERENCE of young researchers "Creation Consciousness Society", 10<sup>th</sup> Edition, March 12-13, 2021 (TELE-2021) represents one of such activities in favor of the COST Action CA 16226 and to the COST Action CA 19136.

Proposed the international TELECONFERENCE of young researchers with generic "Creation of the Society of Consciousness", 10<sup>th</sup> Edition (TELE-2021) will discuss the results of research carried out in the direction of „Continuity of the creativity and emotionality of seniors” within the following Sections:

- (1). Psychology and Impact of Professional Transition Ecosystems.
- (2). Continuity of the intellectual and emotional activities of older people.
- (3). Sustainability of intergenerational friendly environments.
- (4). Professional environments and communities of employees, associates and affiliates.
- (5). Economic digital solutions in the context of continuous sustainable learning.

It is expected that 55-60 persons young researchers and professors from the main universities of the Republic of Moldova will participate at the TELE-2021 and in the form of on-line – the researchers from European and World centres, who are adherents to the COST Action CA 16226 and to the COST Action CA 19136. The results of the works presented at TELE-2021 will

contribute to solving problems carried out within the COST Action CA 16226 and to the COST Action CA 19136, of Smart Habitat for the Elderly (SHELD-ON), this way creating a better intergenerational society.

### **Acknowledgment:**

Present research **was evaluated** under the guide and with the support of COST CA19136: NET4Age-Friendly the main aim and objective of which is to establish an international and interdisciplinary network of researchers from all sectors to foster awareness, and to support the creation and implementation of smart, healthy indoor and outdoor environments for present and future generations.

The results will contribute to solving problems and actions carried out within the COST CA 16226, Indoor living space improvement: Smart Habitat for the Elderly (SHELD-ON), this way creating a better society for everybody.

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## Measurement, maintenance and improvement of psychological well-being of retired seniors with COST support.

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**Abstract:** The discovery and the implementation of measurement instruments and practical solutions for enhancing Psychological Well Being of older adults- is what our team is working on. The aim is to investigate the **need** for ensuring the continuity of social and economic activities, also we aim to learn how to maintain, but better- improve intellectual, emotional and psychological well-being of older people. The research method **consists** of selection and accumulation of quantitative and qualitative information of investigation and questionnaires of groups of older persons. The procedural objectives of the research **consist** of accumulating, structuring and retention of statistical data obtained of interviewing of the groups of older people **from different countries** with the use of quantitative and further qualitative investigation instruments (questionnaires, tests, interview, etc.). In the current research, there were investigated correlations between the dimensions of questionnaires and the characteristics of the continuity of activities, IQ, EQ and psychological well-being of the elderly. Are investigated, selected and **proposed** recipes for a better psychological well being and social behavior towards the continuity of **spiritual, intellectual** and **emotional** activities in society of older people. **Sustainability:** We are still working on specification and **proposal of** inter-group activities (between created age groups of older adults) and also intergenerational activities, aiming the elaboration of a bigger portfolio of recipes and recommendations for achieving a better psychological behavior for older people from the selected groups. The sustainability of the proposed methods and procedures lies in the revolution and, through their implementation, based on KAIZEN methodology, the sustainability of the development of intergenerational society in the long term **will be achieved**. **In conclusion**, if we achieve to obtain the awareness of both older adults and the employers of the fact that the continuity of activities after the retirement age, and also the understanding that practicing the proposed recipes abundantly will raise their well being, they will not leave this world unfulfilled in terms of full knowledge of the supply of the well-being for older people.

**Acknowledgments:** Short Term Scientific Mission (STSM) recently was executed by the Dumitru MICUSHA from Free International University of Moldova with the Adviser Mrs. Willeke van STAALDUINEN from the AFEdemy, Netherlands and coordinated by Professor Dumitru TODOROI, Ph.D, Dr.hab., ARA corr. Member, President of the Association „AESM Seniors”, Member of MC of COST CA 16226 and Member of MC of COST CA 19136. Present research **was evaluated** with the support of COST CA 16226, the main aim and objective of which is to establish a multidisciplinary network to support the development of solutions that allow the elderly to live safely, comfortably, and healthily through integrating design, ICT, ergonomics and health knowledge: [www.cost.eu](http://www.cost.eu).

**Keywords:** society, adults, wellbeing, creativity, emotionality, psychology

## 1. Introduction

By 2050 [1] the number of people in the EU aged 65 and above is expected to grow by 70% and the number of people aged over 80, by 170%, which will increase demand and costs for healthcare. Integrating ICT solutions into habitats, along with improved building design, will allow us to live at home and stay active and productive for longer despite cognitive or physical impediments. Improving accessibility, functionality, and safety **at home, at work and in society** in general requires combining many disciplines together to develop solutions that integrate ICT, ergonomics, healthcare (psychological and physical) and community design.

## 2. Independence in own homes

In assignment of AFEdeMy, within the Project „Independent Living in the rural areas of The Netherlands” 7 students from the Hanze University for Applied Sciences and University of Groningen performed research in the municipality Oldambt [2] in order to investigate the problem: “what do older people from 80 years and older need in their daily life, mobility, social network and well-being to remain independent in their own homes in the villages”. Was underlined[3] that „ ... there are **several solutions to keep the elderly living longer at home**, for example doorstep aids, wall brackets in the bathroom and the toilet, a second handrail and a stair lift. The national government says that older people **can live at home longer** by adapting the current home **using new technologies**. The last option is domotics (or home automation): this can make a home safer, easier to use and can help older people stay at home for longer...”.

## 3. What the older people need to continue living in their own house?

Two Social Work students from the Hanzehogeschool have done research **to the needs of older** people in the township Oldambt for the organization AFEdeMy [4]. The main goal of the research was to get to know what the older people need to continue living in their own house. The resource question is: What do older people of 80 years and older need in the field of **daily functioning, social participation and mental well-being** to keep living in their own house.

The needs of the respondents are very different. Most of them, 18 respondents, said that they have no needs for support in any way. Most of them have a good social network who helps them were the need or are, despite their age, still vital and independent from others. The respondents that does need support most of the time wants more contact and involvement with others. These are often people with a smaller social network and less skills to look for and find support themselves in any way. Seven respondents said that they feel lonely and they said that they want to go out more or want to have more contacts. Also, the outcomes of the research of Wijnja (2018) said that a lot of older people in Oldambt feel lonely. Overall seems the respondents satisfied with their living situation, they give themselves a seven or eight, average.

The first recommendation involves **a better information** giving from the municipality of the township Oldambt to older people, so that they know where to find the facilities in the area, especially the social facilities. The other recommendations to SociaalWerkOldambt are to make plans to recruit more volunteers and make the organization better known and accessible for older people.

## 4. Mobility of the older people

The everyday outdoor mobility of older people has received an increasing amount of attention in the academic world and in policy-making [5]. There are two reasons for this. The first reason is the recent and projected growth of senior citizens in (and the impacts of this on) most Western societies. Secondly, research has shown that mobility outside of the home is strongly related to wellbeing in later life. Older adults' experiences with **outdoor mobility** has been investigated by Bart Roelofs & Liselotte Vreelings supervised by: prof. dr. Louise Meijering and commissioned by: AFEdeMy [2].

This report explores the outdoor mobility experiences of community-dwelling older people in Winschoten, the Netherlands. Specifically, was investigated why **outdoor mobility** is important, what **influences** their outdoor mobility and **how they adapt** to changes in **mobility**. This is connected to theories on **age-friendly environments, outdoor mobility, independence and wellbeing**. The research consists of six in-depth interviews with older inhabitants of

Winschoten. The main findings indicate that outdoor mobility of older adults is diverse and subjective, and is perceived to be important because it is closely related to independence. Furthermore, three interrelated dimensions are experienced to have an influence on their outdoor mobility: personal, social and environmental. Finally, older people seem to adapt to a decline in mobility by **self-regulation**. We advise policy makers to adjust the living environment in such a way that it meets the needs and capacities of older people, thus creating an **age-friendly Winschoten**.

### 5. The Age-Friendly Cities and Communities Questionnaire.

The AFEdeMy is co-developer of The Age-Friendly Cities and Communities Questionnaire (AFCCQ) Project [6]. In early 2020, the municipality of The Hague awarded **the consortium** consisting of The Hague University of Applied Sciences, HulseboschAdvies and AFEdeMy to develop a questionnaire and run a representative survey on the perceived age-friendliness of the city among its older citizens. Part of this survey was the development of a validated questionnaire, which allows for an assessment of the perceived **age-friendliness**. In order to do justice to the superdiversity of the population of The Hague, the municipality also wanted a representative number of older Western and non-Western immigrants to be included in the sample.

The consortium started to review **scientific and public sources** to check whether a default questionnaire was already available. The search delivered several examples of questionnaires that either lacked transparency on the development and validation or did not measure the construct of age-friendliness as a whole. This made the consortium decide to develop and validate a **validated questionnaire**, coined the Age-Friendly Cities and Communities Questionnaire. In order to develop the questionnaire, the **consortium made use** of the Consensus-based Standards for selection of health Measurement Instruments (COSMIN). The development consisted of the following four phases: **Development, Initial validation, Psychometric validation and Instrument translation**.

The theoretical basis of the questionnaire was the Global Age-friendly Cities Guide, published by

the World Health Organization in 2007, and it's accompanying Checklist. This guide published a model of age-friendly cities and communities, consisting of **eight domains: outdoor spaces and buildings; transportation; housing; social participation; respect and social inclusion; civic participation and employment; communication and information; and community support and health services**. The features of the Checklist formed the foundation of the items for the questionnaire. Additionally, questions on technology and the **financial situation** were added based on the literature review.

The Age-Friendly Cities and Communities Questionnaire measures the views of older adults on the **eight** domains already defined by the WHO and on a relevant **ninth domain**, namely their **own financial situation**. The questionnaire is open for use on every geographical level and by every public authority, civil society organization or any other who is interested. It might be necessary to culturally validate the questionnaire.

### 6. The Smart Healthy Age-Friendly Environments Network

In middle of 2020 Carina Dantas and Willeke van Staalduinen was announced [7] that "The SHAFE Stakeholders Network is happy to release its Position Paper, developed in collaboration between SHAFE partners and the participants on the COST Action Net4AgeFriendly, to present recommendations that aim to promote healthier environments for all citizens and make environments accessible, sustainable and reachable for all, with the support of ICT". The Smart Healthy Age-Friendly Environments Network will thus focus on the narrative, debate, disclosure and knowledge translation of smart digital solutions and of solutions to optimize the physical and social environments of individuals in a concerted manner, bringing together also the domains of health and social care.

### 7. Psychological well-being of retired seniors.

In October-November 2020 the COST CA16226 accepted a short term scientific mission (STSM) "Measurement, maintenance and improvement of psychological well-being of retired seniors" with the scope to research the psychology

of older people in the conditions of continuous activity with the emphasis of their psychological well-being supported by intellectual and emotional activities. The host institution was The AFEdeMy, the researcher was PhD Student Dumitru MICUȘA and mission coordinator Mrs. **Willeke van STAALDUINEN**.

7.1. Collaboration between Netherlands and Republic of Moldova.

The overarching aim of the STSM was to strengthen the collaboration between AFEdeMy (Netherlands) and ULIM (Republic of Moldova) in order to improve mutual capacity to raise awareness and exchange information on the state of art of smart healthy age-friendly environments on national and regional levels particularly within the topics of Responsible Research and Innovation and addressing societal challenges.

This STSM was aimed to exchange information accumulated in an international environment (Moldova-Netherlands) by observing and questioning elderly people, processing the data obtained in order to define, maintain and improve the level of psychological, intellectual and emotional well-being for seniors.

To bring an instrument for measuring psychological well-being was the main object of this STSM, also monitoring the evolution of the defined psychological leaks in multifunctional indoor environment. The scope is to meet the requirements of Europe's ageing population while promoting healthy and safe ageing, to identify core challenges that older adults face when aging in the workplace.

This aim is allied to the objectives of the fourth Working Group of the COST Action, which works to improve smart support furniture and habitat environments according to user's needs and further validated by these users (elderly and caretakers) for an active ageing.

After the mission, when the efficiency of our methodology is proved, to deliver to the host institution the new statistical method of research. In our turn, we expect to also obtain a new method of research regarding the measurement of emotional/psychological/intellectual well-being of seniors, this way creating a portfolio of various methods which are to be applied on other samples during our empirical research.

7.2. Psychological Well-Being Questionnaire (PWBQ).

#### 7.2.1. Research Methods.

In order to test the conceptual framework, according to which the well-being of the older adults is positive, we have developed a scale method. It contains a Likert type response scale in 7 steps - from -3 to 3. In order to measure the psychological well-being state at the moment of questioning, we built a Psychological Well-Being Questionnaire (PWBQ) with 30 items, five items for each of the six dimensions that we considered appropriate for the definition of psychological well-being:

- feeling of being happy,
- self-acceptance,
- control over the environment,
- autonomy,
- positive relationships with others,
- purpose and meaning of life.

It was discussed Moldovan and Dutch and other investigative questionnaires about psychological, intellectual and emotional well-being of elders.

Based on the questionnaires from Moldova, the questionnaires from AFEdeMy in Netherlands, using other surveys, among other things the 36-Item Short Form Survey Instrument (SF-36) from USA, it was finished with the *Psychological Well-Being Zero-Measurement instrument*, which is ready to be applied where needed. You can find an example in **Figure 1**.

	3	2	1					
1. Generally, I consider myself								
A person not too happy								Very happy
2. Compared to my colleagues / other people, I am								
Less happy								Happier
Not at all								To the greatest extent
4. Some people are generally very unhappy. Although I am not depressed, I am never quite happy as I would be. To what extent does this characterization describe you?								
To the greatest extent								Not at all
5. Every morning I wake up with a feeling of living a happy day?								
Never								always.

**Figure 1.** Items for measuring the subjective feeling of happiness

Followed by this example, each of the six dimensions contains 5 questions related to the topic of the dimension.

#### 7.2.2. Scoring.

**1<sup>st</sup> dimension:** For scoring, we calculate the average for all 5 items. The maximum score is 3. The average score of the subjective feeling of happiness is about -0.5 to 1.0. Lower scores of -0.5 denote shared feelings of unhappiness, greater than 1.0 - of happiness. The higher the scores are, the higher is the subjective appreciation of happiness.

**2<sup>nd</sup> dimension:** The scores are calculated the same as previously reported. Lower scores of -0.5 denote low self-acceptance: lack of recognition of merits, lack of positive qualities, lack of skills and aptitudes, dissatisfaction and self-disdain, greater than 1.0 – high self-acceptance.

**3<sup>rd</sup> dimension:** The lower scores of -0.5 denote an inability to monitor affective states, behavior in various circumstances, the mood of others, the communication course, greater than 1.0 – social monitoring capacity and circumstances according to their own intentions and the expectations of others.

**4<sup>th</sup> dimension:** Just as before, small scores denote the lack of autonomy, self-confidence and assertiveness, features that limit the person into actions, the high ones – the ability to manifest themselves genuinely, to show initiative, actively involved in various projects and activities.

**5<sup>th</sup> dimension:** Small scores characterize a person with insufficient capabilities of

communication and social networking; the high ones denote potential enough adaptation to new and communicable environments and people, capable of establishing and maintaining positive relationships with others.

**6<sup>th</sup> dimension:** High scores are accumulated by people who recognize and accept the experience of the past, control their present and look with optimism for the future, see the meaning of life and personal existence. People who accumulate small scores do not have the meaning of life, they have few or even no objectives or goals, do not see the meaning of past experiences, present and perspectives.

## 8. Questioning with the use of PWBQ

### 8.1. In the Netherlands.

The questionnaire PWBQ was adapted to Dutch language. With the help of the PWBQ questionnaire, a group of older adults from different collectives in the Netherlands were interviewed and the information was collected about the psychological well-being.

The results on each of the 6 dimensions from 12 respondents from the Dutch space are listed below in **Figure 2**.

Psychological well-being / Interviewed person: Netherlands	Dim. 1: Feeling of happiness	Dim. 2: Self-acceptance	Dim.3: Control over environment	Dim. 4: Autonomy	Dim. 5: Positive relations with others	Dim. 6: Purpose and meaning of life
1st	9	15	3	2	7	14
2nd	12	8	5	9	15	12
3rd	-2	2	1	1	1	5
4th	-3	1	-4	4	2	1
5th	9	11	6	10	13	6
6th	13	12	10	13	14	5
7th	4	10	3	9	12	11
8th	-1	1	-1	1	0	3
9th	9	4	-4	6	10	5
10th	12	14	-3	6	10	9
11th	9	15	10	11	13	9
12th	2	7	-7	5	7	5
Total	73	100	19	77	104	85

Figure 2. The results of Dutch respondents

### 8.2. In Moldova.

The questionnaire PWBQ was adapted to Romanian language. With the help of the PWBQ questionnaire, a group of older adults from the Association „AESM Seniors” at Academy of

Economic Studies of Moldova and associates were interviewed and the information was collected about the psychological well-being. In **Figure 3** can be find listed the results of Moldovan respondents.

Psychological well-being/ Interviewed person: Moldova	Dim. 1: Feeling of happiness	Dim. 2: Self-acceptance	Dim.3: Control over environment	Dim. 4: Autonomy	Dim. 5: Positive relations with others	Dim. 6: Purpose and meaning of life
1st	15	13	11	12	14	15
2nd	2	8	-8	-1	7	11
3rd	10	14	11	10	8	11
4th	8	10	8	8	10	9
5th	8	2	2	-2	0	2
6th	10	10	5	10	9	12
7th	15	15	15	15	15	15
8th	6	15	13	12	13	15
9th	8	2	2	-2	0	2
10th	7	10	7	12	12	7
11th	5	5	-1	7	3	7
12th	10	8	5	10	12	13
Total	104	112	70	91	103	119

Figure 3. The results of Moldovan respondents



Data from the Netherlands and Moldova were structured both separately and jointly for analysis in terms of comparative evolution (Figure 4). Graphic

representation of the results is presented in Figures 5, 6, 7, and 8

Psychological well-being	Dim. 1: Feeling of happiness	Dim. 2: Self-acceptance	Dim.3: Control over environment	Dim. 4: Autonomy	Dim. 5: Positive relations with others	Dim. 6: Purpose and meaning of life
Netherlands	73	100	19	77	104	85
Moldova	104	112	70	91	103	119

Figure 4. The results of Netherlands Moldovan respondents

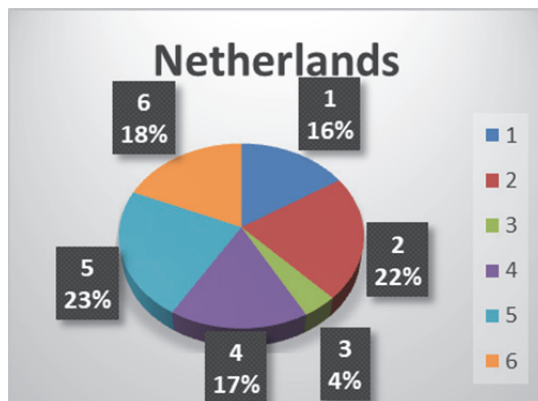


Figure 5.

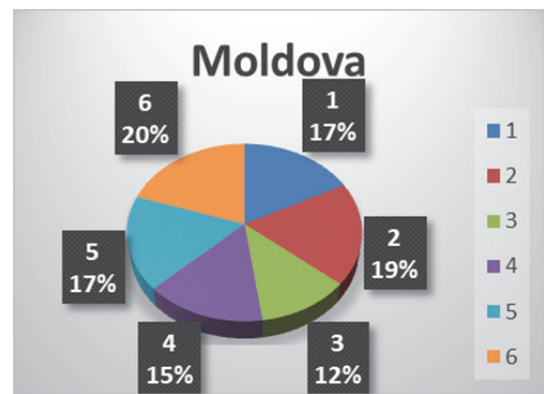


Figure 6.

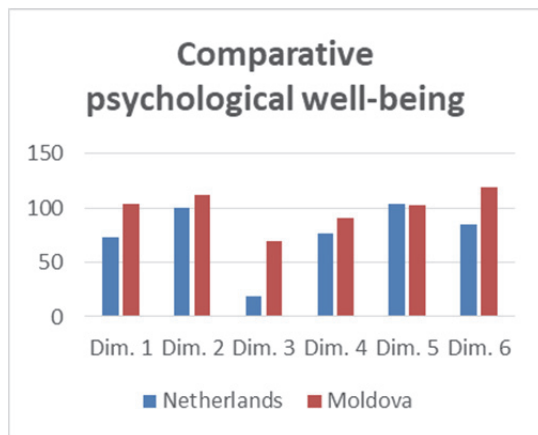


Figure 7.

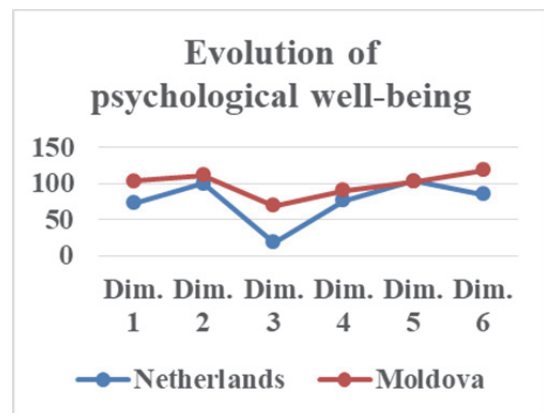


Figure 8.

Based on collected data on the psychological well-being using PWBQ questionnaire was analyzed the statistical methods of maintaining and

improving the psychological excitement of the seniors from different groups of the seniors. Collected data and analyzed methods will

support the methodology and the decisions to be proposed in the branch of creating a more productive, healthier, and more comfortable society for the elderly. Also the questionnaires, which have been implemented within the STSM, were based on the characteristics of the psychological well-being of the older adults in the sectors of psychological energy loss. Access to local libraries and databases from the Hague, Amsterdam, Rotterdam and AFEde my gave the opportunity to select and study several methods of work with investigative questionnaires. The host institution AFEde my helped to organize the groups of respondents and administering the questionnaire to the sample of respondents in Dutch space.

The information obtained from surveys as a result of the questioning seniors from selected Dutch collectives was processed, analyzed and distributed on three age compartments to be subjected to processing using statistical methods of processing surveys. The respondents had a positive reaction on the survey, but with a remark that there are too much questionnaires to fill up everywhere nowadays (i.e.: hospital, city hall, etc.), and that they would have much more pleasure from discussing personally with specialists sharing their stories with them. The specialists instead, can observe from these discussions the needs of the seniors, and bring to them the appropriate IoT and ICT solutions.

Under the guidance of the host institution AFEde my was given the opportunity to work with scientists from other Dutch institutions such as Prof. Joost van Hoof, professor of Urban Ageing from The University of Hague, and Elisabeth de Vries, and others, who helped a lot and gave suggestions on the structure of age-friendly societies and steps to take to its construction.

#### **8.4. Portfolio of methods for measuring different aspects of well-being for seniors.**

The STSM has been finished successfully with very good results, maybe even more than we've expected. The main purpose of applying our instrument of zero-measurement of the psychological well being, by bringing it to the host institution for validation and appreciation, was fulfilled, so now the instrument is ready to be introduced in the portfolio of measurement instruments of the researchers from the field of

Social Psychology and Sociology.

Also, the host institution AFEde my shared with us their latest Age-Friendly Cities and Communities Questionnaire, which is a representative survey on the perceived age-friendliness of the city among its older citizens. Part of this survey was the development of a validated questionnaire, which allows for an assessment of the perceived age-friendliness. This new instrument can be applied successfully in other countries and can also be included in our Portfolio of methods for measuring different aspects of well-being for seniors.

There were interviews held with some older adults from Netherlands, who shared with us the experience of living in an age-friendly environment, and also shared some practical recommendations (for example: creation of computer-learning classes) for countries such as Republic of Moldova, where age-friendly environments are not that developed. These recommendations are to be implemented.

Based on discussions with interviewees and on their past experiences with different questionnaire-based surveys, was made the conclusion that older respondents prefer more participating in the interview-based surveys than filling up questionnaires. It gives a more personalized and qualitative response. But, even with observing these preferences at respondents, there is still no other better way of questioning big groups of respondents than questionnaire-based surveys.

#### **8.5. From quantitative results to qualitative results of psychological well-being.**

Considering the opinion of the interviewees and representatives from the nursing homes was also made the observation that there is a very high level of healthcare and good environment for the elderly living in the community, but at the same time a lack of psychological services in these habitats, that is why there is a lack in measuring and maintaining the psychological well-being.

A recommended solution would be to attract more psychologists to work in age-friendly habitats, this way there would be the possibility to obtain more qualitative results through frequent interviews and conversations, rather than through the questionnaire method which gives more quantitative results. A better understanding of the

personalized psychological needs of each individual would bring propulsion in development of IoT Related Technology and their Impact on New ICT.

### 8.6. First impressions from the international collaboration.

It has been a pleasant and a very fructuous collaboration with AFEdemy, as we brought to Republic of Moldova new solutions in building age-friendly environments. The questionnaires of the elderly, assigned and implemented for different groups of elderly people in the problems of the well-being of the elderly, serve to investigate and propose different methods of maintaining and improving the psychological health of the elderly. As part of the **medical outcomes** study (MOS), RAND developed the 36-Item Short Form Health Survey (SF-36). The SF-36 is a set of generic, consistent and manageable **quality of life** measures. These measures are based on patient self-reporting and are now widely used by managed care organizations for routine monitoring and evaluation of care outcomes in adult patients. To measure the degree of **psychological well-being**, it was compiled a questionnaire with 30 items: five items for each of the six dimensions that we considered appropriate **for defining psychological well-being**: feeling of happiness, self-acceptance, environmental control, autonomy, positive relationships with others, purpose and meaning of life - The Psychological Well Being Questionnaire (PWBQ). After examining the results of the questionnaire through the short-term scientific mission at the AFEdemy Academy in Guada, the Netherlands in October-November 2020, require analysis of the psychological situation of the individual in order to propose methods to maintain **and ascend his well-being**.

The activities of the individual to raise his **psychological well-being** are based, to a large extent, on the hormonal reflections of the individual. It requires usto be aware of the **hormonal reflections**, on which the spiritual, emotional and cognitive psychological state of the individual is based. They are component elements of the actions of psychological survival of the elderly. The repositories of the spiritual, intellectual and physical procedures of intergenerational social activities represent the nucleus for the elaboration

of the methods of evolution of the psychological well-being of the individual.

### 9. The sustainability and collaboration with perspective.

We consider this STSM was just a jumpstart of the collaboration between Netherlands and Republic of Moldova. For the future collaborations we express our willingness to involve Moldovan specialists in international researches, in order to develop better personalised methods of questioning and afterwards to bring solutions for the psychological assessment of older adults in the EU age-friendly habitats for SHELD-ON and AFEdemy, for improving the general level of well-being for elderly and to bring new ideas to IoT and ICT developers. These questionnaires are also to be used on older adult samples from the Republic of Moldovawith the development of different recipes for maintaining and improving the psychological well-being of the elderly. Finally, a joint estimate of the results of the mixed survey will be made using questionnaires of the two types. The respective conclusions will be made on the use of "Personal Psychology" recipe warehouses, "Positive-Negative" recipe repository, together with the PWBQ recipe warehouses. These deposits will form the basis of future research into methods of maintaining and positive development of the psychological, intellectual and emotional well-being of the elderly. Will be investigated measures to improve the well-being of the elderly, which are largely supported by such means as: continuity of the life of the elderly through production and consumption activities, hormonal reflections and psychological survival.

This continuing activity of the seniors has to be investigated with the thoroughgoing study of their creational and emotional psychological performance. Most of the researches we make are oriented to achieve the purpose of maintaining and developing the seniors' progress in their activities inside their habitat and in the process of transition from one of the group of seniority to another. The results of our investigations, partly coming from the mission work, carried out through this STSM project will be proposed to be implemented in the network of all the educational institutions of the Republic of Moldova and in the network of the European's universities with the goal to exchange

the accumulated experience.

#### Acknowledgements.

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## **Bouquet of business plans initiated by the Association "AESM Seniors".**

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### **Man sanctifies the place (popular saying)**

Welding the implementation situation of the "Continuity of activities of older people helps the continuity of life", which is the essence of the creation in the Academy of Economic Studies of Moldova (AESM) of the Association "Seniors AESM" in early 2020. A set of business plans is proposed, which can be successfully created and implemented by professors, which are employed, associated or affiliated with AESM – members of the Association "Seniors AESM".

#### **1. The concept of aging.**

Today, a new conception of aging calls into question the very widespread previous image of old age as a period of inevitable physical and mental decline. People today live longer and better than ever in history. In the context of better health habits and medical care, it is becoming increasingly difficult to draw the boundary between the end of middle age and the beginning of middle age, the boundary that we arbitrarily draw to 65 years. According to the expectations [1], based on the analysis of changes in the world's elderly population for 2002-2025, population growth from 65 years upwards will be faster than that of any other segment of the population in all areas of the world.

#### **2. Elderly.**

What changes are recorded among the current elderly population? Efforts to combat age-based bias are making progress, giving visibility to an increasing number of active and healthy elderly adults. Nelson Mandela at 75 was the Nobel Peace Prize, and at 76 he became President of South Africa ([1], 550). The population of the elderly among the world's population is larger than at any time and is expected to continue to grow. People

over 80 consist of the fastest growing age group ([1], p.582). Although the effects of primary aging are often beyond human control, the effects of secondary ageing can often be assessed.

#### **3. Longevity and ageing.**

What changes have occurred in life expectancy, what are the causes of aging and what life-extending possibilities exist? Life expectancy has increased spectacularly. The longer people live, the more likely it is to stay alive longer. In general, life expectancy is higher in developed countries than in developing countries. Considerable future improvements in life expectancy may depend on the possibility for scientists to learn how the basic processes of aging are changing. Jimmy Carter won the Nobel Prize at 78 for his uninterrupted work in human rights, education, preventive medicine research, and conflict resolution, largely conducted in developing countries ([1], 586). Research on prolonging the life through genetic manipulation or caloric restriction has called into question the idea of the biological limit of the duration of life.

#### **4. Cognitive development.**

What gains and losses in cognitive abilities tend to occur at age three and are there ways to improve the cognitive performance of the elderly? Elderly

adults perform better on the verbal part of the Inteligency scale ([1], p. 574) for adults than on the practical part. Cognitive functioning at age three varies greatly. Few people are experiencing a decline in all sectors and many people are making progress in some sectors. Elderly adults have more effectiveness in solving practical problems that are relevant to them. The general slowdown in the functioning of the central nervous system may affect the speed of information processing.

### **5. Intelligence can be a predictor of longevity.**

Sensory memory, semantic memory and procedural memory seem equally effective in older and younger adults. Older adults have more problems with oral word updating and spelling compared to younger adults. The grammatical and content complexity of speech decreases. The brain can compensate for some age-related damage. Age has a considerable plasticity of cognitive information and benefits from training. Wisdom is not correlated with age; people of all ages give wiser solutions to problems affecting their own age group. Welding the implementation situation of the continuity of activities of older people helps the continuity of life. It is the essence of the creation in the Academy of Economic Studies of Moldova (AESM) of the Association "Seniors AESM" in early 2020. A set of business plans is proposed, which can be successfully created and implemented by professors, which are employed, associated or affiliated with AESM – members of the Association "Seniors AESM".

### **6. Adaptable Digitized Business: WEB Factory**

(Olga CHICU, Elena CHICU, Dumitru TODOROI, Dumitru MICUȘA)

A high-value production for the Republic of Moldova constitutes business plans for small and medium-sized enterprises (SMEs) especially for the rural sector of the republic.

As part of the results obtained by students, masters and PhD students with the input of senior and young teachers, a set of samples-products for SMEs are produced.

A special type represents such products as the digital SMEs, WEB-page SMEs, and especially business products, which require digital links with

national and international networks. A particular need is digital SMEs with access to Demand & Demand Networks, which have a higher share, given that IT PRACTICALLY excludes intermediaries in relations between the Manufacturers and the Consumers.

The purposes of this research and implementation of the project entitled "Adaptable Digitized Business: Web Factory" are:

- planning a Web design business;
- promoting business ideas in the field of information technologies;
- demonstrating the need for a project aimed at promoting businesses in the online environment;
- addressing effective marketing strategies for business development in Moldova.

This project "Adaptable Digitized Business: Web Factory" of the Association "Seniors AESM" is presented as part of the business plan of an ASEM enterprise, which provides Web design and Web development services.

The business plan allows for a comprehensive analysis of the structure and strategies addressed by the firm. It is divided into the financial, managerial, marketing and real description plan.

On the basis of the business plan, the profitability and necessity of the project "Adaptable Digitized Business: Web Factory" on the Moldovan market can be forecast.

Web design company entitled "Adaptable Digitized Business: Web Factory" can create a creative and original online environment for local businesses and easily expand to the international market.

This project "Adaptable Digitized Business: Web Factory" leads to discussions on the development of SMEs in the Republic of Moldova on the virtual platform, facilitating customers' access to the services and products of local companies. It also addresses the issue of reduced promotion of domestic companies in the online environment.

The business plan developed in this project "Adaptable Digitized Business: Web Factory" can be easily applied in practice.

All data and analysis made can be used to set up an economic entity that provides Web design and Web development services.

The idea of a business is relatively new on the Moldovan market, and the services and strategies that the project "Adaptable Digitized Business:

Web Factory" intends to implement are creative and feasible. This project can be implemented in Moldova due to the fact that in the development of this plan was analyzed the demand of web services in the internal market, and with good financing and qualified personnel can become not only a profitable business, but also a competitor for existing businesses.

## 7. FRUIT COLLECTION POINT IN RURAL AREA OF THE REPUBLIC OF MOLDOVA.

(Alina PRAPORȘCIC, Dumitru TODOROI, Marina COBAN, Dumitru MICUȘA)

**Purpose:** Foundation strategy to develop fruit collection points in Rural Area of the Republic of Moldova will provide useful services to both the community and the entire country. In order not to lose a large amount of fruits from housekeeping, it is proposed to create fruit collection points with the goal to use them. One of such points is proposed fruit collection point in the villages, perfect location for a fruit collection point.

**Findings:** It is need to grow the agricultural industry. There are presented evidences to implement such fruit collection points in all the Rural Area of the Republic of Moldova.

**Research limitations/implications:** This project offers a wide range of information on all the resources used to implement fruit collection points in Rural Area. The limits have always existed, but with little ingenuity, the limits are down and the business is growing.

**Practical implications:** Project is supported by findings, conclusions, and recommendations that may be useful for all who want to create such type of business in his/her native place. Such fruit collection points have been existed in the past. They have disappeared and in the fruit sphere a chaos was installed. Present project of fruit collection points is a bridge to create Small and Middle Enterprises (SMEs) in the rural area of the Republic of Moldova.

**Originality/value:** Agrarian researchers have always supported the implementation of new businesses. The Republic of Moldova possesses rich fruit's spaces, hardworking people, and with little work and effort there can do wonderful and useful facts for society at home for country people. It can bring everything back to normal, to stop

chaos and waste of goods in the agricultural sphere of the Republic of Moldova.

**Implementation:** The Republic of Moldova possesses both urban and rural industries. For a long time, Rural Area has become a real welcome business point. Present business of fruit collection point (SME) will be implemented, developed, and will be active in this Rural Area. Such SME can be with success implemented in more than 60% of Moldovan villages.

**Sustainability:** Sustainability is the process of maintaining change in a balanced fashion, in which the exploitation of resources, the direction of investments, the orientation of technological development and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations.

**Thanks.** This business plan can be, for the benefit of the supply of psychological well-being of older people, successfully implemented in the EU as support and part of the evolution efforts of the Net4Age-Friendly network (COST CA19136)

## 8. BUSINESS PLAN: Limited Liability Company (LLC) „MONACU GRUP”

(Victor TONU, Dumitru TODOROI, Marina COBAN, Dumitru MICUȘA)

**Abstract:** The company SRL "Monacu Grup" has been registered with a variety of types of activity that are already used that count:- Manufacturing articles of metal yarn;- Manufacturing of other metal articles;- Treatment and coating of metals;- Wholesale trade of non-food goods for consumption;- Other types of wholesale trade;- Other types of retail trade not carried out through stores. His first activity was the production of metallic yarn products. It was created to offer high quality metal yarn products at affordable price, which was missing at the time of the year (2013) on the market.

**Purpose:** Due to the need to market, the objects produced, online, was created the site [www.monacu.md](http://www.monacu.md), which later due to the demand on the market and the increase of the buyer's interest in purchasing products online, was put to develop the site up to the level of Online Store that will offer for sale products of various categories , but mainly products intended for construction, various tools and so on.

**Findings:** The website [www.monacu.md](http://www.monacu.md) is an

internet store structured at the moment in groups, 12 in number, which in turn have subgroups up to order 3 hierarchical, in some cases and order 4. Research **limitations/implications:** To reach a desired product, it is necessary to go through the click each group and subbreak the respective or to be given in search of the key word after which it is desired to receive a product in response.

**Practical implications:** With the passage of time it showed that the structure of the site, its design remained at that level when it was created, in other words wealthy. For this reason the following was intended: -Elaboration of a new Logotype,-Elaboration of a new page design,-Restructuring categories on the site,-Change of menu display format,-Restructuring the product page,-Restructuring the basket page,-Introducing the product filter,-Completing the information pages (Shipment, Contacts, Payment...), -Elaboration of the order tracking page, -Elaboration of the credit calculation formula, - Centralization of orders and assignment of a unique order code.

**Originality/value:** For increased confidence and a high level of quality of services offered, the changes specified above are made, in the foreground:1) Menu, 2) Filter, 3) Product Page, 4) Design, 5) Basket for order.

**Implementation:** Current needs can be solved by developing a website or updating it to meet market requirements. There is no point in creating something extraordinary, but it is necessary to develop a product that will meet the requirements set by the customer as a user. In the case of the present project an Online Store is not enough to be beautiful, but the most important is necessary to be practical, informative and last but not least Fast. New generations live very fast, are not patient, i.e. if the product created does not offer at least the ones mentioned above, then there is a good chance that it is not successful that project.

**Sustainability:** As a result we will have a product that will provide high quality services, fast and functional.

**Thanks.** This business plan can be, for the benefit of the supply of psychological well-being of older people, successfully implemented in the EU as support and part of the evolution efforts of the Net4Age-Friendly network (COST CA19136).

## 9. RURAL TOURISM AGENCY

### “MAXIM’S COMPANY”

(Lavinia GRUMEZA, Dumitru TODOROI, Marina COBAN, Dumitru MICUȘA)

**Purpose:** Expanding the knowledge about Moldova and Romania, traditions, language, customs, holidays, their national food. Accumulating experience in the field of agriculture. Answers will be given to many questions about the countryside, peasants' occupations...

**Design/methodology/approach:** By the help of this project will be highlighted the strengths of people living their lives away from urban agglomerations. They will be illustrated beauties of a countryside with fields, forests, animals, birds ...

**Findings:** based on the analysis we will be able to understand the benefits of the rural environment compared to the urban one. For example, peace, harmony, pure air, river water ...

**Research limitations/implications:** this project leads to discussions on the position of rural tourism in the Republic of Moldova and offers several methods of its development.

**Practical implications:** The results of the project are supported by the findings, conclusions and recommendations that may be useful: rural tourism researchers, teachers in higher education, writing scientific papers, students to acquire and study rural environment, travel agencies practicing this form tourism, statistical analysis and forecasting institutions, being applied to the establishment of the new directions of tourism development in the Republic of Moldova.

**Originality/value:** the need to substantiate new forms of tourism and their integration into the offer of specialized tourism agencies; developing a plan for the development and diversification of tourism offers in collaboration with all institutions; presenting an analysis of this form of tourism at district level.

**Implementation:** The basic occupation of the people of the Republic of Moldova is agriculture. As it is called "Village was born in the village", Maxim's Company will make the peasants' occupations, the beauty of the fields and the villages to become alive in the minds of those coming from abroad. This company will be implemented priority in border regions of the Republic of Moldova, densely inhabited by the elderly in the Republic of Moldova, where



thousands of tourists come, tourists eager to meet Moldavia, our traditions, rural life and hospitality.

**Sustainability:** Sustainability has to come from the heart of the business, and that means embedding it in business strategy.

**Thanks.** This business plan can be, for the benefit of the supply of psychological well-being of older people, successfully implemented in the EU as support and part of the evolution efforts of the Net4Age-Friendly network (COST CA19136)

## 10. SUGGESTS ABOUT THE IMPLEMENTATION OF PANDORIAN SENTIMENTS TO ROBOTS.

(Ana SECARĂ, Ionela SECARA, Dumitru TODOROI, Marina COBAN, Dumitru MICUȘA)

**Purpose:** Robotics is a complex and heterogeneous field of scientific and technical research, with various applications in human and social activities. In these circumstances, due to the open nature of the field, robotics integrates and uses the results of research in artificial intelligence for the development of new generations of robots, namely intelligent robots with decision-making and autonomy capabilities in carrying out tasks in dynamic and unknown environments.

This research project the core of the rationality of intelligent robots is considered, the main aspects of reasoning structures are presented by the two dimensions: logical and semi-othetic.

**Design/methodology/approach:** Thus, the development directions of logical and semi-otian reasoning structures are taken into account, together with their interaction in the creation of intelligent behavior. The results of the research are applicable in the development of logical-semiotic intelligent robots and highlight the need to consider in design the synergistic context, according to which the robot structures (perception, action, processing, rationing) must be solved simultaneously in a manner oriented towards the global capacity of "thinking" and autonomy.

**Findings:** The evolution of technical systems has in recent years focused on the implementation of higher levels of operation that include autonomy and decision-making capacity, i.e. problem solving in dynamic and sometimes little-known or unknown environments based on knowledge and experience.

**Research limitations/implications:** The

solutions implemented are based on integrating the results of artificial intelligence into new structures, with the realization of intelligent systems as complex systems. The field of robotics is part of the same general trend through its fundamental mechatronic context which creates the optimal conditions for integrating the field of artificial intelligence, so that it develops as specific systems intelligent robots oriented on the fulfillment and solving of specific tasks, goals or roles in various operating configurations.

**Practical implications:** Just as light comes from light, not from darkness so there can be no intelligence without negative traits.

**Originality/value:** Zeus created Pandora's Box with the aim of destroying the perfect man to replace him with a new ideal – the real man, the one with full qualities, able to realize the gap from one extreme to another, from good to evil, from happiness to pain, from hubris to giving. Artificial intellect cannot be similar to human intellect, becoming a simple copy of the character created by Zeus.

**Implementation:** The purpose of researching this theme is to create a coherence of the factors that provoke the Pandorian feelings that could eventually lead to a new era – the era of consciousness of artificial intellect. Robots are much more emotionally intelligent than humans because they are programmed to awaken a certain feeling at some point, they do not encounter the problem that all humans have: how to manipulate their emotions, which makes them superior to the human species. The idea of research consists in highlighting and algorithmizing the stages of creating feelings in Pandora's box: cruelty, arrogance, suffering/pain, vanity, jealousy, lust, hatred, greed, diseases, laziness, sadness, fear, deceit, subjugation of mortals by the gods, death and hope.

**Sustainability:** Robots in our company that will move with the help of a set of wheels will have rich language capabilities and will be able to come to the aid of a large number of tourists, regardless of the language spoken. Our company's plans include the development of robots that can handle customer service, cleanliness and perform several monitoring and security functions, detecting suspicious behavior and alerting human officers in case of detection of irregularities.

**Thanks.** This business plan can be, for the benefit of the supply of psychological well-being of older people, successfully implemented in the EU as support and part of the evolution efforts of the Net4Age-Friendly network (COST CA19136)

### 11. RURAL ROBOTIC RESTAURANT

(MihaelaȚURCAN, Dumitru TODOROI, Marina COBAN, Dumitru MICUȘA)

**Abstract:** This project describes the design and development of a robotic restaurant. The robotics technology is replacing manual work at a fastpace throughout the world. In classical café, restaurants and hotels, the customers face a lot of problems due to congestion at peak hours, unavailability of waiters and due to manual or derprocessing. These shortcomings can be handled by using a restaurantaut omation system where „Waiter Robots”are used for ordering food and beverages. The desired order is also transmitted on wireless network to the kitchen via menu-bar.The menu-bar is based on the LCD, Key pad and the Blue to oth module.The customer places the order using electronic menu bar. This order is sent to the kitchen and receptioning communication network.The waiter robot then transfers food from the kitchen to the customer.

### 12. MODERNIZE OF THE SRL SITE "SEMSEO"

(Ion TULBURE, Dumitru TODOROI, Marina COBAN, Dumitru MICUȘA)

**Abstract:** In recent years, the rapid development of the Internet has led to the emergence of an increasing number of new online services. From the basic services that have been available to users (Mail and Web), the Internet has grown into a huge global network, with a variety of new services, technological solutions and the space where almost all economic entities around the world meet.In this respect, the Internet offers possibilities that in today's business cannot compare to any previous business. Space and business opportunities are the same for all business people in any part of the world. There are no obstacles in the Internet world all people are equal. This is why almost every day new Internet products appear, new software solutions, equipment and web technology, online places for sale-purchase, places where people see a chance of realization. The rapid development of the

Internet will inevitably lead to the search for new skills and the emergence of new jobs.

### 13. PIZZA AND PIES IN RURAL AREA OF THE REPUBLIC OF MOLDOVA

(Natalia SCROB, Adrian IOVU, Dumitru TODOROI, Marina COBAN, Dumitru MICUȘA)

**Purpose:** The aim of the enterprise is to meet the needs of the population in the rural area of the Republic of Moldova, which will provide useful services both to community food (pizza and pies) and the provision of services through entrepreneurial activity to achieve the social and economic interests of the associate members based on the obtained benefit.

In order to achieve the proposed goals, the enterprise will practice the following types of activity:

- producing and making pizza on order
- Pizza delivery at home.

The price of the pizza, as well as the delivery price, will be acceptable.

### 14. THE RURAL DISTRACTION: AERODYNAMIC TUBE OF THE REPUBLIC OF MOLDOVA

Tatiana BEȘLEAGA, Tinca BELINSKI, Nicoleta TODOROI, Dumitru TODOROI, Marina COBAN, Dumitru MICUȘA)

**Purpose:** Attractions are very importance for a country's economy. They generate foreign revenue which is important, and particularly important in third world countries. The revenue generated can be generated directly by the attraction but also by associated local industries such as restaurants, markets and informal trade. They generate local employment, often tourist attractions can offer gainful employment to people who may be less employable in other industries. They generate a sense of local pride in the area around the attraction, this has a positive social impact and can lead to reduced crime and nuisance behavior.

Another point here is that the attraction will generally provide the capital injection required to ensure adequate policing and other services. Tourist attractions raise the profile of an area and result in a greater awareness of that area worldwide, this can be beneficial due to increased social pressure if socio-political or economic challenges arise.

**Acknowledgment:**

Present research **was evaluated** under the guide and with the support of COST CA19136: NET4Age-Friendly the main aim and objective of which is to establish an international and interdisciplinary network of researchers from all sectors to foster awareness, and to support the creation and implementation of smart, healthy indoor and outdoor environments for present and future generations.

The results will contribute to solving problems

and actions carried out within the COST CA 16226, Indoor living space improvement: Smart Habitat for the Elderly (SHELD-ON), this way creating a better society for everybody.

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## Challenges and capacities for an independent, healthy and secure aging. Is Moldovan society prepared?

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**Abstract:** The paper focuses to evaluate the reality of the Moldavian society in the context of the aging population throw the social diagnosis of intergenerational openness to the needs of the old people and the challenges of becoming an age-friendly society. Based on the comprehensive analysis there are highlighted the challenges that the old people in Moldova are facing. On the one hand, low standard of living, poverty, limited access and quality of health services, restricted physical security, etc., on the other hand, a social perception full of stereotypes and behaviorally marked by discriminatory elements towards the old people. Through reasoned findings on the depth of the impact of demographic aging in the Republic of Moldova, the paper raises awareness on the effort needed to adjust social and institutional components to ensure active, healthy, and safe aging for the country's population. The thematic social diagnosis is supplemented with conclusions and recommendations.

**Keywords:** population aging, active aging, stereotypes, ageism

### Introduction

The relationship of societies to the issue of the elderly is different and is determined by the socio-demographic structure, the economic, and the cultural level.

Over the last decade, demographic problems, including population decline and the rapid demographic aging process, have intensified in most countries. Unlike EU countries, where population aging is a slow-moving process, over a long period of time, in Moldova it has taken place at a faster rhythm. The share of people aged 60 and over is constantly growing. In Moldova, the aging coefficient of the population has increased significantly in the last 5 years and corresponds to a high level of demographic aging.

By 2020, the aging coefficient of the population in Moldova already registered, about 22% [1]. There is a growing trend of demographic dependence, especially of the 60-year-old population. Ranking itself as a phenomenon of national importance, the demographic aging of human capital requires the introduction of policies and recommendations for the security and prosperity of the population and increasing the chances of getting old in health and activity.

### Perception and stereotypes toward the old

**population.** The social attitude towards the elderly, more of compassion than respect, reflects the rupture in intergenerational relations and the devaluation of the traditions of the traditional society. By determining the way individuals perceive themselves towards the elderly, the interest of society's reporting to their problems is measured. The socioeconomic implications of demographic aging contribute to the magnitude of negative trends in the perception of old age and attitudes towards older people. Both notions of age segregation or ageism have entered the social circuit, reflecting the deep rooting in the mass consciousness of young and middle-aged people (18-55 years) of a repulsive attitude of old age, is associated with illness, disability, helplessness, uselessness, and death [2]. Compared to other European countries, the population of the Republic of Moldova does not differ significantly in its attitude towards the elderly. Local studies show that the perceptions of young people and adults about old age and the elderly highlight the vulnerability and risk of social exclusion of this category of the population.

Except for the economic aspect where every third labels the elderly as a "burden on society", the majority of the young and middle-aged population up to 55 age have a positive attitude towards the

elderly [2]. They recognize the usefulness of the experience of the elderly for society, express concern, and awareness of the current situation of the elderly, and the need to take some effective improvement measures. An opinion confirmed by a good majority is the frivolous, incorrect, and unequal way in which central authorities approach the elderly and their needs.

From the multitude of vulnerabilities faced by the generation of old-age population, the social perception highlights: poor financial situation, reduced access to medical facilities or medical treatment, vulnerability to violence and abuse by others, social isolation of lonely elderly, discrimination on the grounds of age, as well as the low degree of information and knowledge of own rights.

In Moldova, a culture that disparages and discriminates against people based on age (ageism) persists. Negative stereotypes regarding old age focus on the vulnerability of the elderly and are associated with: helpless (63.8%), loneliness (55.6%), dependence (25.6%), difficulty (22.4%), discrimination (17.2%) [2]. Including the self-perceptions of the old people (aged 60 and over) confirm the presence of ageism in Moldovan society. About 60% of the older persons (aged 60+) consider that the others show negligent and discriminatory behavior towards the older population; 40% of the older persons state the existence of abuse, neglect, and violence against the elderly.

**Profile of the aging in Moldova.** The socio-demographic profile of the population aged 60 and over in Moldova, shows an eminent gender discrepancy with the feminization of aging (Figure 1). So, in 2020, the aging coefficient for women aged 60 and over is 25.1%, while for men it is 18% [1]. Among the old population, every third person is between 60-64 years old. Every 10th is over the age of 80. The female and male population is aging differently. Excessive mortality of working-age men [3], as well as their higher migration, cause a significant gender gap in the dynamics of the age structure of the elderly, the prevalence of women being a specific feature of the demographic aging process in the Republic of Moldova. About 60% of the total number of old people (aged 60 and over) are women. Among older women, about 71% are in the 60-74 age group.

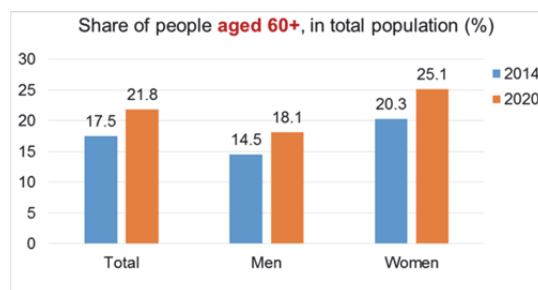


Fig. 1. The share of people aged 60 and over, in total population, Republic of Moldova, %, Source: [1]

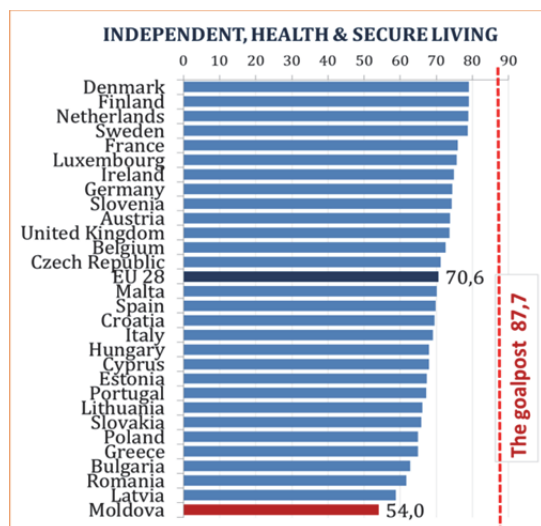
A brief analysis of the socio-economic profile of the population aged 60 and over highlights that in the structure of the poor population, every third is aged 60 and over, and is retired [4]. Due to the higher share in the elderly population and the difference in longevity between women and men, about 71% of the total pensioners for old age are women. Characteristic to the Moldavian aging population is that the main source of income for more than 67% of the population aged 60 and over is the old-age pension (EUR 71.8 - average monthly size in 2018) remains lower than the living minimum despite increases in recent years [5]. Assessment of households profile shows that in four out of ten households live at least one-person aged 60 and over. Of these, 71% are households made up only of old people (aged 60+ years); 63.4% are in rural areas and 36.6% in urban areas; 66.8% are single-person households and 32.7% - family couples [4].

Households with the elderly are less equipped which emphasizes the lack of conditions for a decent and quality life, especially in old age. Thus, according to recent statistics [6], we find that: every fourth do not have an aqueduct, about 39% do not have a sewer system in the house, 40% - no gas from the network, every second household doesn't have a bathroom or shower in the house, also a lavatory and hot water (public and own system).

**Discussion.** The components of older people's lives analyzed above, the precarious socio-economic and political situation marked by a deep crisis, refer to the increased vulnerability of the elderly population in Moldova. An obvious conclusion from all these analyses is that Moldovan society is not prepared for independent, healthy, and secure aging.

According to estimations presented in Figure2,

every second person aged 55+ in Moldova is restricted to living independently, in health and safety [7].



**Figure 2.** The index on aging in health, independent and secure living, % [7, 8]

In a comparative analysis, the country is in a lower position than all EU countries as well as those in the region. The distance between the average of this indicator for EU countries (70.6%) [8] and the estimated value for the Republic of

Moldova (54%) is over 23%, but compared to the proposed target at the European level is over 38%.

Table 1 is presented the reference indicators that describe the opportunities offered by the country to the population in pre-retirement age and older to a healthily, independently, and safely aging, and summarize some difficulties in which this category of the population are, and still low chances for the Republic of Moldova to reach the regional goals. Therefore, according to the Active Ageing Index only a quarter of the population, aged 55+ has a chance to age actively integrated into the labor market and social life [7]. Only half of the old population is apart from material depravity. The relative median income of people aged 65 and over is approximately EUR 112, being, in fact, twice lower than the income of people under 65. One-third of the elderly population has limited access to health services, this being conditioned both by the poorly developed infrastructure in the country and by the deficient health system at the national level. Older people are vulnerable to deviant behavior from others. In terms of neighborhood safety, just over half of the population aged 55 and over feel safe, and almost every third person aged 60 and over mentioned that they have been a victim of some form of violence.

Indicator	last available year	%
Active Ageing Index (updated calculation in 2019) [7]	2016	26.6
Access to health services of people aged 55 and over [9]	2016	65.2
Independent living arrangements of people aged 65 and over [10]	2014	59.8
The ratio of the median disposable income of people aged 65 and over to the median disposable income of those aged below 65 [10]	2014	55.3
Share of people aged 60 and older having income enough to cover basic expenses or/and more than basic expenses (self-report) [11]	2018	53.3
Physical safety of people aged 55 and older [11]	2018	53.9
Violence, abuse, and neglect against old people (self-report) [2]	2015	29
The mental well-being of people aged 60 and older [2]	2015	62.1
Lifelong learning among people aged 55 to 74 years [10]	2014	0.2

**Table 1.** Reference indicators of the independent, healthy & secure living of the population aged 55/60 years and over, Republic of Moldova

From the available data regarding mental well-being, it is found that only two-thirds of people

aged 60 and over feel happy and calm in their own family, as well as respected by those around them. It should be noted that all these indicators are lower compared to the countries in the region.

At the same time, a big gender gap is attested. Women (aged 55+) are more disadvantaged and face material, financial and physical vulnerability to a higher extent compare to men:

- ⇒ The monthly median income for women aged 55+ is less than men with 36%.
- ⇒ The share of women with no poverty risk and no material deprivation is lower than for men (43.1% versus 69%);
- ⇒ Only 48% of women aged 55 + are feeling safe to walk after dark in their local area, while men - 63%;
- ⇒ Although women have a longer life expectancy compared to men, they have been living in more precarious health conditions, unlike men.

## Conclusions

The Republic of Moldova is going through a process of profound demographic change. The share and number of older people are projected to increase. By the year 2040, more than 30% of persons living in Moldova will be aged 60 or over [12]. Women are in a situation of aging in poor living conditions, poor health, low incomes, being lonely, and increased physical insecurity.

Two main risks in this evolution that will directly affect both the economy and the social system are reduction and aging of the workforce on the one hand, and increasing the burden on the pension, healthcare, and social assistance system on the other hand. Among the great challenges here, it should be highlighted:

- the low level of total population well-being;
- the labor market poorly developed and unfriendly to age;
- lack of leverage for various activities with social involvement, solidarity between generations;
- the low capacity and lack of a favorable environment for the active aging of the population;
- high gender- and age-gap at all socioeconomic indicators;
- presence of gender and age-based

discrimination in the society;

- prevalence of highly ageist attitudes and stereotypes;
- attitudes to age are increasingly out of date and misguided etc.

At the regional and global level, are launched debates on long-term impacts, notably on care and pensions, and on how to foster active aging [13]. In the Republic of Moldova untapped potential of the aging population and opportunities need to be better harnessed. With well-chosen policies, population aging could not lead inevitably to macroeconomic decline, as foreshadowed in the conditions of current reality, if the investment in human capital is concentrated on main pillars - health, education, participation, security - based on gender, age, and the human right approach. The country needs well-guided cross-sectoral policies and continuous impact monitoring for different categories of the elderly.

Some important recommendations in the context of the analyzed problem can be mentioned: adjusting to active aging policies and capitalization on the potential of the older population is a mandatory requirement for the future sustainability of the country development; support continuing and lifelong education and health care for all; encourage savings behavior and healthy lifestyles throughout the life course; promote employment among women, older persons and others traditionally excluded from the labor force, including through a gradual increase in the official retirement age; support family and age-friendly policies to facilitate work-life balance and increased gender equality in both public and private life.

To live longer is one of the greatest achievements of humanities, and global development strategies come to remind us that aging refers to each of us and today's young people are the future old people. We must also develop social consciousness in this direction.

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## Generation Z as a Future Workforce and their Relations with the Older Generations

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**Abstract:** The most important purpose is not simply to characterize Generation Z, but to see them from the perspective of future employees and determine if they are really that different from the closest previous generation – Millennials or Generation Y. This work will be research which will highlight attitude towards work of younger and older generations. In this research I would like to bring your attention to Generation Z, the generation I and maybe some of you belong to. There is a direct connection between the work environments and the happiness and productivity of workers. In order to create such an atmosphere, it is important to know people's preferences concerning their work environments. However, it is also not a secret that our social life is changing and the changes occur in the workplace as well. Generally speaking, all generations share a similar outlook, and as they mature they build up certain distinctions that make them different from the older generations. Working conditions and requirements are not the same anymore. It should be mentioned the current situation worldwide caused by COVID-19 pandemics. We can see how some companies are shifting to a home-based work style and it is predicted that 30% of them will never go back to the office which directly affects employee's productivity. The results of this work might be useful for leaders, managers, supervisors, HR leaders, and educators in every sector of the workforce since Generation Z will present profound challenges as they are just on their way to enter the workforce.

**Keywords:** Impact of Generation Gap, Generation Z, Work Environment, Millennials, Generation Gap, Working Conditions, Work-Life Balance, Technological Progress. Introduction

It is a well-known fact that you, your parents and even your grandparents belong to three different generations. Today our attention is fully on Generation Z, the youngest known generation entering the workforce. According to [4] Generation Z was born between 1995 – 2012, the beginning and ending may differ since it is quite hard to determine where exactly a new generation starts and ends. It is different from country to country as well. This comparatively young generation is rapidly taking its place in social life: attend schools, graduate universities and most important become a labor force for several decades from now. So, the aim for this research work is not simply to characterize Generation Z, but to see them from the perspective of future employees and determine if they are that different from the closest previous generation – Millennials or Generation Y.

### Work environment change

According to [3] there is a direct connection between the work environments and the happiness

and productivity of workers. In order to create such an atmosphere, it is important to know people's preferences concerning their work environments. However, it is also not a secret that as our social life is changing, the changes occur in the workplace as well.

There are three main categories related to the workplace that change over time:

1. Job types and responsibilities: Due to automation, many industries no longer need the job positions to which we are used to. For example, it can be observed how supermarkets or airports slowly integrate self-check-out stations. For these reasons they do not need a simple cashier, but technology experts that will be able to solve technical problems or install these machines. It is estimated that nowadays 88% of job loss is related to automation.

2. Working conditions and requirements: It should be mentioned the current situation worldwide caused by COVID-19 pandemics. We can see how some companies are shifting to a

home-based work style and it is predicted that 30% of them will never go back to the office. Work became more about what you do, less about where you do it.

3. Cultural changes: In the workplace, we observe large cultural shifts, such as more comfortable working atmospheres and less formality. People start to pay more attention to cultural diversity and learn from each other, which in its place reduces misunderstandings.

### **Reasons for changes**

There should be a clear understanding of why these changes are taking place in the work environment.

1. Communication possibilities: Today people have more effective communication with the growing internet potentials. This progress makes it possible to find perfect job candidates, even if they live across the country or even in another country. This is forcing businesses to move at a faster pace. Moreover, workers are always connected to their colleagues which makes it easier constantly to share ideas and ask for help.

2. Automation and machine learning: As was mentioned above automation starts to have bigger advantages and faster than ever before replacing some human jobs. New advanced algorithms and technologies appear almost every day, which makes production and control more effective.

3. International diversity: The biggest role in this part plays of course globalization. Globalization provides a significant effect on positive international relations and communication. It leads to a higher level of company diversity and a wider range of potential business partners.

So, now as working conditions that change employee's productivity and attitude towards work are known, let us move to the next part and see how the combination of work environment and next-generation makes things different.

Generation Z and Generation Y -Common characteristics

The best way to analyze the difference is the comparative analysis. Millennials or Generation Y, born between 1982-1994, is the closest older generation. For this reason, both share some common characteristics related to their performance at work including:

1. Flexibility in the workplace: They want

flexible schedules and remote work options. However, it does not mean that they are lazy and want to earn easy money without doing anything. In contrast, they want to work hard under flexible conditions. These younger generations usually connect their work and home lives. In other words – work-life balance with more flexible schedules.

2. Workplace preferences: Closed-in in the traditional office for 8 hours it is not about either generation. Both Millennials and Generation Z prefer and work more productive in modernized office spaces with natural light and plenty of perks. As was mentioned before it is about what you do, not where you do.

3. Attachment to technology: Millennials love their technology being the most experienced digital immigrants comparing to other older generations, but Generation Z are the first true digital natives, as they can't remember a time without the internet. They are rarely seen without their smartphones or another connected gadget in hand. So, the workplace with highly advanced technologies will definitely attract and make them way more productive.

### **Generation Z vs. Generation Y**

While there are many similarities between Generation Y and Z, there are numerous distinctive qualities between these two. These differences make generations unique in the workplace. Here are some of them:

1. Collaborative vs. competitive: Millennials are major team players and highly value collaboration. They are rarely seen dealing with some work problems by their own. Generation Z, not so much. While they're willing to work with others, they are also highly competitive and push themselves to work independently in order to achieve their goals.

2. Optimistic vs. Realistic: Millennials are considered to be more optimistic, what helps them to see their failures from a bright side – as an experience. Younger generation is more realistic, which is actually a good quality for a worker to correctly assess their strength and capabilities.

3. Encouraging feedback vs. straightforward feedback: Both generations had slightly different childhoods, which have influenced the way they want their feedback. Millennials had it in a sweeter manner, while Generation Z had it straightforward ('the way it is'). Because of this, for each

generation, leaders must pay attention to their feedback style. For younger employees it should be clear and straight to the point, for Millennial with positivity and encouragement.

4. Passion vs. Pragmatism: Generation Y is restrained by their need to “do what they love”. They are raised with the fairy tale idea that passion should guide what they do. They are working to spend money and sometimes can buy unnecessary things. Post-millennials are able to work hard, in order to ensure financial stability. They are more realistic and want stability. They prefer financial security and led by the idea “save now, buy later”. This attribute makes them more pragmatic.

5. Service preferences: Practical services, such as daycare services in the area and building, laundry, and car rental, valued much higher by the group born in the 1980s. This can probably be explained by the fact that this age group is the one most likely to have children that attend day care. The younger ones appreciate restaurants, cafes and bars in the area more than the older generation. The preferences concerning workout services, as fitness center in the building, do not differ remarkably between the generations.

### **Impact**

Of course, even small generational differences can have their own impact on the company. According to [2], in organizations with 500 or more employees, 58% of human resources reported conflict between younger and older workers, because of the different perspectives on work ethic and work-life balance.

The differences between generations can affect the way corporations recruit and develop teams, deal with the changes, motivate, manage employees, and boost productivity. **1.6 Solutions**

For any problem, there is a solution and the generation gap at the workplace is not an exception. People from any generation in the workplace need to know people as individuals and respect each other. There are four steps defined which can help to unite workers from different generations:

Firstly, a worker must identify the mistakes they had made to develop their wisdom. After they realize the mistake and learn a lesson from it, it is necessary to share the experience to prevent problems in the future.

Secondly, help. Young workers are not that

qualified and do not have such experience. The elder generation should look at it in a way that they are teachers or mentors for them. Mutual help is an extremely important phase of the establishment of working relationships.

Thirdly, the younger generations must accept their role as followers. Acceptance of help does not show weakness or unqualifiedness. It shows that worker is willing to develop and train.

Lastly, all generations must acknowledge and respect each other's differences as opportunities for self-growth. By doing so, they will easily learn from the past, stay focus on the present, and stand forward to create a better future. Respect is something that will always minimize conflicts and misunderstandings.

### **Conclusion**

No matter how hard you try, generational differences cannot be changed. Instead, changing how different generations are motivated by incorporating different motivational techniques into company's management styles. The problem of differences seems simple – generation gap, however, as we defined earlier it is not. It is important to acknowledge what motivates each generation and controls their behavior. Generation Z will present profound challenges to leaders, managers, supervisors, HR leaders, and educators in every sector of the workforce, since they are just on their way to enter in the workforce. However, it is not a reason to underestimate them from the first look. Every generation tries to prevent or change the mistakes of the previous one. That is what Generation Z is challenging right now, so they should have a chance to show what they are capable of. A corporation's success and competitiveness depend on its ability to embrace diversity and realize the competitive advantages and benefits of each working generation.

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# THE GAP OF OPINIONS BETWEEN GENERATIONS – AN ACUTE PROBLEM

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**Abstract:** Whether, it is health, political, social or cultural issues, it seems the older generation always forgets they were disobedient and rebellious too, in their youth. Generation gap would not be that serious a problem if families learn to sit over dinner and amicably settle things by ironing out differences and sharing experiences. Family outings, vacations, tours, picnic-outings could be effective ways to initiate intimacy between parents and children. Watching movies and discussing them, putting forth different viewpoints can be a beginning to inculcate the habit of a healthy dialogue between members of the family. Such small things and steps can do wonders in initiating a healthy family atmosphere and reducing friction between two generations that are both right from their perspectives. Their only folly is that they are viewing the same thing from opposite directions. Age, time and experience or the lack of it, forces them to do so. The purpose of this article is to identify the existing types of generations, the major differences in opinions of various generations on different areas of life, like language use, technological influences, workplace attitude etc., and where do these differences come from.

**Keywords:** generations, attitude, conflict, gap, differences.

## 1 Introduction

Conflict between generations is a constant in social life. Different mentalities, changing values and lack of communication are the main causes of conflicts between children and parents. The generation gap would not be such a serious problem if families learned to discuss, to solve their problems amicably, eliminating differences and sharing experiences[1].

The first research on intergenerational conflict was conducted by German sociologist Karl Mannheim. He noticed the differences between the generations when moving from adolescence to adulthood, he researched the ways in which generations move away from each other in different areas of life.

Due to the generation gap, beautiful relationships like the one between a parent and their child is getting hampered. People must respect each other's individuality rather than imposing their ideas and try to understand each other to clear out all the problems. Everyone must be given their desired space, and when one is explaining themselves, the other must patiently listen to them and then give them their opinion and not impose it on them. If

someone does not understand what the other person is saying, the other person should explain it with calm and not avoid the whole topic because this leads to estranged relationships which are not beneficial by any means and can cause conflicts. People must be open to new ideas and not be rigid about their opinions and beliefs. Any issue that comes up must be discussed and not taken into consideration that the others would not understand it. In this way, the generation gaps can be minimized, and people from all the generations can live in serenity.

Due to increasing generation gap, it has become tough to maintain harmony. One of the significant problems that lead to a generation gap is that both the generations do not communicate and they do not try to solve each other's curiosity and ignores them. The process of negotiation, mutual agreement, and conciliation play a very crucial role in solving generation gap problems.

## 2 Chronology of generations

Generations exhibit similar characteristics, such as communication, shopping, preferences, etc, because they experienced similar trends at approximately the same life stage. Members of a

particular generation develop and share similar values, beliefs, and expectations. Looking at people through the generational perspective offers predictability and useful information when analysing the population as a whole.

On this day, the literature distinguishes between six major groups of generations: [2]

- *The Silent Generation* – this generation includes people born between 1928-1945;
- *Baby boomers* – the generation born between 1946-1964;
- *Generation X* – those born between 1965-1980;
- *Generation Y / Millennials* – persons born between 1981 and 1990;
- *Generation Z* – generation of the years 1990-2010;
- *Generation Alpha* – the first generation born entirely in the 21st century, from 2010 until now.

Each of these generations has an active role in the society and workforce. Most of the time, a workplace consists of multiple generations, from four to five generations at a time.

Different sources include different years for each generation. The reason behind this is that many people who study the generations have made different conclusions on the years a generation breaks from the other. Besides, generation years vary geographically. We can notice different characteristics in different parts of the world. Big events which shape and affect the generations happen globally at different times, and trend may vary from country to country.

For example, being a Millennial in Greece, with the current unemployment situation, can lead to different expectations and behaviours than being a Millennial in The United States of America at the exact same time, where the job market is doing great. To be more accurate, one must choose to focus on an age group and one geographical area, to determine when one generation starts and the other one ends.

### 3. The generation gap in various aspects of life

The gap between generations is the difference in values and attitudes of generations, especially between young people and their parents. This gap stems from the fact that older people and young

people do not understand each other because of their differences in experiences, opinions, habits and behaviour.

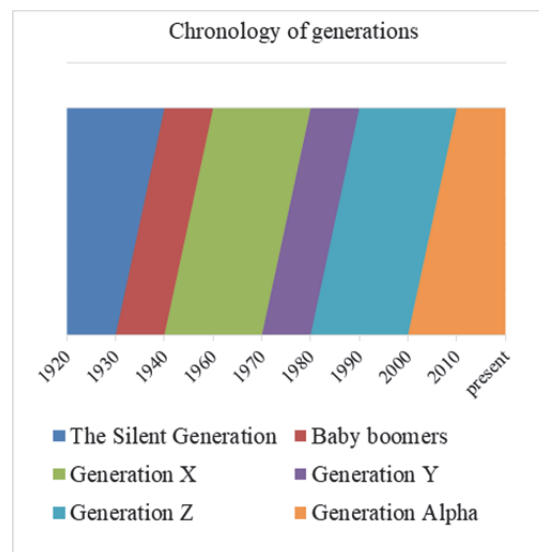


Figure 1. Chronology of generations

Major differences between generations can be seen in the following areas:

**Language use** – The gap between generations has created a difficulty in communication. This chasm is felt in everyday conversations at home, at work and at school. While the younger generations tend to distance themselves, they develop a new language, slang, to differentiate themselves from previous generations.

**Technological influences** – Young people are increasingly relying on technology in their daily lives. This creates closed social circles, and leaving out the family, they distance themselves from other generations, namely parents[3].

**Workplace attitudes** – Although young people are greeted at work by a multigenerational team, studies show that they are more confident in their own skills when they take up a new job and tend towards leading positions, compared to the older generations.

**Generational consciousness** – When a group of people becomes aware of its segregation from the general mass of people, due to common interests and values. Usually, such a group consists of people of relatively the same age, who have gone through certain events that have shaped their

consciousness and thinking, thus forming the generational consciousness.

**Demographics** –For sociologists to understand the transition from childhood to adulthood, they compare the current generation with previous generations and future generations simultaneously. In addition to the fact that each generation goes through its own mental and physical maturation, they create new aspects of education, the formation of new households, family and demography. Demographic differences in values, attitudes, and behaviour between generations are used to profile the next generation of young adults [4].

#### **4 The impact of the generation gap on business**

Understanding the different generations is critical for businesses to know who they should market to and how. The first step is understanding the product or service offered the business and who its target audience is.

Millennials and baby boomers are the largest generations. Baby boomers are also the wealthiest while millennials are reaching middle age and will have more wealth to spend. Understanding these types of characteristics of a generation will help in marketing. Also, knowing what these generations need at a certain point will help. For example, baby boomers are nearing retirement or are retired, so aspects of retirement in a product may appeal to them. Millennials are still fairly young, in their mid-twenties to forties, so addressing topics such as buying a house or first car or starting a family may appeal to them. In addition, a business needs to know where to market. Baby boomers grew up in an age without smartphones or the Internet. Though many are tech-savvy, many also still read physical newspapers and watch cable TV. If you are marketing to baby boomers, that might be an area to consider. On the other hand, Generation Z grew up with smartphones and tablets in hand, so marketing digitally to them would be the smart move [5].

Most organisations will have three different generations of employees: baby boomers, generation X people, and millennials. Demographically, they span the best-part of a century, and each group has different sets of values and experiences, both in and out of work. They can

all bring valuable skills and when they work together, can produce stunning results. However, each group sometimes has a perception, which is usually wrong, about the others that might stop them working together to their full potential.

#### **5 The generation Gap between parents and children**

People born in different time periods have their views on life based on the circumstances they have been through. The pattern of life is changing continuously through time. Thus, everyone wants to live in their own way and doesn't want to compromise with their views. The difference in attitude between younger and older generations has always existed. This divergence has augmented the generation gap which is becoming wider and wider every day.

It is great to have a wide range of ideas and opinions, but sometimes, when the views are not accepted by both generations, it becomes troublesome. Usually, parents want to bring up their children with the same values that they were brought up. Parents expect children to behave in accordance to their values, as they believe it is for their own good.

On the other hand, children have a broader outlook on life and tend to refuse accepting the traditional ways. They want to do things in their own way. Through adolescence, children experience a search for self-identity, meanwhile parents fail to understand them. Ultimately, both parties are drained out and aren't able to comprehend each other. This way appears the generation gap between parents and children. The parent-child relationship is one of the most beautiful relationships in the world, and should be nurtured very carefully. So, it is important to bridge the gap between the two generations. It's time to realize that neither party is right nor wrong, and both generations must become more understanding and accepting for the other. The most helpful instrument in solving the parent-child conflict amicably, is through calm dialogue and an open mind. It is the responsibility of both parties to fill in the gap with love, respect, trust and affection.

#### **6. Ways to approach the generation gap in the workplace**

Today's companies are mostly composed of a

multigenerational collective. Young and old people are working alongside. In such a diverse collective, managers must ensure a friendly atmosphere between the generations, must understand their needs as different age groups and work on nourishing the collaboration between them. [6]. There are some ways in which the management can bridge the workplace age gap:

- *Focus on similarities* – it is more important to focus on the similarities and not on the differences between the generations. Core values are most likely to be similar for all generations, and focusing on these can create open-mindedness and flexibility within the company.
- *Keep communication open* – communication is key in bridging the workplace age gap. Teambuilding exercises, social events and different activities are a few ways to bring the multigenerational workforce together.
- *Encourage mentoring* – a strong mentoring platform for all employees and cross-generational mentoring or reverse mentoring opportunities enables colleagues to meet other people and learn from their experience.
- *Give value to seniors* – senior employees have a wide baggage of wisdom and experience, which can be useful when shared with the younger generations.
- *Set out clear expectations* – setting clear role expectations can ensure a fully functional environment, as all generations can learn to set higher goals and a thirst for learning.

Managing the generation gap requires understanding the generational differences, as well as implementing strategies to bridge the gap. Older generations often complain that Millennials have high expectations for a rapid advancement and a desire for a balance between life and work. On the other hand, this generation possesses key attributes that may create opportunity in the workplace, driving the transformation of work performance. This is especially true in a technology-enabled environment.

The Millennial generation is, by far, the most educated generation in history. They have a strong desire for continuous development opportunities, as well as an urge for continual learning. Fulfilling their needs for continuous education and feedback can help improve future knowledge transfer from a generation to another. Although it may seem that

the Millennial workforce is forcing a continuous change in workplaces, alignment can be found with the older and younger generations

Even though each generation is shaped by their unique experiences, the older and younger generations can still find common ground. The work environment is constantly changing. Implementing internal programs that both generations value, targeting messaging to different age groups can help establish healthy relationships in the workplace between the generations.

## 7. The rights of the future generations

Caring for future generations is a characteristic of humanity. It is an aspect of cultural diversity, a universal value and a basic principle of international treaties and the constitutions of democratic states.

However, the concept of responsibility for future generations is relatively new from a theoretical and practical point of view.

The Declaration on the Responsibilities of Current Generations to Future Generations, adopted by the United Nations Educational, Scientific and Cultural Organization (UNESCO) in 1997, states the moral aspects of this principle: the needs and interests of future generations, freedom of choice, maintaining and perpetuating humanity, maintaining and preserving life on Earth, environmental protection, the human genome and biological diversity, cultural diversity and cultural heritage, common heritage, peace, development and education, non-discrimination.

Each generation must seek to meet its own needs, without leaving to future generations:

- financial debt - large loans, external and internal, long-term;
- social debts - neglect of investments in the human factor;
- demographic debt - through uncontrolled population growth;
- ecological debt - depletion of natural resources or soil, water pollution and air.

The rights of future generations can be divided into two main categories: environmental rights (sustainable development) and bioethical rights (protection of the human condition). The very idea of future generations is intrinsically linked to that of sustainability. It implies extending the timeframe of law to include the long-term protection of



populations and species [7].

There are three core obligations that each generation has to the next:

1. Ensuring that future generations have the ability to make choices about how they live in the world they inherit.
2. Passing on a world that has not been damaged by our actions, and a related responsibility to repair the actions of the past.
3. A right of equal access to public resources, both to our neighbours today and to future generations.

Since 2015, we have witnessed a new wave of developments in the rights of future generations forming a groundswell numerous cases are currently being brought to court on behalf of future generations. In the United States, thousands of climate-related court cases have emerged to protect the future environment. In 2018, the birth of genetically modified twins Lulu et Nana raised historically unprecedented questions on the necessity of protecting the human condition. This type of birth violates the dignity of children and that of the human race. Certain types of scientific research clearly raise legal issues that form civilization choices.

## 8. Conclusions

Over time there has always been a degree of generational differences. For example, women in the 1920s shocked their elders by wearing short skirts and pinned-up hair. However, the term "generational gap" came into use in the United States and Europe only in the 1960s, and was intended to describe the relationship between Baby Boomers and their parents.

The problem of generational solidarity becomes a challenge in the political, educational, cultural, etc. fields. Promoting intergenerational understanding by providing an opportunity to come together and share ideas and experiences about what really matters to them in life and to start a broader debate on the values of today's society.

All generations want a better future without compromising the present. This is possible if we become more supportive and attentive to the needs of all generations. According to international experts, the issue of intergenerational solidarity is a major challenge, so it is very important to join forces to build positive attitudes towards aging by

creating an environmentally friendly living environment for the elderly. Promoting understanding between young people and the elderly by providing an opportunity for the two groups to meet and share their ideas and experiences on what really matters to them in life and to start a broader debate on the values of the current society is extremely important for the Republic of Moldova.

Although the gap between the generations is increasingly analysed, it does not disappear. The solution would be communication. In conflicts between parents and children, they accuse and blame each other. But the truth is always somewhere in the middle, and each party has something to learn from the other. Society is dynamic, and in a continuous change, but the representatives of some generations, formed according to a certain set of values, risk being less receptive to changes.

The gap between today's young people and their parents is largely generated by the fact that the former did not know the communist regime; they did not know the lack of freedom of expression, culture and goods, which today's young people consider obligatory for their development. The younger generation find it difficult to understand that in the time of their parents, having access to a brilliant career was rather a beautiful dream that could not be fulfilled without great compromises. Those who have felt the communist regime on their skin claim that young people do not properly understand the freedom they enjoy and do not know how to differentiate between good and evil [8].

Each generation wants to be treated with respect, and to gain respect each party is fighting a fierce battle. Psychologists argue that in order to build a bridge over the so-called intergenerational chasm, it is necessary for parents to be aware from the very beginning that they must be open to their children. At the same time, children must be understanding and grateful to their parents. If, when they reach adolescence, the children see their parents as friends, the conflict between the generations is almost resolved.

It is very important to understand that generations change once every 30 years or so, and people are no longer what they used to be. Thus, only better communication between parents and

children can minimize divergences between generations.

### Acknowledgment:

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# THE IMPORTANCE OF COMMUNICATION IN PREVENTING CONFLICTS BETWEEN GENERATIONS

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**Abstract:** Life without conflict seems so perfect, but, unfortunately, nature has its plans, which is why people occasionally have to express their emotions and feelings. Sometimes this process can proceed peacefully, other times misunderstandings can arise which, if treated improperly, can turn into upsets. The younger generation blames adults for "old-fashioned" thinking, considering their principles and visions obsolete today; while adults consider that the young generation gets out of control, thus becoming more "free" in its exposures and actions. However, it is necessary to understand that the problem is not hidden behind any generation. In fact, the problem is the lack of communication. Only through communication the younger generation will be aware that adult advice is very current and useful, and adults will understand that the opinion of the young generation also has the right to exist, moreover, many young people have the ability to think coldly, and to adapt to stress. So, the formula for a successful relationship includes listening, understanding, and the most important element - communication.

**Keywords:** generations, communication, conflict.

## 1. Introduction

Intergenerational conflicts are a topic that never loses its relevance. The difference of visions and opinions, behavioral norms, etc. can sometimes lead to misunderstandings. This reason is not due to the fact that one generation or another is wrong, but is due to the principles of society from a certain period. The surest way to prevent disputes between representatives of different generations is to communicate. However, it should be noted that simple communication is not always effective; for this reason, learning to communicate correctly is paramount.

Communication is a component part of our lives, without which the latter is not possible. Namely to the need to communicate, to transmit and receive information, feelings, is owed the existence and evolution of man. At every stage of life, every minute, every second, burning with desire, or without it, people communicate. So, we deduce that "living" is equivalent to "communicating."

Each man communicates through his whole being, and through all forms of expressive manifestation, that is, not only through the word.

No person can live his life without expressing himself in relationships with people, that is, to express his interests, thoughts, feelings, ideas, etc.

Silence, refusal, and even the most insignificant gesture have a certain meaning.

Communication has several levels, namely:

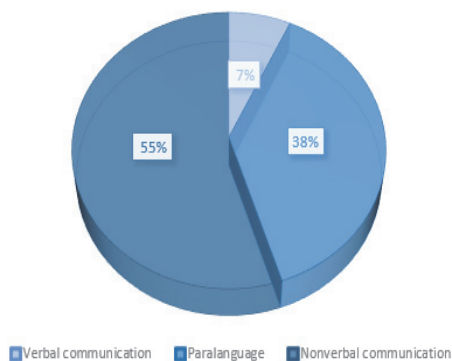
- intrapersonal - that is, communication with the self;
- interpersonal - the dialogue itself;
- group communication - takes place in a small group of up to ten people;
- public communication - refers to large groups;
- inmass - through the media.

Albert Mehrabian proposed the law 7% - 38% - 55% (figure 1), which clearly shows that in a conversation, the share of importance is 7% verbal communication, 38% paralanguage, 55% nonverbal communication [8].

## 2. Verbal communication

Verbal communication accounts for 7% of the entire process, and is the one that takes place through the exchange of appropriate words and messages, verbally and / or in writing. When communicating with other people, the message

must be clear, well-structured and tailored to the person for whom it is intended. Moreover, for the efficiency of verbal communication, familiar expressions must be used. A widespread cause of intergenerational conflicts is considered the lack of clarity in the message.



**Figure 1.** Law 7% - 38% - 55%

According to writer Saundra Hybels and Professor Richard L. Weaver, in order to have effective communication, we need to reflect on the following questions:

- What do we want to communicate? That is, before starting a communication, it is necessary to refine the message we tend to send, in order to be properly understood.
- How do we want to do it? This refers to the language we will use, language directly adapted to the audience we are addressing.
- Who are we talking to? Here it is necessary to take into account the public, it is desirable in advance to be interested in the previous experience of the public with such a message [1].

So, we can argue that in the case of verbal communication it is appreciable, even necessary to focus on understanding by choosing the appropriate language, organizing the message, using the appropriate examples; and, if necessary, the use of synonyms, comparisons, etymologies (for example, in the case of slang). This will create a friendly atmosphere for both generations, built on understanding.

### 3. Paralanguage

Paraverbal language represents 38% of the entire communication process and refers to the characteristics and qualities of the voice. It can be considered the threshold between verbal communication and nonverbal communication.

Here we will refer to the way the message is issued, and we will appeal specifically to the speed with which we speak, the raising or lowering of the tone, the volume, etc.

Speech speed usually depends on the speaker's condition. If the transmitter speaks slowly, it could mean a lack of interest, disconnection from the world; if we talk fast, we can highlight a tension, or a desire to hide certain information. The balanced speed of communication outlines isolation, repression or lack of naturalness; and unregulated speed configures confusion, anxiety, and communication breakdown.

The tone of voice is extremely important, because through it an attitude is transmitted, subsequently giving the communication a certain atmosphere. It also informs the type of relationship you want to have with someone. If it is cold and sharp, it imposes distances. If it is warm, or even whisper is used, it invites the approach. Moreover, the tone of voice can completely change the meaning of a sentence. For example, there is a major difference between the phrase "How glad I am to see you again" uttered with a warm smile, and the same phrase uttered in a sarcastic manner. The latter situation will make you think about the sincerity of the person.

The use of a high tone of voice will express authority, supremacy, while the lower tone of voice will lead us to think of the softness or suppression of the person. The severe tone of voice suggests maturity and builds confidence in others. It is most used in advertisements. If the tone of voice is extremely serious, it refers to gloomy sensations. A firm and confident voice leads us to believe that the speaker is someone special and important. Speaking in a low tone of voice suggests that the person has great weaknesses or is unshakable. Those who use a very pronounced tone of voice convey low credibility.

The volume of the voice also outlines a state, attitude. The small volume of the voice reveals shyness, insecurity, fear, etc. While the

large volume of the voice expresses confidence in own strengths, courage, aggression, impudence.

It is important to note that it is not good to go to extremes, but to use a moderate volume, because both low and high volume can cause discomfort, and later you can reach misunderstandings or even quarrels [9, 10].

#### 4. Nonverbal communication

Nonverbal communication can be considered the foundation of basic communication, accounting for 55% of it. By nonverbal communication we mean conversation without the use of words. Instead they are used:

- kinesthetics (body language);
- chromatics (color language);
- proxemics (the language of space);
- haptics (the language of skin touches);
- chronicle (the language of time);
- olfactory (the language of olfactory signs).

The human body can allow us to determine the opinion, position, attitude of the interlocutor, even if it does not correspond to the verbal message. However, nonverbal language must be seen in context, in order to form a clearer and more accurate "picture" of one case or another. Knowing body language allows you to visualize the situation a few steps ahead, which allows you to handle communication.

Numerous studies provide appropriate documentation for each person interested in the right definition of the message behind the gestures and facial expressions. It is worth mentioning that both the movements of the head, of the hands; as well as facial expressions are very suggestive.

The head pushed forward reveals a threat; left on his back - agreement, obedience; tilted right sideways - goodwill, listening; left sideways - skepticism, criticism, doubt; the bowed head evokes insecurity; right head - neutrality; raising the head, thus revealing the neck (considered a vulnerable area), means that the person has a sense of self-worth.

The person who covers his mouth while speaking implies that he is lying. If the person covers his mouth while someone else is talking, it means that what he hears is considered a lie. Also, massaging the eye during speech shows that the person is lying. The hand that pulls the earlobe, the

finger inserted inside the collar, or the hand that massages the nape of the neck - reveals the insecurity of what was said, the lie or that something is hidden from the discussion. The head bowed forward, and the hand on his forehead evokes embarrassment, shame, regret. Head held in the palm of the hand - boredom. Caressing the chin or keeping the thumb under the chin and the index finger on the cheek - highlights the fact that the listener has conflicting opinions. The folded hands denote negativity, skepticism, blocking the other's message. Hands on hips - threat, persuasion, influence. Hands behind or in front and one holds the other by the forearm - insecurity, distrust, fear. Hands behind back, one holding the other by the wrist (usually followed by the chin up and chest facing forward) - authority, courage. Hands that shake too much, and asymmetrical gestures - the person is approachable.

Hands with slow movements – safety [7].

Conscious facial expressions help us to share feelings such as love, compassion, understanding, etc.; and by studying and practicing, they can be controlled. Unlike regular facial expressions, it is very difficult, or even virtually impossible to hide microexpression. They can't be controlled because they take place in a split second, but it's possible to capture someone's expressions with a high-speed camera and render them at much lower speeds.

Microexpressions express the seven universal emotions: disgust, anger, fear, sadness, happiness, contempt and amazement [4].

However, in the 1990s Paul Ekman expanded the list of emotions, including a number of positive and negative emotions, not all of which are encoded in the facial muscles. These emotions are: relief, anxiety, fun, embarrassment, pride, contentment, pleasure, shame and guilt.

Characteristics of microexpressions:

- disgust is characterized by the wrinkled nose, and the upper lip – raised;
- anger - eyebrows side by side, lowered; burning gaze; narrowed lips;
- fear - eyebrows raised and together; upper eyelids raised; tense lower eyelids; lips slightly extended horizontally to the ears;
- sadness - upper eyelids lowered; loss of concentration in the eyes; the

- corners of the lips slightly lowered;
- happiness - small wrinkles; raised cheeks; the movement of the muscle that orbits the eye;
- contempt - a single corner of the lips is raised;
- astonishment - raised eyebrows; big eyes; mouth open, or ajar;
- embarrassment - head lowered and sideways; the lips are tightened together and the corners turn slightly;
- pride - head tilted back; the corners of his lips pass into a slight smile; the jaw pushes forward;
- fun - head thrown back; the muscles tense around the eyes; open mouth; relaxed muscles;
- guilt- head down; looking down [4, 5].

The language of colors is a field that manifests its specificity depending on the socio-cultural context. Color, beyond its affective perception, is also a mirror of our personality and therefore influences communication. Although the way each individual perceives colors has a certain dose of subjectivism, there are colors whose effect has universal significance, namely:

- white conveys purity, cleanliness and neutrality.
- gray is timeless, practical and solid.
- black carries a message of authority and power.
- blue is considered to inspire trust, devotion and responsibility.
- natural green is considered to be soothing and refreshing
- yellow shines with potency, happiness and gives inner illumination.
- red has the quality of attracting attention [6].

Proxemics is the field that deals with the language of distances. Edward T. Hall delimited four interpersonal distances:

- intimate area (up to 40 - 50 cm);
- personal area (50 - 70 cm);
- social area (1.5 - 3 m);
- public area (3 - 6 m) [3].

## 5. Communication conflicts

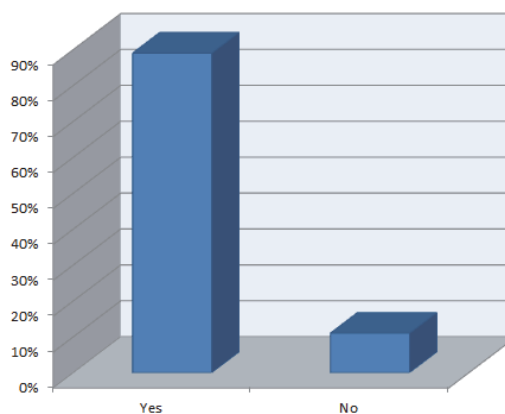
Conflict is an opposition, disagreement or

incompatibility between two or more parts. It can occur for a variety of reasons, such as: fatigue, misperceptions and misinterpretations, the existence of different purposes, inappropriate behaviors, incompatibility of people, mistrust, envy, etc. Based on a survey, in which 100 people of different ages participated, it was established that 89% of respondents had experienced intergenerational conflict, while another 11% had not encountered this type of conflict (Figure 2).

### 5.1. Conflict classification:

By location criteria:

- internal - which occur and take place within individuals - intrapersonal conflicts;
- external - which occur and take place against the background of interactions between two or more people.



**Figure 2.** The experience of intergenerational conflict

By level (refers only to external conflicts):

- interpersonal conflict;
- intragroup conflict;
- intergroup conflict;
- intra-organizational conflict;
- interorganizational conflict;
- intergenerational conflict;
- interstate conflict.

By mode of manifestation:

- hidden;
- open or externalized, which, in turn, are divided into peaceful and violent.

By result:

- positive or constructive - lead to development, progress, optimization;
- negative - lead to destruction, disorganization, regression.

By degree of intensity:

- discomfort - the form with the lowest intensity of conflict, characterized by an unclear, confused state in the relationship;
- incident- unforeseen conflict, happened situational, but not devastating, of moderate intensity, controllable. It is manifested by short and / or acute exchanges of words, gestures.
- misunderstanding - inconsistency between the meaning transmitted and the one received by the recipient (alteration of communication):
- assigning a different meaning to words;
- shifting the logical emphasis to another word or group of words;
- misunderstanding can cause tension and a temporary alteration of the relationship.
- tension- a form of conflict of greater intensity than the previous ones, implying a more accentuated and constant negation of the attitude, with elements of aversion that alter the mutual perception and generate behaviors of avoidance or fragmentation of the relationship.
- crisis- the strongest form of conflict, materialized through verbal or physical violence. The behavior gets out of control, thus producing major destructive effects [2].
- The ability to prevent conflicts is very important, because it allows us to keep the situation under control, and to avoid a major conflict. For this we need to take into account a few aspects:
  - sincere and honest communication;
  - patience;
  - addressing grievances in a constructive manner;

- calm, open attitude;
- controlling negative emotions;
- accepting differences and defects;
- imaginary placement in the opponent's place to understand him;
- tolerance[1].

However, there are situations when conflict cannot be prevented. Nevertheless, it should be noted that although we cannot always anticipate the conflict - there is always a way to resolve it, namely:

- abandonment- physical or emotional withdrawal from the conflict. Sometimes it can exacerbate the conflict;
- repression- denying the existence of a conflict, motivated by the desire to have peace at any cost. This tactic is admissible only when it refers to a minor conflict; in case of a real conflict, the only solution is to acknowledge its existence;
- victory/ failure - the unconscious tendency to protect ourselves from the pain of failure. There is an exposure of forces, and one of the parts is defeated. Today's loser may refuse to cooperate tomorrow;
- victory/ victory - the ideal strategy; it does not involve a winner and a loser. Although the process of finding the solution is longer, relations will be strengthened and the solution will be more sustainable;
- aggression- a technique that involves the misuse of power, trying to dominate other people involved in the conflict. It reflects the desire to meet one's own needs without taking into account the expectations, needs and feelings of others;
- avoidance- people who adopt this solution withdraw from the conflict and do not assume their responsibilities. The conflict does not go away, and may break out with greater intensity;
- accommodation - one part sacrifices itself to satisfy the interests of the

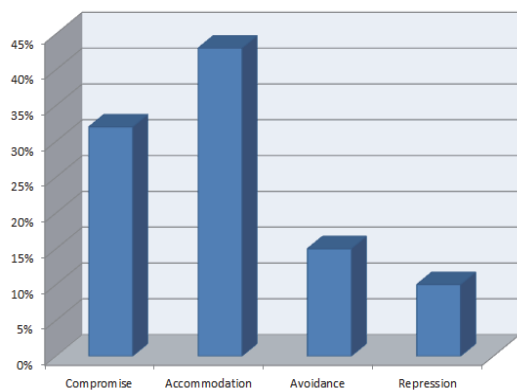
- other part;
- compromise - both sides are willing to give up;
- collaboration- solving all the desires through collaboration, and finding the optimal solutions from which everyone has to gain. It is the only way to resolve the conflict once and for all [1].

In the survey presented in Figure 2, the people who confirmed the experience of intergenerational conflicts were asked about how to resolve the conflict. Thus, 43% opted for accommodation, 32% reached a compromise, 15% chose avoidance, and 10% repressed the conflict (figure 3).

### Conclusions

The existence of divergences between generations is a normal fact. Each part has to understand and accept the existence of different opinions and visions. This should not be a catalyst for conflict. And yet, harmony occurs when both parts are willing to compromise, listen to each other and try to understand each other.

Namely, the perception that each person is unique in their own way, and their opinion has the right to exist (after all, different doesn't mean wrong), will also be the starting point for a pleasant relationship between generations.



**Figure 3.**Resolving intergenerational conflicts

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# Social media and new page for all generations. Research and applications

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**Abstract.** Numerous Internet-based researches over the past decades demonstrate the relationship between Internet behavior and individual psychological characteristic, this is why the most important goal of our research is to reveal the practical strategies for the youngsters and Generation X, which are the most affected generation by the new development of the internet era and elderly who have faced isolation as the part of actual worldwide pandemic situation. Moreover, our greatest findings reflect that there is a practical solution for such social media problems. We have come up with a strategy on how to solve internet-based concerns and make sure we can use social media for a better purpose. All research and findings will be shown in the easiest way to emphasize the knowledge and apply them in the daily routine and not only.

**Keywords.** User Behavior, Psychological type, Quasi-Experimental Design, Online communication effect, Antisocial personality disorder, Cyberpsychology, Online community, Behavior analysis, Internet troll, Internet behavior ontology, the psychological phenomenon, qualitative and quantitative methods online questionnaire, bullying and cyber protection, Online communication for the elderly.

## Introduction

This work after revealing the real, true face of cyber-hidden-personality has transformed into a practical strategy of solving problems caused by cyberbullying and ignorance online. Nevertheless, there might be some financial and practical limitation of the realization of the project, however no matter what we are sure that this work will be another research that will highlight the most effective ways to monitor and regulate individual behavior of Internet users also will highlight most of the practical strategies which have been applied for more references and create a new social media trend.

## Purpose of work

Since our most important goal was to discover the biggest threats of cyber-psychology that could be made by describing an effective and structured way of cyber-ontology and strategic behavior of each individual. Our purpose mainly will be to consider strategies and creating a clear plan of actions for solving most concerns.

We have aimed to create a new page in the

concept of ontology for cyber-psychology behavior for youngsters and Generation X, considering this a regional applicative strategy based on local research.

## Instruments used

During our first year of research, we have tried to identify the problem of morality and ethics in cyberspace by the qualitative and quantitative the questionnaire, in which has participated young 50 people from age of 18 till 25 y.o.

All of them shared their opinion on the topic offered and gladly participated in the questionnaire which has shown a the highest gap between practical/technical knowledge and psychological the alacrity of our generation to react in crisis situations.

Nevertheless, second year of our research we wanted to come up with a practical solution so we decided to realize the questionnaire for the elderly and create a new solution for solving multiple problems such as generation gap, technical and physiological inactivity for the elderly and isolation for most of them.

Together with a team of 2 persons (Ziser

Tatiana, 48 y.o., Practicing Specialist in Israel, Haifa; Bachelor's Degree- "Psychologist and Psych pedagogue"; Master Degree- „International

Relations”), an IT specialist) we have created the questionnaire for people with age between 60-85 y.o.

**Chestionar**

1) Numele/Prenumele/Patronimical- \_\_\_\_\_

2) Data/luna/anul nașterii (ori vîrsta)- \_\_\_\_\_

3) Localitatea/vîza de reședință (mediul urban sau rural)- \_\_\_\_\_

4) Specialitatea/domeniul de activitate- \_\_\_\_\_

5) De cît timp sunteți pensionat/ă sau mai activați?- \_\_\_\_\_

6) Unde și cît timp ați activat?- \_\_\_\_\_

7) Ce merite personale sau profesionale aveți?- \_\_\_\_\_

8) Cu ce vă ocupați la pensie?- \_\_\_\_\_

9) Cu ce probleme vă confrunțați la momentul actual?

- de ordin economic \_\_\_\_\_
- personale sau de sănătate \_\_\_\_\_
- sociale (de comunicare) \_\_\_\_\_
- psihologice \_\_\_\_\_

10) Care sunt avantajele și dezavantajele pensionării?- \_\_\_\_\_

11) Ce ți dori să realizezi pentru a vă dezvolta personal și pentru a îmbunătăți viața personalor de o vîrstă frumoasă?- \_\_\_\_\_

12) Propuneți vă rog din prisma dumneavoastră ce s-ar putea de făcut pentru a îmbunătăți viața persoanelor cu vîrsta de aur?- \_\_\_\_\_

**Vă mulțumim pentru participare și colaborare!**

**Figure 1.** Questionnaire used for first group of interview people.

## Content of research and historical background

During basic research on the topic of Millennials problems we have to admit that there are many general struggles which 21<sup>st</sup> century generation have been facing such as wars, cyberbullying, economic crisis. Hence the problem of differentiated cyber-psychology has been a problem since the internet has taken place in our daily life this is the reason why we wanted to make sure that millennials will get a chance to socialize and communicate outside of the common box and use their technology skills on the best purpose for society.

This is why appealing to the Strauss-Howe Theory will be possible to underline some periodization of progress and history.

Despite some preceding work on the topic, Strauss, and Howe is credited with having popularised the generational theory in the 1990s, therefore these are exact description.

“The theory is based on the work of William Strauss (1947-2007) an American author, playwright, theatre director, and lecturer. His collaborator Neil Howe (b. 1951) has had a varied career as a consultant and popular historian. Together, they created and developed the theory over many publications, beginning with *Generations: The History of America's Future, 1584 to 2069* (1991).

According to this theory, every 80 years is a crucial “fourth turning” of generations in history. The “fourth turning” is necessarily marked by a crisis that has destroyed the social order and created a new one, after which a new cycle commences. According to contemporary proponents of this theory, we are currently in the (approximately) twenty-year period of “crisis” which will determine a new social order.” (Reference to Douglas Coupland’s novel *Generation X: Tales for an Accelerated Culture* (1991).) In *The Fourth Turning* (1997) the terminology has changed to identifying generations as prophets, nomads, heroes, and artists.

**Prophet generations** are born near the end of a crisis, during a time of community cohesion and strong social order. Prophets are described as indulged children of a post-crisis era. Prophets are believed to grow up as young crusaders who in

middle life become focused on morals and principles.

**Nomad generations** are born during an awakening when crusader prophets are attacking the status quo and its institutions. Consequently, Nomads are described as growing up under-protected and alienated in social chaos. Nomads are believed to grow into pragmatic and resilient adults.

**Hero generations** are born after an awakening, during an unraveling, when social institutions are weak and individuals have to be self-reliant and pragmatic. They are more protected than the children born during the chaos of an awakening. Heroes are believed to grow up as young optimists, into energetic and over-confident, and politically powerful adults.

**Artist generations** are born after the unraveling, during a crisis, when external dangers recreate a demand for strong social institutions. Artists are believed to be overprotected by parents who are preoccupied with the dangers of the crisis. Artists grow up into conformists and process-orientated yet thoughtful adults.

### Individual observations

In order to project the real world psychological phenomenon to Internet behavior, the psychological phenomenon index needs to be established, including individual cognition, emotion, intention, as well as the main relevant explicit features. The Internet phenomena are manifested primarily in Internet behavior and context.

Since Generation X is mostly described as “Artists”, we can observe that there are a lot of youngsters who identify themselves on social media/ digital era as personalities with plenty of possibilities and chances to develop their abilities and find soulmates in a specific topic.

Nevertheless, the morality side could not be neglected, due to the fact of a lot of negativity in different areas of online life. Arts and new upcoming artists are criticized, new specialists are facing the problem of fake news and scam, meanwhile, teenagers face aggression online and on social media.

Moreover, there are a lot of problems which such as a breakdown of Covid-19, economic crisis and international riots, at this point all of these events are taking place, generation of artists are under danger, same as the older generation which

has been at the begging of the first 80 years turn point according to Strauss-Howe Theory. Based on the first research we have done with the topic „Morality and Ethics in digital era”, we had to highlight that the entire research which has been made will just give us proof once again that all the strategies of online inclusion have to be supported by the government in order to emphasize the workflow. All aspects of our economies and societies are being changed by the Internet. A legal and investment in connectivity and services lower costs and foster creativity is critical to enabling access and unlocking the Internet’s value for education and protect from negative outcomes which might appear. It also requires political commitment, a strong policy framework, and realistic implementation strategies.

In order to describe properly this kind of connection and make sure that older generation can be taken care of, we were looking for a clear picture of the daily life activity of older generation and really up to date strategies to solve and emphasize this situation.

Practical strategy on problem solving

Our research after 6 months of research has changed into a practical strategy of how to solve the main problem of ignorance on social media for most of the generation.

Most of the interviewed participants have seen two best solutions in order to solve the biggest issues: physiological problems and loneliness and isolation.

Findings

Due to the international situation of severe isolation of the most of elderly people, we have asked and interviewed over 20 elderly people with age from 60 to 85 years old, who have just quit their jobs but are still active and have a huge desire to socialize with people and be useful for society.

At this time 6 out of 10 people interviewed said that they are facing 2 biggest problems: absence of communication with other people and difficult process of taking care of household chores.

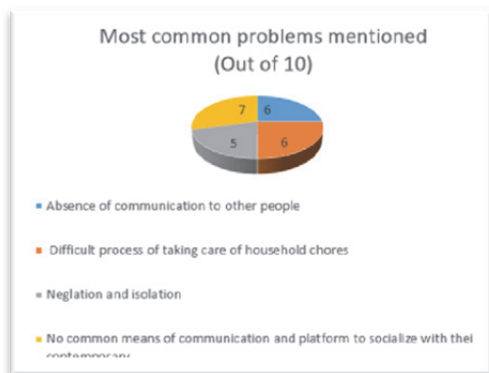
Due to this reason, we have created a plan to emphasize the new process of communication between the new generation of youngsters who are active at this time of economic crisis and world pandemic and the old generation who are being affected by pandemic and crisis mostly.

We have to admit that there has been difficult

situation while doing the questionnaire and asked questions from elderly people, nevertheless we have planned a strategy of how to solve these concerns.



**Figure 2.** Ideas of activities offered by the interviewed elderly as the perfect strategy for social integration.



**Figure 3.** Most frequent problems faced by elderly people.

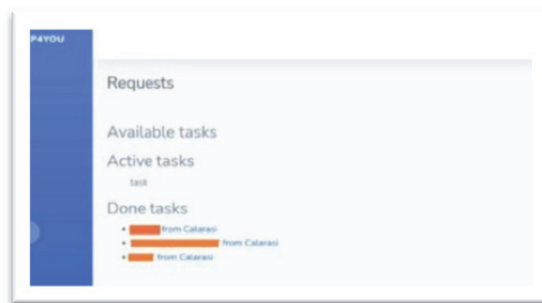
Most common problems mentioned	
Problems faced:	Out of 10 total
Absence of communication to other people	➡ 6
Difficult process of taking care of household chores	➡ 6
Neglection and isolation	⬇ 5
No common means of communication and platform to socialize with their contemporary	⬆ 7

**Figure4.**Most common problems faced by elderly

#### Plan of activities

When we have explained the most reasons of elderly people concerns and worries, such as the absence of different easy ways to do the household chores or simply being depressed due to the absence of communication and social life.

Analyzing all these biggest sides of the problem we have launched a website in order to create a platform specially designed for elderly people who in the first part of the website will be able to ask for assistance through easy tasks, such as “going groceries”, “helping with easy household chores, “taking care of their pets” or simply “going for a walk together”. All the above-mentioned things are highly recommended in order to take care of simple daily routine things of elderly people who are not having enough physical strength to do hard physical activity.



**Figure 5.** First model of the platform for elderly and youngster's communication (Named: Help4you.com).

In the second part of development of the website, all elderly people will be able to have an open chat with people of different subjects of interests, but will have plenty things in common in order to have a special communication base for people of same age.

Most of the topics will be based on the practice of our questionnaire, such as retro music, movies, books, and scientific researches, worldwide known events, suing, cooking or painting. All of these topics will be a place of interests for people of the same age and will offer a chance for them to socialize.

#### Conclusion

And last but not least I have to highlight that entire research which has been made will just give us a proof once again that all the strategies of online inclusion have to be supported by the government in order to emphasize the workflow. All aspects of our economies and societies are being changed by the Internet. By improving access to information, knowledge, and education, the Internet can help individuals to achieve better educational outcomes across the board, developing the skills that they and their societies require. All legal and financial support which could be offered for social projects can have a huge impact on society overall.

Meanwhile based on our research we have managed to see that this platform will be a good beginning for elderly people to learn most of the basis of social media and start iterating with youngsters, while young ladies and gentlemen will be able to learn something useful and get a chance

to help with easy things from the daily routine of elderly people. We are looking forward to making a tight chain between adult and new young generation through social media and internet-based platforms.

By improving access to information, knowledge and education, the Internet can help individuals to achieve better educational outcomes across the board, developing the skills that our society requires. A legal and investment in connectivity and services, lower costs and fosters creativity is critical to enabling access and unlocking the Internet's value for education and protection from negative outcomes which might appear, but we can do it together with most of the social effort.

#### **Acknowledgment:**

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# Human influence on the transition of the current ecosystem in the Republic of Moldova

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**Abstract.** Purpose of the work: To draw society's attention to the transition and pollution problem of the current ecosystem in Moldova. Presentation of the role of the ecosystem in maintaining human health and the economic development of a state. Approach: In this paper the evolution of the ecosystem in the Republic of Moldova is analyzed. So are the consequences of the rapid transition of the natural situation and the human impact on its change.

**Findings:** During the analysis of statistical data and the evolution of the economic situation, it was found that the transition of the ecosystem plays a significant role as in the economic modeling of a state, as well as in maintaining a healthy society free of chronic diseases or innate genetic problems.

**Limitations/suggestions for research:** This paper leads to the debate on the ecological importance for the Republic of Moldova and provides some ways of solving problems in various ecosystems in the country.

**Applied value:** The results of the work are supported by the value of findings, conclusions and recommendations, which can be useful: Researchers in the field of environment, the drafting of ecological works, the printing of books for educational institutions, statistical analysis and forecasting institutions, being applied to the establishment of new directions for the development of the economy of the Republic of Moldova and to the promotion of an ECO-life mode. The data can also be useful in making decisions for the construction of as many wind farms, solar stations, hydraulic stations.

## Introduction

In this presentation I will demonstrate the specificity of biodiversity in the Republic of Moldova, drawing attention to the main natural sectors on which the economic development of the country is focused on sectors such as the agricultural and forestry sectors. With a moderate climate and productive farmland, the agriculture sector has an important role in Moldova's economy: it represents 10% of the GDP and employs nearly 35.4% of the workforce (World Bank, 2020). Of the agriculture work force, around 25% are directly employed by agri-enterprises, while the other three-quarters are classified as self-employed (FAO). Moldova's main products are vegetables, fruits, grapes, grain, sugar beets, sunflower seeds, tobacco, beef, milk and wine. The forest is concentrated mainly in the hilly area, and its distribution is uneven nationally. The majority of forestlands are located in the central part (so-called

Codrii), less in northern part while the southern part has the lowest forest cover. I will also achieve the human impact on the rapid transition of ecosystems in my work. The paper shows how the transition of ecosystems affects the people of the Republic of Moldova or the economy as a whole. At the end of the project, I will set the example of methods that could solve the transition problem such as renewable energy. The European Union (EU) is developing an increasingly close relationship with Moldova, going beyond cooperation, to gradual economic integration and a deepening of political cooperation. This fact indicates that eventually the adoption of EU legislation in the energy sector is a necessity. Therefore, the provision of a clear picture of the country's renewable energy potential is considered essential, bearing in mind the new EU Renewable Energy Directive, which sets a mandatory target of 20% of renewable energy sources by 2020 for each member state. By presenting the benefits of wind, solar and hydraulic

energy, I will motivate the need to use specifically these methods to stop the transition of ecosystems.

### **Purpose**

biodiversity of the Republic of Moldova. Getting people familiar with their influence on the environment and how this, in turn, can influence the health or economy of the Republic of Moldova. As well, as I go, I will present the method of stopping the transition of ecosystems such as renewable energy, bringing its benefits to the ecological, economic and health spheres.

The significance of biodiversity

"Biodiversity" is the name of the variety of ecosystems (natural capital), species and genes in the world or in a particular habitat. It is essential for people's well-being, because it provides services that support our economies and societies. Biodiversity is also essential for ecosystem services – services provided by nature – such as pollination, climate Regulation, flood protection, soil fertility and the production of food, fuels, fibers and medicines.

Ecosystems and biodiversity of the Republic of Moldova

I have noticed that Moldova is spread across three main eco-regions of Europe - the mixed central-European forests, the pontic steppe and the eastern European forest. Almost two-thirds of the area is occupied by agricultural land. About 15% of the territory is covered by a form of natural vegetation, most of which is degraded. Generally, this natural vegetation includes forest ecosystems.

### **Biodiversity and key sectors**

**Agriculture:** Agricultural land currently accounts for about 74% of Moldova's total area. land conversion practices and farming practices pose serious threats to biodiversity. The country's massive dependence on the agricultural sector continues to be a major threat to the integrity of the few remaining areas of natural ecosystems. Many species have reduced their populations and some have completely disappeared. The former steppes and the heifers have been converted into arable land and their remains are subject to uncontrolled grazing.

**Forests:** Forests are the most well-preserved ecosystems that have the greatest biodiversity in Moldova. They are predominantly in the central

part of the country, with the north and the south less forested. According to data from the national Statistics Office, in 2018 forests occupied 450 thousand ha, of which 363 thousand ha were managed by the Moldsilva Agency. Thus, forest cover (or forest vegetation) reaches 13,7% of the territory.

### **Human influence on the rapid transit of ecosystems**

However, we are currently seeing a steady decline in biodiversity, with profound consequences for the natural world and for people's well-being. The main causes of this decline are changes to natural habitats caused by intensive agricultural production, construction, mining careers, excessive exploitation of forests, rivers, lakes and soils, invasive alien species, pollution and, to an increasing extent, global climate change. The huge role biodiversity plays in ensuring the sustainability of the world and our lives makes its continued decline all the more worrying. Even if about half of Moldova's exports are agricultural products, a rational approach to the sustainable use of existing arable land is still lacking at national level. Most agricultural land is privatized and in many cases residents have small plots; a situation which makes a rational approach difficult (some sources say about 200.000 ha of agricultural land is abandoned). Human abuse is visible in all habitats and in various ways (e.g. long-term leasing of forests, emergence of new grassland, new landfills, etc.). Communities are not fully aware of the possible consequences of these practices and more habitats are being destroyed, altered or fragmented, leading to loss of biodiversity. There are various sources of pollution, with urban and industrial waste directly affecting species and habitats. The sludge of watercourses and wetlands (especially lakes) has reduced the surface area of wetlands and their potential to provide local communities with fish and other goods. The unauthorized discharge of waste poses a great risk, not only to human health, but also to ecosystems.

### **Unsustainable grazing**

Currently, most of Moldova's cattle belong to communities. Although communities have grassland, most of which are depleted and of low quality (low productivity), herds are often moved to



other habitats such as forests (under current legislation, forest grazing is prohibited). In general, grazing is carried out in an uncontrolled manner and against all environmental sustainability principles. Pastures are often a sensitive issue for communities and their administration is a real challenge.

### **Habitat fragmentation due to infrastructure development**

Moldova's landscape consists of roads, railways and other infrastructure elements that fragment it. A railway recently built through the wetlands of the Netherlands (a Ramsar protected place) has seriously affected not only their ecosystems and biodiversity, but also local communities that depend on wetlands. The recent practice of renting forests for hunting and leisure has led to their deterioration, because those who rented them have built houses and other infrastructure. In general, the integrity of ecosystems is not taken into account in spatial or infrastructure planning.

### **Illegal logging**

**Forest biodiversity** is under increasing pressure due to illegal logging, in particular to meet demand for firewood, and/or selective felling of high quality trees. Official statistics show that around 0,5 million m3 of timber is legally harvested annually and the volume of illegally harvested timber is very small. However, an analysis of the ENPI regional program FLEG showed that the annual domestic consumption of wood is double. The authorities have already reacted by reforestation of degraded land and the introduction of high efficiency, short rotation forest energy crops (in particular, salcam).

### **Illegal collection of rare plants**

**Many** plant species are intensively harvested by local communities. Although some of these plants are protected, residents gather them from forests and barn to sell them either along the roads passing the forests, or in the city squares or directly on the street. Many rare species, such as *Galanthus ghiocei* and *lacramium* - *Convallaria majalis*, are picked up by the inhabitants every spring.

### **Hunting and illegal fishing**

**Although** Moldova is not too rich in hunting,

hunting is a traditional occupation for many people. It can be hunted and fished at certain times, but neither hunting nor fishing is done in a sustainable way. There is a huge contradiction between the legislative and regulatory acts in force and their application/implementation. Hunting and illegal fishing are still common in the country, although some local communities (especially in wetlands) are dependant on fishing and hunting. Wildlife is also not properly managed.

### **The impact of the rapid transition of ecosystems on human health**

Human health and ecosystem health are inextricably linked. Our body needs clean air, water and food every day to work. People and communities thrive when they spend time in nature, making movement, socializing and relaxing. At the same time, when we live, we work, go to school or play in polluted environments, we suffer both the body and the mind. Protecting nature is not about protecting the planet. It means ensuring health and a good state for ourselves and for our children. Pollution prevention is a public health measure. the greatest immediate health risks are air pollution and noise, especially in cities. In the long term, climate change threatens the very existence of our way of life. This means the immediate loss of life due to heat waves, forest fires and floods, as well as longer-term threats to food production due to changes in weather patterns. We are also seeing changes in the distribution of infectious diseases as the vector insects that carry these diseases move to the north as the climate heats up.

### **Ecosystem services and human health**

**Fresh water.** Many aspects of the world's hydrological (water) cycle are regulated by the natural functions of ecosystems and associated geophysical processes (such as evaporation and the functioning of the climate system). Human interventions in watersheds, lakes and river systems take many forms - deforestation, farming, irrigation, river damming and extractions from subterranean aquifers. Wetlands play a crucial role in the filtering of fresh water, including the removal of various chemicals and potentially toxic elements (e.g. heavy metals such as cadmium and lead). Fresh water is essential for human health. It is used for growing food, drinking, personal hygiene,

washing, cooking and the dilution and recycling of wastes. Water scarcity jeopardizes food production, human health, economic development and geopolitical stability. Globally, the availability of water per person has declined markedly in recent decades. One third of the world's population now lives in countries experiencing moderate to high waterstress.

**Food.**In poor countries, especially in rural areas, the health of human communities often is directly dependent on locally productive ecosystems providing sources of basic nutrition. Local food production is critical in preventing hunger and promoting rural development in areas where the poor do not have the capacity to purchase food from elsewhere. Wild foods are important locally in many developing countries, often bridging the hunger gap created by stresses such as droughts and civil unrest. In richer urban communities, human dependence on ecosystems for food is less apparent but no less fundamental.

**Biological products.**Millions of people around the world depend partly or fully on natural products collected from ecosystems for medicinal purposes. Although synthetic medicines (over half of which originated from natural precursors) are available for many purposes, the global need and demand for natural products persists. Some of the better-known mainstream pharmaceuticals from natural sources include aspirin, digitalis and quinine

#### **Cultural, spiritual and recreational services.**

People and communities obtain many non-material benefits from ecosystems. Ecosystems provide sites and opportunities for tourism, recreation, aesthetic appreciation, inspiration and education. Such services can improve mental health; enhance a subjective sense of culture or place; and also enrich objective knowledge of natural and social sciences, e.g. botany, biology, history and archaeology. Health benefits of these services may be materially less tangible than those captured by conventional health indicators or standard economic valuation measures. Nonetheless, such services are highly valued by people in all societies. Various traditional practices linked to ecosystem services, including seasonal cycles of thanks and celebration, play an important role in developing social capital and enhancing

social well-being.

**Climate regulation.** Regional climatic conditions are influenced by changes in ecosystems and landscapes, especially deforestation and desertification. On a larger scale, the ongoing human-induced alteration of atmospheric composition (the greenhouse effect) also affects climatic conditions. Each of the ecosystem services described above is sensitive to climatic conditions and therefore will be affected by human-induced climate change. In turn, these ecosystem changes will affect the well-being and health of human populations. Meanwhile, climate change itself does, and will, affect human health.

Although climate change will have some beneficial effects on human health, most are expected to be negative. Direct effects, such as increased mortality from heatwaves, are most readily predicted but indirect effects are likely to have greater overall impact. Human health is likely to be affected indirectly by climate-induced changes in the distribution of productive ecosystems and in the availability of food, water and energy supplies. These changes will affect the distribution of infectious diseases, nutritional status and patterns of human settlement.

Extreme weather events (including heatwaves, floods, storms and droughts) and sea-level rise are anticipated to increase as a result of climate change. These events have local and sometimes regional effects: directly through deaths and injuries and indirectly through economic disruption, infrastructure damage and population displacement. In turn, this may lead to increased incidence of certain communicable diseases as a result of overcrowding; lack of clean water and shelter; poor nutritional status; and adverse impacts on mental health.

#### **Moldova's economy**

Despite recent progress, Moldova remains one of the poorest countries in Europe. With a moderate climate and productive farmland, Moldova's economy relies heavily on its agriculture sector, featuring fruits, vegetables, wine, wheat, and tobacco. Moldova also depends on annual remittances of about \$1.2 billion - almost 15% of GDP - from the roughly one million Moldovans working in Europe, Israel, Russia, and elsewhere. With few natural energy resources,

Moldova imports almost all of its energy supplies from Russia and Ukraine. Moldova's dependence on Russian energy is underscored by a more than \$6 billion debt to Russian natural gas supplier Gazprom, largely the result of unreimbursed natural gas consumption in the breakaway region of Transnistria. Moldova and Romania inaugurated the Ungheni-Iasi natural gas interconnector project in August 2014. The 43-kilometer pipeline between Moldova and Romania, allows for both the import and export of natural gas. Several technical and regulatory delays kept gas from flowing into Moldova until March 2015. Romanian gas exports to Moldova are largely symbolic. In 2018, Moldova awarded a tender to Romanian Transgaz to construct a pipeline connecting Ungheni to Chisinau, bringing the gas to Moldovan population centers. Moldova also seeks to connect with the European power grid by 2022. The government's stated goal of EU integration has resulted in some market-oriented progress. Moldova experienced better than expected economic growth in 2017, largely driven by increased consumption, increased revenue from agricultural exports, and improved tax collection. During fall 2014, Moldova signed an Association Agreement and a Deep and Comprehensive Free Trade Agreement with the EU (AA/DCFTA), connecting Moldovan products to the world's largest market. The EU AA/DCFTA has contributed to significant growth in Moldova's exports to the EU. In 2017, the EU purchased over 65% of Moldova's exports, a major change from 20 years previously when the Commonwealth of Independent States (CIS) received over 69% of Moldova's exports. A \$1 billion asset-stripping heist of Moldovan banks in late 2014 delivered a significant shock to the economy in 2015; the subsequent bank bailout increased inflationary pressures and contributed to the depreciation of the leu and a minor recession. Moldova's growth has also been hampered by endemic corruption, which limits business growth and deters foreign investment, and Russian restrictions on imports of Moldova's agricultural products. The government's push to restore stability and implement meaningful reform led to the approval in 2016 of a \$179 million three-year IMF program focused on improving the banking and fiscal environments, along with additional assistance programs from the EU, World Bank, and Romania. Moldova received

two IMF tranches in 2017, totaling over \$42.5 million.

### **The impact of the transition of ecosystems on the economy of the Republic of Moldova**

First of all, we need to understand that the Republic of Moldova is a state whose economy depends on the agricultural sector. The rapid transit of ecosystems has a negative impact on the quantities of cereals or pulses cultivated. We have seen that the major problem caused by the transit of ecosystems is climate change.

- Drought
- Temperatures above 35 C0
- Lack of snow

These climate change presents the greatest problems on which the annual harvest depends, and because of which the annual harvest of the Republic of Moldova has decreased over the last 3 years. This has caused the following problems:

- The fall in exports to the EU and the Russian Federation.
- The feeding of the many national farmers.
- Inability to supply the national human factor.

#### **Economic instruments**

The following economic instruments are in place in Moldova to integrate environmental aspects in economic decisions:

- Taxes on the use of natural resources (soil, water, minerals, flora, fauna)
- Charges for environmental pollution and related services (discharge of polluting substances above the allowable limits and dumping waste)
- Fees to compensate for damage to the environment
- Excise duties on imported cars and fuels
- Subsidies
- Incentives to promote the rational use of natural resources, apply cleaner technologies, reduce waste, close water circuits, etc.

In addition some administrative penalties such as fines for the violation of environmental legislation (standards) also have an economic character. The Law on Environmental Protection

(1993) and the Law on Natural Resources (1997) prescribe taxes on the use of soil, water, mineral resources and forests. Compensation as well as penalties are due in cases of environmental damage and violation of environmental legislation. The collected funds have to be spent exclusively on environmental needs. The Law on Natural Resources (1997) prescribes licensing, concession and rent agreements, and a mechanism for the effective management of natural resources. This mechanism is based on the following provisions from the 1997 law, as well as other instruments: (1) the user of the resources should pay for their use; (2) the limits on resource use should be based on a rational use forecast; (3) corporate accounting should record the costs of using natural resources and the environment; (4) the pricing should apply full costs rather than only operational costs; (5) incentives should be provided to companies that invest in cleaner and raw material saving technologies and to banks and investment funds if they finance such investments; (6) a commercial ecological bank should be established; (7) the use of mineral resources that contain environmentally dangerous components should be limited. The taxes on resource use within the allowed limits are included in production costs. Charges due when using more are not included in production costs, but reduce profits directly. The tax on natural resources should cover the cost of exploration, research, restoration, transport and sustainable use. The State Budget sets the annual tax rates for each natural resource. The adopted 1998 State budget reflects all the provisions of the law. The law envisages public participation in decision-making concerning natural resources use, but no specific schemes for such participation exist. International agreements prevail if there is a conflict with national legislation.

### **Renewable energy, an ideal way to stop the rapid transit of ecosystems**

According to my analysis, renewable energy sources are an alternative to fossil fuels that help reduce greenhouse gas emissions, diversify energy supply and reduce dependence on volatile fossil fuel markets such as oil or gas. The Moldovan government will use auctions to procure 25 MW of larger project capacity and will consider the MDL1.88 tariff as a reference for the ceiling price. The European Bank for Reconstruction and

Development said in October 2018 the Moldovan government wanted to start renewables auctions last year but that never took place. The government has not specified when auctions are expected to start. The government hopes to allocate 168 MW of renewables generation capacity through its new FIT levels. Solar projects secured the second most generous FIT level, behind the MDL1.96/kWh allotted for biomass-based co-generation. Biogas co-generation schemes will earn MDL1.84/kWh, wind projects MDL1.55 and hydro facilities MDL0.97. State-owned energy distributor Energocom will be the sole buyer of the clean electricity generated. The interconnection of Moldova's power system with the Romanian system and correspondingly with the European Electricity Transmission System (ENTSO-E) is a priority of the state's energy policy. The Energy Strategy of the Republic of Moldova until 2030 expressly states that for the Republic of Moldova, joining the ENTSO-E network signifies access to the EU internal market and is of vital importance in the medium term. For this, "Moldelectrica" and NEK Ukrenergo signed a Memorandum on common access to ENTSO-E, "Transelectrica" SA (Romania) being a supporting party.

In 2016, was finalized the feasibility study on the projects for the development of the "Back to Back" and 400 kV Vulcănești- Chișinău LEA, 500-1000 MW, and the need for further development of the "Back to Back" and the 400 kV Bălți- Suceava LEA, 500-1000 MW. The main purposes are:

- Existing voltage levels (Transportation grid): 110, 330 and 440 kV
- 7x330 kV and 11x110 kV electrical interconnection lines with Ukraine energy system (developed interface);
- 1x400 kV and 3x110 interconnection lines with the Romanian electrical energy system (weak developed interface);
- ENTSO-E - asynchronous operation (only island operation);
- IPS/UPS – synchronous operation
- Installed generation capacities – 3014,4 MW (operational around Right bank – 408,4 MW Left bank – 2606 MW

Similarly, the Republic of Moldova has good conditions for the development of the following

types of renewable energy sources:

**Wind energy** is the most abundant renewable energy source in the Republic of Moldova, with almost the whole country having technically suitable locations for investments in wind energy. Energo Continent, controlled by Romanian investors, will develop a 180 MW wind farm in the southern part of the Republic of Moldova. The investors claim that their wind energy project will be able to cover 15% of the electricity demand in the country. The wind turbines project is not new but the Romanian investors approached Moldovan prime minister Ion Chicu for getting confirmation whether their project fits into the country's energy strategy or not. According to the Government of Moldova, the developers informed the prime minister about the stage of the work and mentioned that, in order to continue financing and implementing the project, they need confirmation from the central authorities that this project is necessary and that it is part of Moldova's Energy Strategy. The project was launched in 2010 in collaboration with InfraVentures Investment Fund, operated by the World Bank's division IFC. Company representatives claim that the project can become operational in 2022.

**Solar energy** is used by the public sector for the production of hot water. Through the Energy and biomass project in Moldova (see box 5), 30 public institutions have benefited from the installation of solar-based water heaters, which supplement existing boilers on biomass. A further 15 public sector projects have been financially supported by the Energy efficiency Fund. The installation of solar-based water heaters, in particular in public hot water-intensive establishments such as hospitals and kindergartens, has provided savings in financial resources; thus, the public sector plays an exemplary role in promoting the wider exploitation of the solar water heating potential.

**Hydro power:** Despite the large number of rivers, the Republic of Moldova has a single hydroelectric power plant with a capacity of 16 MW located in Costesti on the Prut River, the second most important river in the country. In addition, 254 kilowatts (kW) in small hydroelectric installations (ANRE, 2017) are operating. The best development areas are located in the reception basins of the Nistru, the Prut River and the Danube,

with the country's total potential estimated at 3,36 terawatt hours per year (Ceban, 2015). As envisaged in the Energy Strategy 2020, for the Raut River, near the village of Tribujeni in the district of Orhei, several mini-hydropower stations with a total capacity of 1,2 MW were planned.

## Conclusion

In conclusion, I can say that the rapid transition of the ecosystem in the Republic of Moldova is generated by the actions of the human factor. The main causes of this decline are changes to natural habitats caused by intensive agricultural production, construction, mining careers, excessive exploitation of forests, rivers, lakes and soils, invasive alien species, pollution and, to an increasing extent, global climate change. The huge role biodiversity plays in ensuring the sustainability of the world and our lives makes its continued decline all the more worrying. Due to air pollution, deforestation, hunting or felling of endangered plants, the transit of biodiversity is leading to global warming. This, in turn, can cause economic or health problems. In order to protect the nature of Moldova from such ecological changes I chose as an alternative the use of wind, hydraulic and solar energy. In order to promote the use of the renewable energy sources and to achieve the targets stated in the National Energy Strategy of the Republic of Moldova (17% renewables until 2030), in 26.02.2016 by the Parliament was adopted the Law nr. 10 Regarding promotion of use of energy from renewable sources, which entered into force after 2 years, in April 2018, and abrogated the previous Law on renewables. Renewable energy can reduce the release of greenhouse gas, it is cheaper and not harmful, it only remains to be included in the design of special land for it to be effective.

## Acknowledgment:

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research, career and innovation. [www.cost.eu](http://www.cost.eu)

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## Features of the emotional sphere of people in old age

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**Abstract:** The purpose of the work is to detect the main features of the emotional sphere of older people and the changes that occur with age. The methodology in this paper are exposed the strong and weak features of the emotional sphere of older people, the hardships that they face emotionally due to the age and attitude of society; also the paper employs an exploratory literature review investigating investigating the mental state of the elderly; this literature review serves as the starting point of subsequent theorizing. Findings are based on the analysis carried out, we can state that the features of the emotional sphere of older people are a problem that requires the involvement of the whole society in order to solve it; based on the literature review we theorize that using this knowledge you can find a way to improve the situation of older people in society. Limitations and suggestions of research are the given work can lead to suggestions how each of us individually and being as part of a group can adjust some changes to improve the situation of older people. The applicative value is the results of the work can be of interest both from a scientific point of view, but also to each individual person, because the subject in question is something that each person will encounter in his own life, either with its positive aspects, but also with its negative ones. Scientific novelty and originality are the need to involve new methods of combating the negative aspects of age; this article is new in that it initiates a dialogue about the impact of society on the lives of elderly. The field of implementation is the work in question is done within the framework of the International teleconference "Creation of the Society of Consciousness".

**Keywords:** Politics & Philosophy, Social Sciences, Law

### Introduction

People's emotions represent, first of all, the sensations we receive in connection with current circumstances. They are the quintessence of the person's attitude to himself and reality. Emotions are not only a physiological reaction, they also comprise in themselves as much the pure substance of feelings, as well as its concrete content, so – ideas, thoughts, opinion.

A main component in studying the behavior of people, related to the manifestation of its emotions, is age. Age is an important variable in the forecasting of individual behavior, but at the same time it also influences the development of the whole society, since relations between people are created depending on the position occupied in society. In contemporary society the individual process of development on the stages of age is closely related to the processes of biological, psychological, social and cultural development of

people. There is no generally accepted term that would mean the age of elderly people, but according to the classification of the World Health Organization, it is recognized that individuals reach this stage at the age of 60 - 74 years, old people are counted between the years 75 – 89, and those who have passed 90 years and more – long-lived. Old age is the most contradictory age of mankind. First of all, it is considered that old age is a biological process, which is followed by great psychological changes, which are related to enormous economic, social and individual losses, which also lead to the loss of autonomy in one's own life. But nevertheless, old age is an age when the person reaches the maximum level of knowledge, experience and emotional understanding that help him to adapt to the changes that have occurred by age.

### Purpose of work

Unfortunately, in today's society this major age

is viewed not with the best intentions, which results in a negative attachment to older people. It is of course the fact that in most people old age is associated, first of all, with a decline in physical and intellectual powers. When you think about old age, you immediately join it with unhappiness and socio – economic isolation. In other words, mankind regards old age as a loss

Attitude to your own aging – is an important element, which influences the psychological state. Even if the person has good health, has maintained an active way of life, has a family, is not deprived of material prosperity, we cannot say that aging is encountered as an attractive and prosperous period of life. Having all this the same man can feel weak, sick, defective and deprived. It all depends on your own attitude. Reaching this stage of life, it is important to look at it as optimistically as possible. The fewer limitations there are, the greater the freedom.

Aging, and especially the need to adapt to new living conditions, to a large extent influences the features of the emotional sphere of people in old age. In some it evokes negative emotions, and in others – positive, because the person can enjoy appearances of free time that he can devote to favorite occupations.

At present, the emotional state of older people is a frequent theme of research, since until now it was considered one of the unexplored ones. As a result of this research it has been shown that with age the level of emotional understanding of people increases. By gaining life experience in terms of interaction between people, we better recognize and regulate both our own feelings and those around us. Thus, it turns out that people in old age more than others understand the value of relationships with other people and tend towards them. They are able to regulate their emotions in such a way that they can enjoy every moment of their lives.

At the same time, older people are also specific to them certain changes with a negative effect in the emotional sphere. This is connected with the uncontrolled increase in affective reactions, the tendency to unreasonable sadness. Impressions of most elderly people are devoid of color and brightness, and in this case many are prone to link their present with memories of the past. They are under the power of memories.

The bulk of changes in the emotional sphere is

characterized by a change in the social role of people in old age. In this situation much depends on the attachment of people – to react negatively or positively to these new emotional experiences. The struggle with negative emotions in older people is connected with the problem of optimizing aging conditions, which is not one of the easiest. That is why the emotional sphere includes the emotions of people who, first of all, consist in experiencing current situations, equally encompassing the attitude to reality and oneself.

For example, the current state of society, created following the spread of the Infectious Disease Covid – 19, has the greatest impact on the situation of older people. Compared to other age categories, older people met with the most restrictions. In this situation, many faced negative effects not only on the physical state of the body, but also on the psychological appearance of people. The Chinese Academy of Medical Sciences and the Union College of Medicine in Beijing conducted research on the situation of elderly people in the conditions created.

The Covid – 19 pandemics has forced governments to adopt drastic public health measures to minimize the impact of the disease. These include social distancing, but also clear blocking recommendations for the elderly.

Epidemiologists are clear: age is the most important factor in diminishing the chances of surviving Covid – 19, especially after the age of 65. Therefore, the strategy of governments around the world has focused in particular on targeting older people and trying to convince them to comply with preventive public health measures. As a result of the conducted investigation it was found that most people are not ready to isolate themselves from active social life. Even some of the simplest precautionary rules, such as: to wear a mask outside the House; to use hand sanitizer; to avoid crowded areas; to avoid social gatherings; to avoid going to the store; to touch objects in public, they could be ignored or out of ignorance, or out of acute necessity, or out of unwillingness to isolate. In this case, all measures carried out by the government lost their effectiveness. I believe that focusing on age is not a panacea, but it helps to minimize many risks. On the Russian site " Баба-Деда.ру " there has been an investigation into how older people live under quarantine. Before the official quarantine



was established, many already lonely people limited their lives, in terms of contact with other people: they spoke more on the phone and via the internet, kept the social distance of 2 meters. Up to 65% of older people preferred to read books, 58% preferred to watch TV, 58% preferred to communicate with relatives and friends online, and only 38% spent time on the internet, generally watching movies, theater performances, or studying at online courses.

90% of elderly people, who went through some life crises, were not frightened by the unknown and uncertainty. But for 70%, it was difficult for them to move from active life to isolation.

For 27% it is difficult for them to be "between four walls", 24% - to delimit themselves from social life: to participate in cultural, educational and sports events. 15% feel discomfort from lack of vivid communication with relatives and friends. At 14% the level of anxiety is high: fear for the health of one's own and relatives, fear of moving around the city. 7% worry about the job, 5% worry because of the information agitation around the disease.

Of course, this situation is not characteristic only of elderly people. But compared to other age groups, the elderly is one of the most vulnerable. In this case we must take into account the emotions of people. Sometimes, within the limits of the emotional state, completely other emotions are manifested, then those Felt by the person. Since, people's emotions are combined from emotional and intellectual components, it is necessary to create conditions, in which both components will be at the desired level. And in the case of quarantine, these components had from the beginning a tendency to decrease, since many met with the difficulty of adapting.

In this way, in order to correctly assess changes in the emotional sphere of people in old age, we must take into account two factors: The emotional factor, which consists both of the perception of the environment, and of the inner reliefs;

The socio-biological factor, which consists in the existence of social and biological needs, the dissatisfaction of which creates the corresponding emotions.

A decisive role in the origin of emotions in healthy elderly people plays biological and social factors. In connection with this fact, attempts are made to delineate the emotional states of people

into biological and "organic", or social. In essence, however, any emotional experience of people includes in itself both components, since the biological and the social in Man are inseparable.

Emotions are the active part of human needs, which prepare the individual for work in the field of satisfying needs with the help of motives, interests and inclinations, formed by consciousness. Since we need to analyze the emotions and people as a result of the interaction of man with reality, we can state that emotions are the result of a particular occurrence, and in this case the feelings of people in old age are the result of a particular life history.

Features of the emotional sphere of people in old age are not studied in enough detail. They are characterized by general and specific features. As part of the general characteristics we can highlight:

Change of mobility;

Changing the dynamism of emotional states;

Lability of emotions;

A kind of expansion of spatial characteristics, which is defined by increasing the role and place occupied by negative emotions: the content of the emotional sphere in most elderly people is generally colored in negative tones.

Specific emotional features in older people consist in the stable predominance of one or another mood mode. As an example can serve the state of anxiety, which in younger people has a very small duration. In the case of older people, this feeling is amplified by the fear of the troubles of everyday life, but also by the fear of imminent death.

At this age the substantial part of memories, reliefs, fantasies and thoughts about the future are sad, therefore the emotion of sadness is quite characteristic of the face of people in old age. Mood decline can vary from mild depression to a pronounced degree of depressing mood. In addition to sadness and melancholy for most elderly people are specific aggressiveness, anger, angry discontent.

Typical for this age is age – related situational depression-persistent and uniform decline in mood. Subjectively it is felt as a feeling of desolation, uselessness, the disappearance of interest in everything that is happening, acute negative perception of one's own future. People more and more often find themselves in a bad mood, without some objective grounds for this state.

Resentment and anxious suspicion increases, and negative emotional reactions are of a long prolongation. The state of depression is very often observed in people who have reached this stage of life. According to the data of the World Health Organization, depressive symptoms are found in 40-45% of people who turned to doctors about various diseases. At the same time, women suffer from depression twice as often as men. The main cause of depression is the fact of aging itself: increasing physical weakness, difficulties in self-care, difficulties in communication that are caused by weakening of hearing and vision, loneliness. But all the same, old age is characterized by various losses, such as the death of the close Man, possible illness of the husband, parting with children, loss of his job and social status.

One of the specific features of the emotional sphere of people in old age are emotions, which express the attitude to death. In older people such feelings are updated, especially the fear of death. Fear of death is by itself one of the types of induced fear, since no man has a genuine experience of death.

Many scholars, who have faced the study of this phenomenon, believe that the fear of death is directly connected with Man's own life through the fear of changes. So, the fear of death is the same fear of changes that pursues man throughout his entire life.

Of course, the features, which were described, are not characteristic of all people in age. These features are typical, but not universal. There is a large category of people in whom until the very old age an optimistic mood, high productivity, physical powers, good spirit are preserved.

In order to fully characterize the features of the emotional sphere of people in old age, we must take into account not only the negative sides of mental aging, but also the positive ones, which in all cases best represent this stage of life, only specific to people.

Even with poor health, modest material resources and relative loneliness man can be in tune with his age, is able to find the positive sides of senile life, feel high joys. Usually in this case, one can observe the revision of past life views and attitudes, which is accompanied by the development of a new, contemplative, calm and self – sufficient life position, satisfaction with the

present, self-satisfaction.

The concept of life in old age as a full – fledged life is largely determined by the nature of the activity of the old man who was established at that time. At the age of active "young" old age (60 – 70 years), a person comes to the idea that nothing significant can be added to the form of activity to which he was previously engaged. It is this age that is the time when the idea of completing the life program with a kind of generalization, summary is stated. If daily activities to some extent fulfill this task, then there is also satisfaction with old age. A positive assessment provides for the establishment of a framework and volume of daily activities, and satisfaction with life is associated with a positive attitude to one's own aging as a moment, when it is possible, due to internal needs, to rethink the past of life, taking into account what is new in it, by old standards, will no longer happen. The new is rethought precisely because of rethinking, and this undoubtedly carries a positive emotional charge.

In this context, we can also be wary of another aspect of the full life of the elderly, of their social well-being. Interest in the issue of social well – being of the elderly comes from the changes taking place in the modern society and, first of all, from a rapid trend in the aging of the population. This trend influences the socio-economic systems of countries around the world, such as: labor market, employment and income markets, consumers ' market, as well as social funds, national policy, legislation, infrastructure, social relations and other elements. Older people now receive the status of significant economic and political agents, whose interests, preferences and decisions define not only their own life, but also the prospects for the development of the global economy as a whole.

In this direction of ideas, it can be stated that the social well-being of elderly people depends on the role and place of the elderly occupied in society. The conceptual views of the United Nations on the place and role of older people were reflected by the 1991 General Assembly. These principles provide for the insurance of elderly citizens:

- care and protection by the family and society in accordance with the cultural values of the given society;
- medical care that allows them to maintain or restore a normal level of

physical, psychological and emotional well-being and prevent the onset of a period of illness;

- social and legal services to increase their independence, increase protection and improve care;
- services of guardianship institutions that provide protection, rehabilitation, as well as social and psychological stimulation in a human and safe environment;
- human rights and fundamental freedoms, being in any institution that provides shelter, care and treatment, including full respect for their dignity, beliefs, needs and privacy, as well as the right to make decisions about their care and quality of life.

Social well-being is the attitude of an individual to the social environment. Social well-being specifically reflects how older people adapt to changes in social reality. If a person believes that the major component of his own attitude to life is optimism and hope for the future, social well-being tends to be quite good and indicates successful adaptation (adjustability) to social conditions. However, if an individual is subject to anxiety, insecurity and even fear, his social well-being and adaptability are rather weak. This leads to the following assumption: the better the well-being of older people (that is, the more confidently they follow their plans for the future), the more adaptable their behavior, the better their general, physical and mental moods. And vice versa, there is a large part of older people who undervalue their indicators of health and quality of life in general.

At the beginning of 2020, The Hague University of Applied Sciences, Hulsebosh Advies and AFEdeMy developed a questionnaire to conduct a representative survey on the perceived feeling of the city among older citizens. 51% of the people who completed the questionnaire are women, the average age of which is 74.4 years, 59.9% are homeowners, 48.4% live with chronic conditions and 14.6% use a wheelchair.

The questionnaire consisted of questions that

summed up in themselves the most common problems, with which the elders can meet in the city Rays, namely:

if the house is accessible to the person or to those who come to visit this person;

if there are sufficient opportunities to meet people in the neighborhood where they live or if activities and events are organized in places accessible to the person, if the information about these activities and events is sufficient and appropriate or if the range of these events is varied;

- if the person sometimes receives annoying or negative remarks because of his age, faces discrimination, civic participation and employment, if he has enough opportunities to interact with younger generations and if he feels like a valuable member of society;

- whether the printed and digital information from the municipality and other social institutions is easy to read in terms of Font and size, if written in an understandable language;

- if the provision of care and welfare is sufficient for the person, and then, when she is sick, she receives the care and help she needs and, if necessary, can easily access the care and support services by telephone and staff, having enough information about them, and the care and social care workers are respectful enough;

- if the neighborhood space is quite enough for a wheelchair, and the shops in the neighborhood of the person in this case are accessible enough;

- if he can easily get on the bus or tram in his neighborhood, and the stations are easy to access and use;

- whether his income is sufficient to cover his basic needs without problems and whether he lives well on his income.

The Likert scale was used to estimate the data. Total scores range from -46 to +46. The number of points per size may vary depending on the number of questions asked per field. To simplify the interpretation of the results, the principle of the color scheme was used. The results of the survey can be analyzed in Table №1.

**Table 1: The Age Friendly Cities and Communities Questionnaire**

Item	Domain							
Interpretation AFCCQ total score in specific domains								
	----	---	--	-	+	++	+++	+++ +
AFCCQ Total score	≤-35.1	-23.1--35.0	-11.5--23.0	-11.4-0.0	0.1-11.4	11.5-23.0	23.1-35.0	≥35.1
Housing	≤-3.1	-2.1--3.0	-1.1--2.0	-1.0-0.0	0.1-0.0	1.1-2.0	2.1-3.0	≥3.1
Social participation	≤-6.1	-4.1--6.0	-2.1--4.0	-2.0-0.0	0.1-2.0	2.1-4.0	4.1-6.0	≥6.1
Social inclusion	≤-3.1	-2.1--3.0	-1.1--2.0	-1.0-0.0	0.1-0.0	1.1-2.0	2.1-3.0	≥3.1
Civic participation and employment	≤-3.1	-2.1--3.0	-1.1--2.0	-1.0-0.0	0.1-0.0	1.1-2.0	2.1-3.0	≥3.1
Communication and information	≤-3.1	-2.1--3.0	-1.1--2.0	-1.0-0.0	0.1-0.0	1.1-2.0	2.1-3.0	≥3.1
Social and health services	≤-7.6	-5.1--7.5	-2.6--5.0	-2.5-0.0	0.1-2.5	2.6-5.0	5.1-7.5	≥6.1
Outdoor spaces and buildings	≤-3.1	-2.1--3.0	-1.1--2.0	-1.0-0.0	0.1-1.0	1.1-2.0	2.1-3.0	≥3.1
Transport	≤-3.1	-2.1--3.0	-1.1--2.0	-1.0-0.0	0.1-1.0	1.1-2.0	2.1-3.0	≥3.1
Finance	≤-3.1	-2.1--3.0	-1.1--2.0	-1.0-0.0	0.1-1.0	1.1-2.0	2.1-3.0	≥3.1

After the data in the table we can see how satisfied the elderly are with the city as a whole or a specific area. Thanks to these data it is possible to assess the situation of the elderly, namely, what measures must be taken to improve it, whether state intervention is necessary or not. It is on these conditions that the features of the emotional sphere of older people also depend: they will be with a positive or negative aspect.

To create a favorable environment for the development of the emotional sphere of elders, we need to think about what is important for them. First of all this is the well-being of close people, and only then goes good health, material wealth, the need for communication, satisfactory living conditions, government support and care, and an interesting job. Older people have an impact on the social environment and the morality of society, therefore it is necessary to take into account their opinion, which in reality is often neglected.

Touching on the topic of the environment and the conditions in which an elderly person is located, it is necessary to consider emotion as one of several

psychological states of a person. The emotional and mental state of a person depends on the surrounding environment and looks like a spiritual experience.

In general terms, it is generally accepted that most older people achieve peace of mind.

But not all people meet old age in peace of mind. According to the American psychologist Eric Erickson (1902-1994), a person goes through eight stages of development during life, and the last of them begins at the age of about 65 years. He called it "ego-wholeness versus despair," meaning that this is the time when people look back and experience a sense of acceptance and pleasure if their lives were happy and productive. Erickson called the correspondence between the ideal ideas of life and the actual life lived "the integrity of the ego." But if you have been unhappy during your life, then at this stage you will feel desperate. Of course, for most people, the situation does not appear only in black or white. Despite the fact that Erickson formulated this theory in middle age, not knowing how much it would apply to himself, he

turned out to be a brilliant example of ego-integrity. He died at the age of 91, having spent the last months of his life with his beloved wife Joan in happiness. They were often seen strolling by the hand or even kissing in public places.

Erik Erikson claimed that peace and tranquility grew in his soul over time. But is it true that emotional stability increases with age?

Emotional stability is largely an individual trait. Some people have it to a lesser extent, and they are easily upset. Every broken cup and every little thing like a missed bus or a forgotten wallet at home seems like a disaster to them. Criticism makes them angry or loses their self-confidence. They often experience anxiety and tension, fear the dangers ahead, and worry about what others will think of them. They are easily confused, more often angry, and more easily frightened. In general, such people are dominated by negative feelings. Psychologists call such conditions neuroticism or emotional instability. About 15% of all people meet the criteria for neuroticism, and they are very sensitive individuals, which in itself is not so bad. But neuroticism also has obvious drawbacks. In many people, it develops into diseases, such as depression or anxiety disorders, which, as noted above, is specific to the elderly.

Our society is accustomed to think that older people are usually dissatisfied and irritable. But you need to step over this stereotype, because in fact, with age, the level of neuroticism decreases. Older people are much more stable than young people, and they are more difficult to lose their temper or lead to panic. Various studies, including those conducted at Stanford University in California, show that emotional stability develops in a person throughout life. People feel happier in their 60s than they did in their 20s or 40s.

They experience less negative feelings. Despite the fact that at the age of 70 there is another surge of negative emotions, it never reaches the same degree as in young people. The appearance of negative feelings in 70 years is explained by the deterioration of physical abilities and the loss of friends. In addition, they are caused by changes in the prefrontal cortex (the front part of the frontal lobes), which regulates our emotions. In any case, older people are more emotionally balanced and better prepared for difficult situations involving others or due to changes in the external world, as

they are able to cope with negative feelings. Older people are more emotionally stable, which means they have a lower risk of psychological problems. Such disorders most often overtake people under the age of 40.

It is worth noting that with age, another very important personal trait changes, and this is friendliness or good nature (psychologists call this characteristic altruism), that is, the ability to work with people and treat them well. The elements of altruism are tolerance and willingness to help. We are usually pleased to communicate with those who have all these characteristics: such people do not interfere with us and do not bring negativity into our lives. Most people become more friendly and good-natured with age.

As an explanation for the emotional stability of older people, researchers cite many arguments. For example, some claim that the elderly has experienced more stressful events in their lifetime and therefore now they, unlike young people, are not so upset. In this case, we can recall that in the current situation with the disease Covid - 19, many older people did not experience fear from Another interesting hypothesis says that, compared to the younger generation, older people are less focused on the future and have more confidence in the things that they still have to do. That is, they live in the here and now, and this allows them to relax and enjoy the pleasant little things that make our lives happier. Young people prepare themselves for unpleasant situations (for example, to communicate with an unbalanced manager) that arise on the way to their long-term goals (for example, to get a promotion at work). Older people don't think this way, so they expect less bad things.

Another argument for the emotional stability of the elderly is the fact that older people are less demanding than young people, and their needs are easier to meet. In this case, we can say that they are either wiser and more realistic, or they have lower standards. In other words, they have come to terms with their limitations because of their age. The results of a number of studies confirm this hypothesis. In addition, older people have a better understanding of what brings them joy in this life, which means that they make better decisions. For example, according to research, they are less likely to regret their purchases than young people. This is partly because older people are less impulsive.

Some scientists study how people remember information about things they need to buy. Retired customers are more likely than others to recall the positive qualities of products.

But, of course, the most powerful argument for the emotional stability of older people should be considered the fact that over time they have learned to deal with their negative emotions. Most people use one of the two most common ways to deal with negative emotions: either suppress them, or interpret the situation so that the feelings experienced seem less unpleasant. Suppression of emotions involves holding back any external manifestations of one's feelings. You control your facial muscles, voice tone, and body language to hide anger, sadness, or fear. In other words, to suppress emotions means to behave as if everything is fine, even if you are trembling with fear, writhing with mental pain, suffering from jealousy or boiling with anger.

### Conclusion

In conclusion, I would like to mention that it is possible for everyone to retain an optimistic spirit of soul until very old age. This can be facilitated by an orderly lifestyle, systematic motorization of Health, Occupation with physical education, mastering special methods of mental self-regulation. An important role in the preservation of positive emotions is played by the specific character of the personality, specific features of temperament and other mental properties. However, the main factor is the socio – psychological environment, the psychological climate of the environment in which the elderly person lives. It is also noted that people, who have been engaged in intensive and fruitful creative work all their lives, keep their minds clear, high labor productivity, optimism and mental health much longer. An essential factor in preserving the optimal state of the emotional sphere is also some cultural – historical and national – ethnic characteristics of the environment in which the elderly person lives. Our Actions help connect research initiatives across Europe and enable scientists to grow their ideas by sharing them with their peers. This boosts their research, career and innovation. [www.cost.eu](http://www.cost.eu)

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# The Benefits of Musical Training in the Elderly Age Group

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**Abstract. Purpose:** This research paper investigates the benefits of studying music in older citizens. The paper aims to open a broad discussion around passive musical training, instrumental training and how this activity influences the motor function, brain function, perception and emotional experience in older citizens. **Design/methodology/approach:** This research paper presents and analyzes literature which investigates the impact of music on senior citizens and the general connection between music and the man as a living system. Besides the literature review, the paper presents individual cases of senior citizens learning a musical instrument and their experiences. **Findings:** Based on the literature review, we can conclude that studying music at an older age is beneficial to one's physical, cognitive and emotional health. A few benefits of engaging in a musical activity are: stimulating the brain, developing multisensory motor skills and experiencing a healthy emotional reward. **Research limitations/implications:** The literature review and case presentation serves as a starting point for further field research. Some implications of the benefits of learning a musical instrument could be further researched in older citizens who suffer from various neurological diseases. **Practical implications:** This research paper argues that studying music is not only an enjoyable experience for the elderly, but rather an activity that could be vital for the mental and physical health of older citizens. Private or group music classes could be regularly offered in retirement homes and senior centers, so the elderly are tempted to engage in musical activities. **Originality/value:** The benefits of listening to music and learning a musical instrument have been researched extensively over the past decades; however, most of the research available covers the early stages of cognitive and motor development. As a result of that, most people who start learning to play an instrument are of younger age. This paper discusses the benefits of learning a musical instrument at any age, focusing on the elderly age group. The purpose of the research is to present the benefits of studying music and encourage this activity for the specified demographic group.

**Key words:** musical training, older people, motor function, brain function, perception and emotional experience.

## 1. Introduction.

Music Education is a process of learning that helps people of all ages move ahead in the consciousness society through the teaching of skills, knowledge, values, and habits. Its purpose is to help people become accomplished human beings through daily enjoyable activities, such as listening, singing, playing and dancing. Music is considered one of the most complex cognitive, sensory-motor, and emotional experiences for the human brain. (Särkämö, 2018). Depending on each individual's emotional needs, music can help one relax, engage, focus, relieve stress, and provide comfort and joy.

There has been extensive research study on the benefits of passive and active musical training in

various age groups during the past years. These scientific research experiments support the idea that music has a strong emotional impact, influences the nervous system, and enhances the brain's cognitive functions.

According to the United Nations estimations, the global average life expectancy for 2019 was 72.6 years, rising every year. Given this fact, the aging population is rapidly increasing, as well as age-related cognitive decline. Recent research has focused on finding solutions to promote brain reserve through various interactive activities. There is a lot of research and interest in how musical activities could be the optimal way to provide emotional, cognitive, and motor well-being for older adults.

This paper aims to open a broad discussion around passive and active musical activities and how they are crucial for older adults' well-being. Musical training is highly beneficial for the elderly, influencing motor function, brain function, perception, and emotional experience in older citizens.

## 2. Passive and Active Musical Training

Musical training can be classified into two categories: Passive or Receptive Training and Active or Expressive Training. The first category uses auditory training alone, which involves listening to music and discussing musical pieces or musical concepts. The second category uses sensorimotor-auditory training, which involves playing an instrument, singing, and performing. Several studies cited in Teppo Särkämö's *Cognitive, emotional, and neural benefits of musical leisure activities in aging and neurological rehabilitation: A critical review* prove that listening to background music enhances episodic memory, verbal fluency, and performance in tasks of psychomotor speed. (Särkämö, 2018)

While both receptive and expressive training can be beneficial for the human brain, research found active training to be more efficient in increasing neural activity. One research study that provides evidence supporting this idea is *Cortical Plasticity Induced by Short-Term Unimodal and Multimodal Musical Training*, conducted by Claudia Lappe et al. and published in *The Journal of Neuroscience* in 2008. The research study involved two groups of non-musicians trained over the course of two weeks. The sensorimotor-auditory group (SA) learned to play a musical sequence on the piano. In contrast, the auditory (A) group listened to and discussed the music played by the first group participants. The results showed different cortical responses in SA and A groups after the training period. The experiment demonstrated that sensorimotor-auditory training creates plastic reorganizational changes in the brain, leading to greater plasticity in the auditory cortex than auditory training alone. (Lappe et al., 2008)

## 3. An Overview of Instrumental Training

Learning to play a musical instrument is a rewarding but quite challenging experience

regardless of age. However, the cognitive and emotional benefits of learning to play a simple melody are incredible and worth the effort. Three distinct categories are worth discussing in detail regarding the benefits of learning an instrument: Cognitive, Motor, and Emotional/Social. Research shows that music enhances cognitive functioning by activating and engaging multiple regions of the brain. It also influences the nervous system and motor mobility, evoking strong emotions and improving mental health. (Sarkamo, 2008)

Musical training and its influence on the human brain's development have seen a lot of research in the past decades. Multiple studies have shown the importance of musical training regarding different aspects of the human brain. The review article *How musical training affects cognitive development: rhythm, reward and other modulating variables*, published in *Frontiers in Neuroscience*, covers a couple of the outcomes of recent research studies about the areas of improvement when receiving musical training. The studies have shown that the benefits of studying music go beyond the skills that it directly trains. (Miendlarzewska and Trost, p.1) According to Peretz and Zatorre, listening to music is already stimulating and engaging a distributed network of brain structures by requiring perception abilities, including selective attention, pitch discrimination and auditory memory. In addition to being a motor activity, music performance requires precise timing of several different actions, as well as control over pitch interval. (As cited in Miendlarzewska and Co, p.2) Instrumental training is a multisensory motor experience. It requires and develops a set of skills. The first one is reading a complex musical language (musical notation) and translating the symbols into pitch and rhythm production, action completed using sequential, bimanual motor activity dependent on multisensory feedback. Other skills involve memorizing long passages and improvising according to some set musical parameters. Music sight-reading requires the processing of a great amount of information in a very short time. This task requires the interpretation of pitch and duration of the notes in the context of the key signature and meter, the anticipation of familiar patterns and the translation of these into motor activity. (Miendlarzewska and Co, p.2) Musical instruction trains the attention and the



executive functions, having consequences both in the music domain and other general areas.

#### 4. Benefits of Instrumental Training in Older Adults

There are extensive studies that suggest learning an instrument at an older age prevents age-related cognitive decline. The research *Cognitive Benefits from a Musical Activity in Older Adults*, conducted by Abrahan et al. and published in the journal *Frontiers in Psychology* in 2019, evaluated specific musical interventions that could enhance older adults' cognitive performance. Dr. Abrahan and her team conducted two studies: the first evaluated neutral memory and the second evaluated emotional memory. The studies had 132 participants between the ages of 60 and 90, some who had formal musical training and others with no musical background. Both the musicians and the non-musicians were exposed to music imitation (control intervention) and music improvisation (experimental intervention). The results of the studies showed that the experimental groups had a significant memory improvement. Moreover, participants who had a musical background had better results in neutral visual memory than non-musicians. The results suggest that music improvisation could be a useful activity to promote memory enhancement in older adults. (Abrahan et al., 2019)

Another study published in *Frontiers in Psychology*, conducted by Seinfeld et al. and titled *Effects of music learning and piano practice on cognitive function, mood and quality of life in older adults*, evaluated the impact of piano training in contrast to other leisure activities in older people. The experiment had forty-one participants aged between 60-84. The first group of participants received piano lessons and daily practice for a period of four months, while the second group participated in other leisure activities, such as painting lessons, computer lessons, physical exercise, etc. The study found a significant improvement of executive function, divided attention, and inhibitory control in the piano-playing group. The results also showed a trend indicating an improvement of visual scanning and motor activity from piano training. Furthermore, in assessing mood and quality of life, the piano group showed a significant post-program emotional

improvement over the control group. According to the study's findings, piano training can decrease stress, depression and anxiety, improve the physical and psychological quality of life and induce positive mood states of the elderly. (Seinfeld et al., 2013)

Another similar study, titled *Cognitive, Motor and Social Factors of Music Instrument Training Programs for Older Adults' Improved Well-being* tested the effect of a 10-week program of piano training on healthy older adults. In contrast to the previous research study presented, this experiment conducted small group piano lessons with four people per class. The results revealed that the group learning environment played an important role in motivating the participants to socialize and play in ensembles. Participants' classes and environment influenced the post-training test scores. The results of this study demonstrate the cognitive benefits of piano training for older adults. Furthermore, they emphasize that a positive learning environment plays an important factor in determining musical training's efficacy. (MacRitchie et al., 2020)

#### 5. Questionnaire for Adult Students

Being music educators ourselves for people of all ages in violin, cello and piano, we sent out a questionnaire to our adult students to better understand their experience. We asked them about their musical journey and what prompted them to start learning a musical instrument, considering their accomplishments, challenges, practice schedule, and emotions when performing. The students' achievements included learning their instrument's specifics, studying favorite pieces, reading musical notation and rhythm, and converting that knowledge into practice. Some of the challenges they faced while learning to play string instruments were motor coordination and flexibility, such as proper bow hold, proper left-hand finger placement, and understanding the specifics of musical compositions, such as key and time signatures, styles and articulation. Adult students' practice schedule questionnaire answers varied depending on whether they are retired or not. Some could practice every day of the week, while some could practice four-five days a week. Practice occurs in the early evening as a relaxing and fun activity after a busy day.

When asked about their emotional state when

playing a musical instrument, all the students felt joy, happiness, calmness, as well as a sense of pride and accomplishment for their progress. They are also aware of the cognitive and motor benefits of instrumental training; they love the challenge that it presents and would like to perform in nursing and assisted living homes for other people to enjoy their music.

## 6. Conclusion

Passive and active musical training has a great positive impact on the social development and well-being of people of all ages. Based on the literature and research review, we can conclude that studying music at an older age is beneficial to physical, cognitive and emotional health. A few benefits of engaging in a musical activity are: stimulating the brain, developing multisensory motor skills and experiencing a healthy emotional reward. This research paper argues that studying music is not only an enjoyable experience for the elderly, but rather an activity that could be vital for older citizens' mental and physical health. Practical implications of the benefits of musical training are consequent to regular engagement in musical activities. Private or group music classes should be regularly offered in retirement homes and senior centers, so the elderly are tempted to engage in various musical activities. Older citizens could be motivated to learn to play a musical instrument by being encouraged to play familiar tunes, socialize with other students and collaborate in musical ensembles. Moreover, live concerts and performances should also be a regular occurrence in retirement homes, as they are beneficial for the well-being and quality of life of the elderly.

As the aging population is growing rapidly, a challenge for successful aging is to discover various interventions that have the ability to prevent age-related cognitive decline. Music has a powerful emotional impact, both as the performer and the listener. Musical engagement can be experienced as highly rewarding and emotional. Music-related activities, such as listening, playing, and singing might be the optimal activity to preserve cognitive reserve and improve the well-being of the elderly.

## 7. Acknowledgment

Present research was evaluated under the guide and with the support of COST CA19136: NET4Age-Friendly the main aim and objective of which is to establish an international and interdisciplinary network of researchers from all sectors to foster awareness, and to support the creation and implementation of smart, healthy indoor and outdoor environments for present and future generations.

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## The impact of music on elderly people

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**Abstract. Purpose:** Highlighting the musical bases of chamber music on the transmission, maintenance and development of spiritual, intellectual and emotional well-being of the elderly. **Design/methodology/approach:** The research presents topics based on for and against of chamber music genres preferred by older people in order to create the spiritual, intellectual and emotional states generated by them. **Findings:** Based on the analysis, we can conclude that chamber music and the sensations triggered by listening to it indicate that the field is important, ensuring the continuation of debates on the development of this field in the spheres of the elderly. **Research limitations/implications:** The present research directs the spiritual, intellectual and emotional evolutions regarding the transmission, maintenance and development of certain genres, pieces, fragments and chamber musical tones, for example: minor key, traditional folklore, fragments of works, classical instrumental genre, which leave their mark on the spiritual, intellectual and emotional states of the elderly. **Practical implications:** The research results are supported by the value of findings, conclusions and recommendations, which can be useful both in terms of transmission, maintenance and development of spiritual, intellectual and emotional well-being of older people and musicians in the field, higher education teachers, students to learn and the study of the dimensions of the cultural phenomenon, of the institutions of statistical analysis, being applied to the establishment of the new directions of development and research in order to direct towards the cultural branch the spiritual, intellectual and emotional well-being of the elderly. **Originality/value:** The foundation of the study directs cultural institutions and not only to the implementation of new ideas regarding the transmission, maintenance and development of spiritual, intellectual and emotional well-being of older people through a TV network of awareness and enjoyment of chamber music. **Implementation environment:** The research in question is carried out within the institutional project of ASEM "Creating the Conscious Society" of the European SHAFE Program: Smart Healthy Age-friendly Environment.

**Key words:** Creating a TV network, assess the spiritual, intellectual and emotional musical consciousness, chamber music, elderly in the Romanian space, European Community.

### 1

#### . What is the real meaning of music?

Music is one of the most universal ways of expression and communication for mankind and is present in the daily lives of people of all ages and cultures around the world. Listening to music, singing, both individually and collectively, are common activities for the vast majority of people. It is a pleasant activity in itself, but its influence

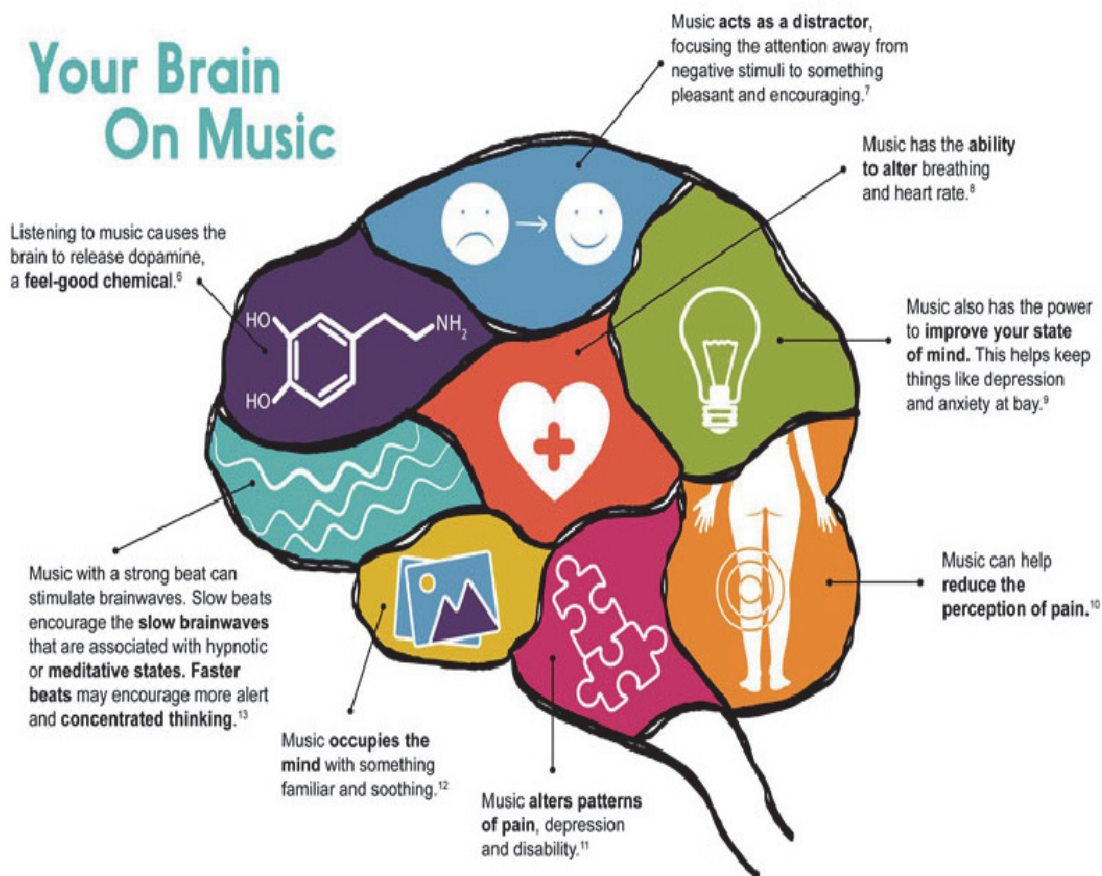
goes beyond mere amusement, namely the expression of inner states, personal feelings, the production of positive effects and benefits that are highlighted throughout life, including early childhood, adolescence and adulthood. Therefore, the contribution of music to health and well-being, especially on the elderly, provides evidence of physical and psychological impact: physically, music is a common accompaniment for exercise

both in the gym and in the park or on the street - an Asian study reports that The "time to exhaustion" in music conditions was 2/3 longer compared to the condition of lack of music in the same participants of an advanced age, and the psychological effect is to inhibit the occurrence of fatigue and change the pulse or frequency of breathing, which have their roots in the mechanism of thought (meditation).

## 2. How does music influence on seniors health?

Some of the criteria on which chamber music has a deeper effect, namely panic, increased

tension, sadness, depression, calming, stress reduction or relaxation, is tone (high or low), tempo and passages (ascending or descending), hence the high tones, the ascending melodic passages and the faster tempo, could cause anxiety and all being taken in reverse, induce a state of calm and relaxation.



However, given the complex interaction of different brain regions when listening to music, physiological and physical reactions could impact not only the positive effects but also the long-term well-being when the music is

implemented in different situations and contexts, including the family. Also, used as therapy for the elderly, it has been shown that people with various chronic diseases such as Alzheimer's, dementia, disability, etc., responded positively,

and even remembered fragments that once had an impact on their social life and this is due to the fact that music acts on all areas of the brain (auditory, visual and other cognitive functions). It is the first social agent where the greatest attachment and early connection takes place. In the family context, music has proven to be the most used leisure activity and is part of everyday events. Moreover, music is an important component of the routines and rituals of most families

### **The interaction between grandparents and grandchildren**

Our grandparents' music genres are very different from the ones our children listen to today. Grandparents enjoy traditional songs or songs specific to the '50s and '90s, while children enjoy and dance on the background of soundtracks from modern cartoons or pieces by contemporary artists. However, the appreciation of music begins with being a good listener, and by being open to any kind of music. A type of grandchild-grandfather interaction would be to talk about everyone's favorite artists, appreciated songs, favorite type of music or a song with special significance.

### **Why were so many kinds of music actually invented?**

Returning to the genres of music, we would like to deepen everything related to chamber music ensembles, chamber orchestras, group singing, choir, and so on, which involve new and different styles of interpretation - from folk songs to classical pieces and finally, to contemporary music. Why were so many kinds of music actually invented? The performance in these ensembles offers many opportunities for both performers and listeners to experience new sensations, new techniques and, of course, to be able to choose what they like to listen to or sing. Regardless of age, music unites people. How so? Because music is a great way to form and build teamwork, and people interested in such concerts, meet in a cultural environment, where they can share their audiences, which, in our opinion, means a special activity for the elderly.

### **Chamber music - classical music only..?**

There is an era for every kind of music - what does that mean? It means that we are in a continuous search, development towards something better, that's why each era has a different style. The era of renaissance, baroque, classicism, romance, twentieth century, Retro music, 1970s - probably older people are reduced, in most cases to classical music or Retro music, the first being as a sedative at the end of the day: Bach, Mozart, Rachmaninov, Wagner, Verdi and the retro one - because they grew up dancing and hearing it everywhere in bars, awakening many memories from adolescence.

When we talk about chamber music, everyone's thoughts fly to the association with classical music, although it is not so. Chamber music includes something much more complex, such as bands that play at various events, vocal-instrumental duos that make people feel good in cafes, etc., in a nutshell - chamber music is the orchestra that does not have need a conductor, but only the attention and maximum involvement of each member.

### **The pandemic**

The corona-virus pandemic is a serious challenge in the art world, so there are few opportunities to gather a large audience, which we can say, analyzing a study, that 70% of the audience is occupied by elderly people. However, some of us are lucky enough to benefit from online resources, where, without being able to compare with live listening, we have access to concerts that are organized by philharmonics and various soloists. Therefore, we could say that classical music, having an enormous psychological impact, will be relived, (of course fundamentally changing the experience of the arts that thrives in the crowd) by young people, and especially by the elderly, even if it is heard live or on online platforms.

### **Acknowledgment**

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Friendly the main aim and objective of which is to establish an international and interdisciplinary network of researchers from all sectors to foster awareness, and to support the creation and implementation of smart, healthy indoor and outdoor environments for present and future generations. This publication is based upon work from the Sheldon COST Action CA16226 Indoor Living Space Improvement: Smart Habitat for the Elderly, supported by COST (European Cooperation in Science and Technology). COST is a funding agency for research and innovation networks. Our Actions help connect research initiatives across Europe and enable scientists to grow their ideas by sharing them with their peers. This boosts their research, career and innovation. [www.cost.eu](http://www.cost.eu)

# WORKING CONDITIONS OF AN AGEING WORKFORCE

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**Abstract:** This report looks at ways in which the quality of work and employment can be promoted in order to encourage workers to remain in the labour market for a longer period of time and thus to achieve the economic objectives of the entities, based on job growth, quality and durability throughout the life cycle. Based on the analysis we can conclude that age is an important factor in describing working conditions and that significant differences emerge between younger and older workers. For instance, compared with younger workers, older workers are less exposed to physical risks in the working environment and enjoy a higher degree of autonomy in the workplace and a lower degree of work intensity.

**Keywords:** workforce, labour market, work environment, seniors.

## 1. Introduction

Over the last decade, the issue of Europe's ageing population has emerged as a central priority for policymakers in the EU. This demographic shift calls into question both the sustainability of pension systems and the future of Europe's labour supply, which in turn pose serious challenges for the prospects for economic growth.

In this context, the report focuses on four key areas: ensuring career and employment security; maintaining and promoting the health and well-being of workers; developing skills and competencies; and reconciling working and non-working life. All of these factors are significant in shaping the age structure of Europe's workforce.

In this context, it is important to monitor the working conditions of workers approaching retirement age to determine the factors which may lead to their early exit from the labour market. To enhance the sustainability of work for older workers, measures will have to focus on these aspects in the future. At the same time, it is also important to monitor work sustainability among young workers, who face a higher incidence of job insecurity and risk exposure. Population ageing reflects the success of societies in securing higher living standards, which in turn results in increased longevity. However, the continued growth of older populations also poses serious challenges for policymakers, particularly in relation to economic

growth. Increased expenditure on health and care for elderly people, and in particular a critical labour shortage as larger cohorts of workers retire at the same time, are some of the negative implications of population ageing which are set to pose a serious threat to macroeconomic performance and competitiveness, particularly in European countries. The European Commission forecasts that by 2030, the European Union will face a shortage of some 20.8 million people (6.8%) of working age.

## 2. Quality and sustainability of work

An important aspect when discussing the issue of attracting people – especially older persons – into the labour market or maintaining workers in employment is that of job and employment quality. A positive link emerges between employment growth and quality of work as well as between quality of work and productivity. All of these correlations are highly significant with regard to the ageing of the workforce.

In fact, job quality has been recognised as a key factor in enticing older people back into the labour market and in preventing their early withdrawal from the labour market.

At the root of this close link between quality of work and employment is the concept of 'work ability maintenance'. Work ability is predominantly a matter of striking a proper balance between work and personal resources – namely, health,

professional competence and values – over the lifecycle (Figure 1). During the different stages of a person's working life, both their personal resources and working conditions will inevitably change – for example, due to the effects of ageing and the advent of new technologies [1].

Failure to maintain work ability throughout the entire working life results in a deterioration of the very foundations on which it is based, that is, the personal resources, resulting in loss of balance and the collapse of the 'work ability model' in adult age. Having lost the ability to maintain a good balance, older workers will tend to leave employment as soon as possible.

Since some changes are inevitably associated with age, maintaining the work ability of an ageing workforce means taking action to make work sustainable in all its dimensions – working conditions, work contents, organisation and management. To this end, the notions of cooperation and involvement are of essential importance. As Peltomäki et al outline: 'Work ability maintenance means methodical and purposeful actions taken in cooperation with the employer and employees, as well as cooperative organisations in the workplace, in order to support and promote the work ability and health of everyone in work life' [1].

The most important practical objectives of work ability maintenance are to improve work and the work environment, develop the work community and work organisations, and promote the health and professional competence of employees. The basis for work ability maintenance is the active commitment and participation of different parties in the work community and workplace and their possibility to affect health and safety at work and other workplace health promotion activities.

'Quality' is a multidimensional concept and depends on a number of components which interact with one another. In 2001, the Council agreed to assess progress in job quality using a set of indicators built on the 10 dimensions of quality of work identified by the European Commission in 2001: intrinsic job quality; skills, lifelong learning and career development; gender equality; health and safety at work; flexibility and security; inclusion and access to the labour market; work organisation and work-life balance; social dialogue and workers' involvement; diversity and

nondiscrimination; and overall work performance. For each of these dimensions, one or more indicators were proposed – and adopted at the Laeken European Council in December 2001 – as a means of assessing quality of work in Europe and monitoring its evolution over time. Given the difficulties involved in collecting relevant information and evaluation data relating to the new Member States, the Commission focused on the situation in the EU15.



**Figure 1.** Work ability model. Source: Adapted from Ilmarinen, 2005, p. 133

It found that the performance of European countries in the context of these 10 dimensions of quality of work was encouraging in some respects, although there was scope for considerable improvement in each of these dimensions. This grid of quality indicators can be further improved by taking into account other aspects that contribute to determining job quality and that can be derived from the European Working Conditions Survey (EWCS). In order to investigate job quality, in 2002, Eurofound proposed an analytical framework based on the criteria identified at the Stockholm European Council in 2001. Eurofound organised the factors having a major impact on job quality into four key dimensions and produced a useful model (Figure 2), addressing the correlations between working conditions and ageing as a function of the quality



of work concept [1].

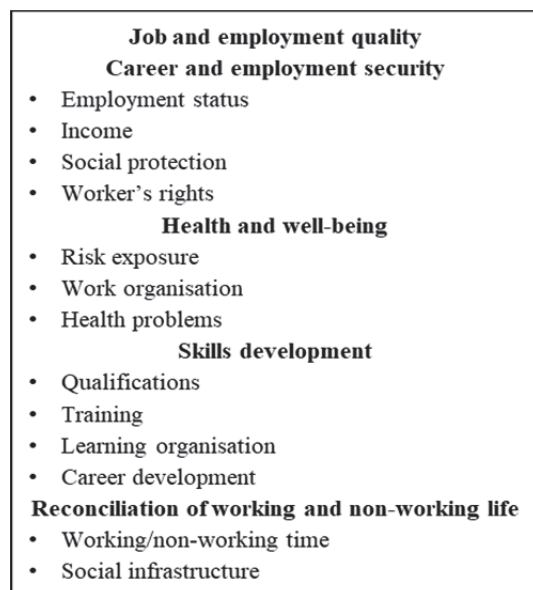


Figure 2. Quality of work and employment model. (Source: European Foundation for the Improvement of Living and Working Conditions, 2002, p. 6)

Based on this model, the promotion of quality of work and employment involves:

- ensuring career and employment security;
- maintaining and promoting the health and well-being of workers;
- developing skills and competence;
- reconciling working and non-working life.

These four aspects will be investigated and developed in the following chapters of this report, analysing the EWCS data and taking into account differences across age groups and the specific effects of age. A central focus is how age is an important factor in describing working conditions and how it is an important dimension of the analysis of EWCS data. Thus, the focus of the report will be the analysis of quality of work from an age perspective and of the sustainability of jobs across ages. In order to achieve the Lisbon and Stockholm targets, it is essential to retain workers in the labour market for longer. A prerequisite for this is job sustainability over the life cycle. The report's analysis will only indirectly point to factors that may enable people to stay in work for longer, since the survey does not record people

who are no longer at work nor their reasons for leaving the labour market. However, the analysis does bear witness to the fact that workers facing the worst working conditions and those who are eligible to retire are more likely to leave the labour market.

### 3. Career and employment security

Ensuring career and employment security is important for promoting quality of work and employment.

The main characteristics of employment are:

- low-educated workers and self-employed people are mainly composed of older workers;
- older workers are over-represented in agricultural activities and, although to a lesser extent, in more knowledge-intensive sectors such as education; in contrast, their presence is below average in the hotels and restaurants and trade sectors;

- the incidence of part-time work declines as age increases and rises again in the oldest age group; the latter also have a greater choice over whether or not to work part time;

- temporary employment contracts are clearly concentrated among the youngest workers, although their prevalence increases somewhat among the oldest age group, especially among female workers.

In relation to the key issues of employment security, job satisfaction and age discrimination in the workplace, the following findings emerge:

- younger workers experience a higher incidence of job insecurity, while older workers seem to be more 'protected' against such risks; nonetheless, both older and younger female workers appear to be more exposed to job insecurity;

- regarding the link between employment arrangements and job satisfaction, the statistics data show that temporary contracts have a negative impact on workers' job satisfaction, especially if associated with low employment security;

- the effects of age on job satisfaction appear to be significant only among the youngest age group aged 15–24 years, who report a lower probability of being satisfied than other age groups;

- the youngest and oldest age groups face the highest risk of age discrimination in the workplace, although there has been a slight decrease in the proportion of workers who report having been subjected to age discrimination, in particular among younger workers;
- interestingly, a positive correlation emerges between education and skill levels and age discrimination, with the less-educated and skilled workers reporting lower levels of discrimination.

### 3.1 Job satisfaction

In relation to the links between job satisfaction and workers' well-being, a vast array of literature in the fields of psychology and economics supports the claim that job satisfaction is a good measure of overall individual well-being (Diaz-Serrano and Cabral Vieira, 2005). Moreover, job satisfaction has been recognised as an important factor in relation to active ageing and achievement of the Stockholm and Barcelona targets: the EU High Level Group on the future of social policy stressed that 'extending working life would be helped by increasing job satisfaction' (European Commission, 2004a). Following the influential research of Hamermesh (1977) and Freeman (1978), a growing body of literature has been concerned with the determinants of job satisfaction. Substantial evidence exists of a meaningful correlation between job satisfaction, as well as many individual and job characteristics, and other behaviours such as absenteeism, job performance and employees' willingness to help co-workers and their organisation. Moreover, job satisfaction is considered to be a good predictor of the intentions or decisions of employees to leave a job [2].

### 3.2 Discrimination and harassment in the workplace

In light of major demographic changes, the issue of age discrimination has increased in importance in most EU countries. Age discrimination does not only concern people above a particular age, but affects many age groups in different ways, with the strongest implications being evident for the youngest and oldest individuals. Manifestations of age discrimination against older workers might include various actions. Some of these may be

explicit, such as excluding older workers from promotion, training and benefits, including age limits in recruitment advertisements or refusing to hire older workers. Other manifestations may be more subtle, such as limiting the job responsibilities and duties of older workers, dealing with job redundancies by encouraging older workers to retire early or reducing incentives for people who are willing to continue working beyond the 'normal' retirement age. All of these actions reinforce a stereotype of older workers as being the most dispensable group in the workforce. Young workers are also at risk of age discrimination – or so-called 'reverse ageism'. In particular, they risk being denied access to jobs or suffering from unfair work allocation. Many groups of workers may also face multiple forms of discrimination. For instance, women returning to work from caring responsibilities, older ethnic minorities and older disabled people are among those who are at risk of the greatest levels of discrimination.

#### 1. Health and well-being

Three aspects of the health and well-being dimension are examined in the report: risk exposure, work organisation and health problems.

In relation to the issue of risk exposure:

- a trend towards a reduction in risk exposure emerges with increasing age, although a worsening in working conditions is detected among those aged 45–55 years, particularly among women;
- older workers report higher exposure levels to risks associated with physical position and repetitive movements or heavy workloads;
- over the past 10 years, no particular improvements in worker exposure to physical risks, although some improvements have been observed for workers aged 55 years and over.

The issue of work organisation, another aspect affecting workers' health and well-being, is addressed by looking at three areas: the degree of autonomy at work, the intensity of work and the spread of new high-performance work organisations (HPWOs). Some of the key findings in this regard reveal that:

- work intensity decreases while autonomy rises with increasing age, especially when comparing the values of the extreme age groups;

- involvement in HPWOs is low among older workers, whereas it is more widespread among younger workers;
- working conditions appear to be most critical for the youngest generations, while conditions experienced by older workers seem to be more favourable. In relation to workers' perception of their health status and of their ability to continue working at the age of 60, the findings show that:
  - young workers are least aware of the impact of work on their health, while those aged 45–54 years show a significantly higher probability of recognising this correlation;
  - working conditions involving exposure to physical risks, high work intensity and non-standard working hours result in a greater perception of the impact of work on health;
  - the proportion of workers who believe that their health or safety are at risk due to their working conditions has dropped significantly among those aged over 55 years;
  - the proportion of respondents who think they will be able to, or want to, do the same job at the age of 60 increases with age;
  - perceiving an effect of work on health, the presence of discrimination or violence at the workplace or employment contracts with low security significantly reduce respondents' perception that they will be able to do the same job at 60 years of age.

#### 4.1 Risk exposure

Health, in its context as a functional capacity, constitutes one of the components of work ability: the more this component deteriorates, the harder it is to maintain an equilibrium. Among the factors that have a considerable impact on workers' health is periodic exposure to physically hazardous working conditions. However, other important factors, which are not considered in this report due to the lack of data, are those related to lifestyle, including, for example, diet, alcohol consumption, smoking and physical exercise – factors for which awareness-building campaigns should be performed at workplaces. Older workers may be particularly at risk from exposure to difficult working conditions – such as heavy physical work or restrictive postures – as these can amplify the natural deterioration of the body related to the

ageing of sensorial and physical capacities (Ilmarinen, 2005). The findings in Table 8 show the proportion of respondents in the EWCS (2005) who replied that they were exposed to physical risks for at least half of their working time. Following the approach of Ilmarinen (2005), the table distinguishes between workers under 55 years of age and those aged over 55 years. Comparing older workers with the rest of the workforce (see last column of table), it emerges that, for all risks, older workers report a lower exposure level than their younger counterparts, although the differences never exceed five percentage points [3].

Distinguishing between different risks, older workers report higher exposure levels for the risks associated with physical position and repetitive movements, or carrying or moving heavy loads. In absolute terms, the highest physical risk factor is standing or walking at work, a condition that applies to about three out of five older workers for at least half of their work schedule. To gain a better overview of workers' exposure to physical risks in 2005 and of how risk exposure is distributed across ages, the report condenses, by means of a factor analysis, all of the risks reported above into a single index, which measures the level of general exposure to physical risks. This indicator can be interpreted as one of the dimensions of work sustainability over age. To facilitate interpretation, the index has been standardised: 0 represents average exposure, while positive values denote exposure greater than the average and negative values indicate lower than average exposure. Furthermore, in order to display this general factor more accurately, the index has been split into three sub-factors which measure physical work environment risks; physical load/position risks; and biological/chemical and radiation risks.

#### 4.2 Work organization

Work organisation is another factor affecting workers' health and well-being. The impact of this factor on work ability maintenance does not relate to functional capacity alone: it also affects motivational aspects, such as satisfaction with one's job. In this analysis, consideration is also taken of the degree of autonomy at work, work intensity and the spread of new high-performance

organisational forms. The first two factors are usually combined in Karasek's widely quoted model of job strain (Karasek, 1979): according to this model, organisational conditions entailing high psychological demands combined with low autonomy levels will generate stress and ensuing negative effects on health as well as job satisfaction. The third aspect of work organisation included in this analysis is the involvement of workers in what is referred to as 'high-performance work organisation' (HPWO). The latter is a form of work organisation characterised by horizontal hierarchical structures, task rotation, teamwork and active involvement of the workers, including those who are unskilled, in decision-making processes. In some working environments in particular – for instance, those in which non-standard problems requiring creative solutions have to be addressed – this type of organisation improves worker efficiency, productivity and satisfaction [4].

The new forms of work organisation, such as HPWO, are seen as a key tool for making Europe a more competitive and dynamic knowledge-based economy, as defined by the Lisbon Strategy. The two fundamental concepts underlying such forms of work organisation are productivity and occupation: 'HPWO, with teamwork as one of its core functions, aims to be more innovative, flexible and more productive, placing the importance on both the organisation and the worker. A company using the HPWO model invests in its human resources and supports employees' technical and innovative skills, which contribute to employability'[4].

### 4.3 Impact of work on health

Workers' health bears a major share of the 'weight' of working conditions in the work ability; hence, it must be taken into account in efforts aimed at maintaining work ability throughout the lifecycle. In the case of older workers, their health has been identified for a long time as one of the key variables in determining their participation in the labour market (see, for instance, Sickles and Taubman, 1986). As demonstrated by Nicoletti and Peracchi (2001) on the basis of European Community Household Panel (ECHP) data on workers aged 50–69 years, poor health conditions greatly reduce the

probability of being employed while increasing the probability of leaving the labour market within a year's time. With increasing age, a person's health tends to deteriorate, especially in terms of sensory functions, such as eyesight and hearing, and physical functional capacity. Less clear-cut are the changes affecting people's mental functional capacity, since some mental characteristics may also improve. At the same time, lifestyle and working conditions may accelerate the natural deterioration of people's health [5].

The EWCS does not provide for objective measures of workers' health conditions and the impact of work on people's health. Instead, it records how respondents perceive their health status. This section will give an outline of these findings, bearing in mind some important data limitations:

- persons not in employment are not interviewed and therefore, especially when dealing with older workers, the findings may reveal better working conditions than is actually the case and a lower impact on health due to a process of self-selection (people who keep working are precisely those in better health);
- workers' health status changes the impact of work on their health – this is particularly relevant if comparing workers from different age groups, since, as already indicated, health tends to deteriorate with age. In the survey, health data are very limited;
- even people's perceptions are age dependent, since value systems, beliefs and reference aspirations may differ.

Thus, the results obtained for respondents aged over 55 years should be interpreted with caution. Nevertheless, the analyses that follow can be used to determine which working conditions generate a greater perceived impact on health and to identify possible age-related differences among workers under the age of 55.

## 2. Skills development

In its 2004 Employment outlook, the OECD reports a strong association, at individual level, between people's training profile and their employment outcomes. On average, adults who spend 10% more time on education or training are more likely to show a higher probability of being

active by almost 0.4 percentage points and a lower probability of being unemployed by almost 0.2 percentage points. Importantly, these results hold true even after controlling for selection bias, suggesting the existence of a causal link between training and individual labour market performance. Moreover, in the 2006 Employment outlook, the OECD shows that a positive and statistically significant correlation across countries exists between the incidence of training for older workers and the average effective age of retirement.

The findings in this context show that:

- older workers receive less training than younger workers, and women have fewer opportunities in this respect compared with men;
- the opportunity to learn new things at work is mainly given to adults, while women, especially older women, receive fewer opportunities than men;
- the introduction of new technology has been found to be biased against low-skilled workers, and while it appears to have improved job opportunities in some fields, it has resulted in job losses for older workers;
- other things being equal, older workers have a 10% lower probability of using computers at work than workers aged 25–35 years;

### **3. Reconciliation of working and non-working life**

Policies promoting a better balance between work and family responsibilities are encouraged by the European Commission and represent a major challenge for most European governments.

As a result we can find that:

- only a slight tendency towards a decline in the number of working hours is detected as workers age;
- more generally, inflexible working time arrangements may discourage older workers from continuing to work for longer due to the difficulties in reconciling work and family life;
- the proportion of workers who report having some power in choosing the organisation of their working time increases with age, although this is higher among those with non-standard working hours than on average;
- older workers do not seem to carry as

heavy a burden in terms of family responsibilities compared with middle-aged and female workers; however, although older workers show a lower engagement in caring for children, they have a higher likelihood of caring for an elderly or disabled relative compared with other age groups;

- employment contracts and working time arrangements play an important role in determining workers' satisfaction with work–life balance: lower levels of satisfaction are reported by those with non-standard working schedules, low levels of job security or employability, or higher caring responsibilities [6].

In the EWCS, respondents were asked the following questions: 'Do you work the same number of hours every day?'; 'Do you work the same number of days every week?'; 'Do you work fixed starting and finishing times?' Based on the proportion of respondents who answered 'no' to at least one of these questions, it emerges that almost 55% of workers have flexible work schedules (Table 13), with percentages ranging from nearly 52% among the youngest workers (15–24 years) to 58% among the oldest workers (over 55 years). The major source of flexibility is the variability in hours for older workers and in days for younger workers. Moreover, reported flexibility seems to be higher among male workers than their female counterparts. When taking into account differences across age groups in terms of occupation and sectors, and in particular the role of self-employment and the agricultural sector, older workers appear to have the most regular working hours, while the gender differences are confirmed; these results are based on a logit regression analysis on the probability of working the same number of hours and days with the same starting and finishing times.

### **4. Conclusions**

Age is an important factor in describing working conditions, with significant differences emerging between younger and older workers for most job characteristics. To cite just a few examples, younger workers are the most exposed to physical risk factors at the workplace and the least satisfied with working conditions. On the other hand, they receive more training opportunities and are more involved in HPWOs. Conversely, older workers are more 'protected'

against risk exposure and have a higher degree of autonomy at the workplace and a lower degree of work intensity; however, they receive fewer opportunities with respect to involvement in new organisational forms, training and learning new things at work. Younger and older workers share a higher probability of being subjected to acts of discrimination at the workplace and, to a lesser extent, facing difficulties in accessing information technology. However, adult workers carry a heavier burden in relation to caring activities outside of work and report lower levels of satisfaction with work–life balance.

An important target in terms of age concerns workers approaching retirement age, notably those who are between 45 and 54 years old. Thus, monitoring the working conditions of this group of workers in order to ascertain potential factors that could determine their premature exit from the labour market represents a crucial aim. Research on the issue of older workers' employability, in fact, has pointed out how the low participation of older people in the labour market is the result of a combination of wage conditions, rigidity in workplace organisation, inadequate skills and competencies and poor health status, rather than the wish to retire early. Moreover, the analysis in this report has indicated that workers facing the worst working conditions and who are eligible to retire have probably already left the labour market.

In an effort to sum up the role of the different working conditions in determining older people's participation rates and to give a rough evaluation of how different factors facilitate or hinder the employment of older workers, the report concludes by correlating some aspects of working conditions with older workers' employment rates. Accordingly, positive correlations are found with respect to work autonomy, the presence of HPWO, and access to learning and training. On the other hand, a clearly negative correlation is detected between employment rates and exposure to physical risks at work. At the same time, the correlation between satisfaction and employment participation appears to be positive [7].

In order to identify the role of the different aspects of working conditions in determining older people's participation rates and to give a

rough evaluation of how different factors facilitate or hinder the employment of older workers, some aspects of working conditions have been correlated with older workers' employment rates (Eurostat, 2007). These aspects have been analysed in this report; each of these aspects is summarised in an index based on workers aged 55 years and over, reflecting the working conditions of older people and the overall working population. Moreover, since the EWCS does not record people no longer at work, many of whom may have left their employment partly due to unfavourable working conditions, the same indicators have been computed for workers aged 45–54 years. As already outlined, workers in this age group are an important target in terms of extending people's working lives: these workers are approaching retirement age and their average working conditions reflect the conditions that workers who were eligible to retire from the labour market faced at the time of their retirement decision. Many aspects of working conditions correlate strongly with older workers' employment rate: in particular, correlations are higher among the 45–54 working age population, whose working conditions can be interpreted as reflecting the average conditions facing older workers who are deciding whether or not to retire. Positive correlations are found especially in relation to work autonomy, the presence of HPWOs and access to learning and training. On the other hand, a clearly negative correlation emerges between employment participation and exposure to physical risks at work. Not surprisingly, the correlation between satisfaction and employment is positive.

Most of these relationships have been discussed in the previous chapters, especially in relation to the role of training, new technologies and physical risks. The role of HPWOs in enhancing older workers' employability is also highlighted in other research; for instance, Bauer (2004) finds that a higher involvement in HPWOs is associated with greater job satisfaction and increasing the employee's perception of overall utility from working.

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# ACTIVE AGING: PROFESSIONALISM AND DEDICATION VS. RISKS

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## Abstract

The purpose is to identify the motivational factors for the continuity of work and professional harassment targeting the elderly, with extensive professional experience, in terms of dedication to work. The research displays the cause-effect relationship between the dedication to the work done and the professional risks characteristic of the field of activity. Long-term professional activity with psycho-emotional involvement is associated with a low level of intellectual and functional dysfunction. Doing work with dedication and professionalism involves a high level of empathy. Performing laborious work tasks with dedication can generate anxiety as a result of not achieving the expected result. Occupational hazards that may occur in the elderly, working in the medical and educational field have become, in part, common during the Sars-CoV2 pandemic. The lack of financial stability of employees in the Republic of Moldova requires older people to work in high-risk conditions. Access to information on the elderly in the medical field is limited, as institutions operate on a special basis. It is proposed to conduct a comparative study of the interconnection between dedication and occupational risks, in the elderly in urban and rural areas of the Republic of Moldova. The applicability of the research results derives from the findings obtained, and the data stated could serve as a benchmark in: Development of strategies for the development of social assistance programs for the elderly. Identifying opportunities for inclusion in the workplace according to psycho-emotional and physiological needs increasing the level of socialization and communication, through mentoring activities in partnership with elderly/experienced employees and young specialists.

**Keywords:** *active aging, active aging index, demographic aging, disease of the elderly, old people, professional activity, risks, the health of the elderly*

## 1. Introduction

The aging of the population has been, for a longtime, a topic of discussion, analysis, studies both globally and The topicality and stringency of the problem results from a series of facts and events that we find in time: nationally. Based on those mentioned in the table, we can conclude that the demographic problem, in globo, as well as that of population aging, in stricto, continues to be found both in the eyes of international authorities and on the agenda of national authorities, the scientific community and civil society in ensemble.

### 1.1. Demographic aging displacement of the age structure of the population

The problem that we set out to approach through the prism of this scientific approach is of an indisputable relevance, moreover, it is a challenge of the modern era. However, even the United Nations (UN) forecasts state that, by 2030, the percentage of the European population over the age of 65 will reach 23.8%, and according to Eurostat forecasts, by 2050 the number of people in aged 65 and over in EU countries will increase by around 70% and the number of working-age people will fall by 12%.



**Table 1.** Global and national events and actions on the situation of older people [apud 1].

<b>Year</b>	<b>EVENTS / ACTIONS globally</b>
<b>1980</b>	The European Parliament has adopted several resolutions related to the phenomenon of an aging population.
<b>1991</b>	The European Council adopted a series of decisions in favor of the elderly.
<b>1992</b>	
<b>1993</b>	It has been declared the "European Year of the Elderly".
<b>1995</b>	Two demographic reports and a report on the modernization of the social protection system were prepared, assessing the political impact of changing population structure in the EU.
<b>1997</b>	
<b>1999</b>	A European Colloquium was held, with the aim of analyzing in depth the issues related to employment, health care and health services, the reform of pension schemes and solidarity between generations.
<b>2002</b>	The second World Assembly on Population Aging was held in Madrid, where the results of the first conference on aging issues were analyzed and the global action strategy was approved.
<b>2005</b>	Commission of the European Communities disseminates Green Paper "Confronting demographic change: a new solidarity between the generations".
<b>2006</b>	The European Parliament adopted a resolution on the document, which reflected national positions, namely that there is no need to address demographic issues at EU level.
<b>2008</b>	The World Bank's report "From Red to Gray." The third transition of aging populations in Eastern Europe and the former URSS ", in which an attempt was made to determine the possible impact of this third transition.
<b>2012</b>	It has been proclaimed the "European Year of Active Aging and Solidarity between Generations".
<b>Year</b>	<b>EVENTS / ACTIONSin R.M.</b>
<b>2002</b>	The Republic of Moldova has acceded to the Regional Strategy for the Implementation (RIS) of the Madrid International Plan of Action on Aging (MIPAA).
<b>2007</b>	The National Commission for Population and Development (CNPd) was set up under the Prime Minister as a coordination mechanism in the field of demography.
<b>2007</b>	National reports on the implementation of the MIPAA were prepared, which included information from the public and civil society sectors on national measures to achieve the 10 priority commitments to support the elderly.
<b>2011</b>	
<b>2011</b>	It was adopted to the National Strategic Program in the field of demographic security of the Republic of Moldova (2011-2025), by GD no. 768 of October 12, 2011.
<b>2012</b>	As recommended by the UN Economic Commission for Europe (UNECE), the Road Map has been developed to integrate aging issues into general and sectoral development policies with a view to further integrating older people into social, economic, political and cultural life.

The result will be that, for every pensioner, there will be only two professionally active people, while at present there are four people"[2], [8]. In medical terms, old age is the last stage of life, preceded by the period of being a child, and later an adult. This condition includes two age categories, the third generation (60-80 years) and the 4th generation (80+ years). Senescence is associated

with numerous changes in the human body, in both cases, mentioned above, the state of health may be within the limits of physiological norms, but also outside them.

The advanced age of people correlates with both physical and mental changes, and their etiology and manifestations directly influence human abilities, serving as an impediment or as an

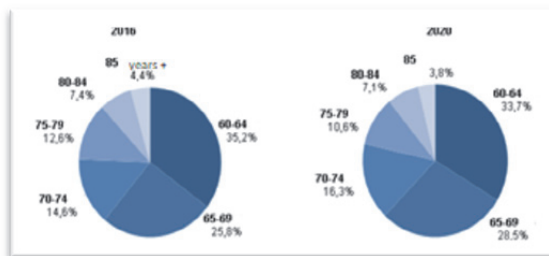
asset in various existential situations (interaction with family, friends and colleagues, effective activities etc.).

The demographic revolution from its beginnings in the twentieth century continues into the twenty-first century, and the aging of societies is a widespread and imposing concern. According to the National Bureau of Statistics of the Republic of Moldova, "at the beginning of 2020, 574.9 thousand people aged 60 and over lived in the country, which represents 21.8% of the total number of the population with habitual residence.

Of the total number of elderly people, about 60% were women, every third person was between 60-64 years old, and 10.9% were people over the age of 80. "[3] The problem of population aging is also an important topic on the agenda of decision makers, or, statistical data show us a continuous aging of the population of our country. And the recommendations and objectives set and which have a general character, as well as the mechanisms for achieving them, the indicators of progress are poorly determined.

The level of aging is established, as we know, by various calculation formulas. One of the best known seems to be that of the French researcher J. Beaujeu-Garnier, developed by the Polish scientist E. Rosset. According to the researchers, "Demographic aging begins when the share of the population aged 60 and over exceeds the threshold of 12%.

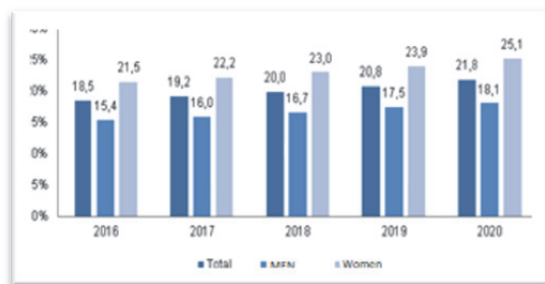
According to the UN formula, the population with a share of people aged 65 and over, at the level of 4-7%, is considered on the threshold of demographic aging, 7% and more - aged" [2, p.12]. We do not know what formulas were used by specialists from the Republic of Moldova, but from the figure provided by the NBS of the Republic of Moldova we can see the favorable dynamics of the structure of the elderly population by age groups, according to data from early 2016 and, accordingly, 2020. Population over the last about 50 years is constantly growing. In other words, the Republic of Moldova is aging continuously.



**Figure 1** Structure of the elderly population by age groups apud [3]

If we compare the percentage of an aging population, according to J. Beaujeu-Garnier and E. Rosset, then the Republic of Moldova is facing an extremely aging population, even from the perspective of the so-called "new aging threshold - 21% ". Obviously, the problem of aging can be attested in different countries, even in developed ones. Thus, "The 7% age threshold for the age of 65 and over was reached in many developed countries as early as the beginning of the 20th century, and in France and Sweden as early as the 19th century. The new aging threshold, determined at 14%, is exceeded or will be exceeded by all developed countries, therefore, a new threshold of 21% is examined as the new age limit "[2, p.13]. "The share of people over the age of 60 is constantly growing. In the last five years, the share of the elderly in the age group of 65-69 has increased the most - by 2.7 pp. (from 25.8% at the beginning of 2016 to 28.5% at the beginning of 2020). At the beginning of 2020, the population aging coefficient was 21.8%, which corresponds to a high level of demographic aging. Compared to the beginning of 2016, it registered an increase of 3.3 percentage points.

Differences are also marked in the distribution by sex, the coefficient of aging of the female population at the beginning of 2020 being 7.0 p.p. higher than that of men and accounted for 25.1%, compared to 18.1% for men" [3]. Demographic aging in the Republic of Moldova is caused by well-known mechanisms: decreased birth rate - a major causal factor, especially after 1990; migration size and flow geography; mortality level, etc. The data presented above give us a broader view of the demographic realities in the Republic of Moldova, in terms of the elderly.



**Figure2.** Population aging coefficient (2016-2020) apud [3].

### 1.2.The impact of the active aging of the population of the Republic of Moldova

The aging of the population in the country causes various social, economic and cultural effects, and the health of these people is directly correlated with the well-being of society as some of them are employed. In other words, it creates the impression of an active aging of the population in our country.

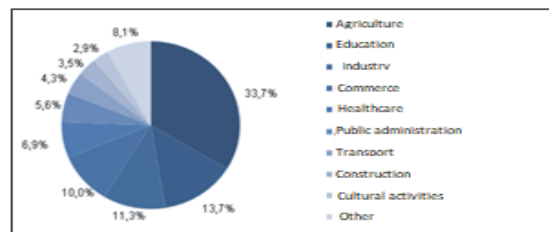
We recall in this context that "the World Health Organization launched, in 2012, the concept of" active aging ", with the stated aim of changing the idea that the elderly are a burden." [4] It is true that the elderly should not be a burden in our lives of the young... It is true, "active aging refers to the continued participation of older people in economic, social, cultural, spiritual life and not only the ability to be active from the point of view physically or to continue their work" [4].

The paradox for the Republic of Moldova, however, lies in the fact that the elderly, retired, are not involved in community life, do not continue their professional activity from dedication and desire to lead a healthy lifestyle, through programs to prevent the main causes of illness typical of the elderly. , improving their physical, mental and social potential, such cases being very rare. Our elders continue to carry out their professional activity due to the urgent lack of young staff, our elders actively contribute to the well-being of the family and community they belong to, but, most often, again out of the urgent need to raise and educate grandchildren whose parents migrated to foreign countries to try to earn a living, to ensure a decent living for those left at home.

According to a 2019 study of the distribution of employed elderly people in the Republic of

Moldova "every third person worked in agricultural activities, declaring the farm or agricultural land as the main place of work.

Every fourth person worked in the field of social services, provided mainly by the state[3] .



**Figure 3.** Distribution of employed persons aged 60 and over by economic activities (2019) apud [3].

Referring to the active aging of the population of the Republic of Moldova, we mention that we can judge about the current situation in the light of the so-called "active aging index (AI)". "The Active Aging Index (CI) is an indicator for comparing the active aging process between European countries and identifying the strengths and weaknesses in the evolution of this process for each country.

IIA examines the aspects of the life of the elderly population and establishes the social, economic, institutional barriers for active aging and capitalizing on the potential of the elderly ". [5] According to a study, Mariana Buciuceanu-Vrabie, PhD in Sociology, says that "In the Republic of Moldova the active aging index is very low, accumulating only 27.1 points and shows that over 70% of the human potential aged 55 and fish has no opportunities to participate in the economy and society and is not capitalized for active and healthy aging. IIA in Moldova is at a distance of 7 points from the EU average (about 34 points), as well as twice lower than the target of 57.5 points in front of all countries.

The country has significant arrears in all four areas of IIA: (1) employment - the lowest employment rate is recorded for the pre-retirement population 55-59 / 60-64 years (49% and 27 respectively, 6%); (2) participation in social life - only one in ten elderly people is involved in social life; (3) independent, healthy and safe living - every second elderly person is limited to having such a life; (4) the capacity and environment for active aging in Moldova is very low due to low life

expectancy compared to EU countries, low level of education and mental well-being of the elderly population (51.1% and 62% respectively), as well as insignificant skills in the use of information technologies (2.9%) and lifelong learning (0.3%).

Significant discrepancies are also recorded according to gender: older women are much more disadvantaged, unlike men, and face more intense material, financial and physical vulnerability. Thus, the IA for women is only 25.7 points while for men 29.2 points." [5]. According to the Informative Note to the draft GD regarding the approval of the additions to be operated in GD no. Demographics, in partnership with the Ministry of Health, Labor and Social Protection and the UN Population Fund of the Republic of Moldova (UNFPA).

The IIA accumulated only 27.1 points, being 2 times lower than the target of 57.5 points and is 7 points lower than the average of European Union countries (33.9 points). In this context, the Republic of Moldova ranks last compared to the 28 EU countries" [6], From Table 2.

The Active Aging Index (AI) estimated for Moldova (points / score), presented by the researcher, it can be seen that the AI in the Republic of Moldova is about 27%, employment is only about 24%. In terms of participation in society, there is a very modest involvement of only about 10%, respectively, there is a very difficult situation in terms of independent living, healthy and safe: practically every second elderly person is limited in the aging process of living independently, healthily and safely. In terms of capacity and a favorable environment for active aging, the impact of the cultural context is felt, in the sense that older people tend to self-assess their health rather than positively, especially in rural areas. This aspect also explains the higher value of the index of the share of healthy life expectancy at the age of 55 years.

Long-term professional activity with psycho-emotional involvement is associated with a low level of intellectual and functional dysfunctions. Doing work with dedication and professionalism involves a high level of empathy.

Performing laborious work tasks with dedication can generate anxiety as a result of not achieving the expected result. Occupational hazards that may occur in the elderly, working in the medical and educational field have become, in part,

common during the Sars-CoV2 pandemic.

**Table 2.** Estimated Active Aging Index (IAI) for Moldova (points / score) according to [5].

Average Index of Active Aging		Employment	Participation	Independent and healthy life	Favorable environment for active aging
Objective	57.5	54.2	40.6	87.3	77.3
EU-28 (max)	46.5	41.6	28.1	79.9	69.2
EU-28 (media)	33.9	27.8	13.2	70.6	54.4
EU-28 (min)	27.6	16.1	12.1	58.7	40.3
Moldova	27.1	24.2	10.4	54.0	48.1

### 1.3. Active aging of the population of the Republic of Moldova: risks

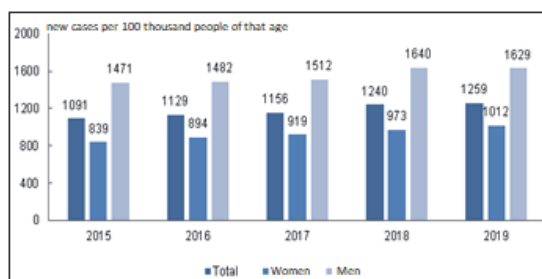
Lack of financial stability of employees in the Republic of Moldova requires older people to work in high risk conditions. In the chapter "health status among the elderly" the data show an increased incidence of disease, which would be an alarm signal for public authorities.

The main causes of mortality of the elderly, according to the NBS of the Republic of Moldova, were identified as diseases of the circulatory system (68.1% of all deaths), malignant tumors (15.5%) and diseases of the digestive system (6.6%). This trend is observed especially in men being called male supermortality, and has been recorded in all major classes of death.

According to data from the Ministry of Health, Labor and Social Protection, in 2019, about 69% of new cases of malignant tumors returned to people aged 60 and over. On average, every day, almost 20 elderly people were diagnosed with malignant tumors, being registered a total of 7.1 thousand elderly people whose diagnosis was established for the first time. An average of 1259 new cases of malignant tumors per 100,000 elderly people, compared to 1,091 cases in 2015.

The appearance of the increased number of elderly people who develop malignant tumors makes us draw attention to the etiology of their development. Living conditions, air, water, food quality, stress, overwork, trauma are just a few things we should consider when analyzing the situation. Analyzing and synthesizing the source information, we note with regret that the Republic of Moldova faces a wide range of barriers that

prevent the active aging of the population. These barriers have their roots in the poor functioning of the spheres of social life that do not ensure a decent standard of living, opportunities for participation and integration both in the labor market and in society, personal security, and low indicators of population health. More recently, the Sars-CoV2 pandemic has highlighted another problem that has come as a continuation of the lack of cadres of very modest salary incomes, especially in the medical and educational systems, namely burnout.



**Figure 5.** Incidence of malignancies in people aged 60 and over, by sex (2015-2019) apud [3].

The so-called Burnout Syndrome is considered the very disease of the 21st century, caused by a tired, asthenized society, etc. Among the clinical signs of occupational / emotional burning we mention: “somatic symptoms: fatigue, headache, gastrointestinal disorders, sleep disorders, rhinopharyngeal, influenza or pseudoinfluenza infections, feeling exhausted, asthenic, dyspnoea, obesity or insufficiency; mental symptoms: irritability, emotional lability, emotional overload, manifested by anger, tears, loud laughter, irritability, suspicion, increased sensitivity to frustration, anxiety, boredom, annoyance, disappointment, guilt, indifference, indifference; or exaggerated pride, rigidity, resistance to change, negative or pessimistic attitudes, pseudo-activism, inability to make decisions, distancing oneself from colleagues, perfectionism, frequent delays, etc.” [7].

## Conclusions

In the context of the above, we can conclude that in the Republic of Moldova persists an environment unsuitable for the active aging process. Active aging represents aging in optimal

health conditions, an active role in society and professional fulfillment, but also autonomy in daily life and involvement in civic activities. Therefore, the aging population requires the need to adapt social and health services to changing types of diseases (increasing chronic diseases) and types of patients. Particular importance will have to be given to the goal of keeping older people as active, healthy and independent as possible. However, active aging includes both the individual process and the social opportunities of health structures, participation and integration.

The primary purpose of involvement in the field of active aging is to create and make the most of opportunities for health, participation and security, so as to increase the quality of life of the population with aging. Investing in lifelong education is a major goal for an aging society. A high quality basic education, in the dynamic conditions of the contemporary society, the rapid development of information technologies, will be the foundation on which employees will be able to support their new qualifications. Adjusting the volume of pensions to quality of life standards so that they meet their main purpose of preventing poverty among the elderly and ensuring their daily needs.

An extremely important element in reaching the age is the state of health, which usually determines the choice of lifestyle. Regardless of the human situation, it is necessary to analyze each person and help them live a valuable life in the last stage of their lives.

## Acknowledgment:

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# PROVISION OF TOURIST SERVICES TO SENIORS IN THE AGE OF TECHNOLOGY

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**Abstract:** The tourism industry in the 21st century has become one of the most developed and profitable industries globally. It plays an important role in the development of the economy and standard of living in several countries, which have climatic advantages and geographical position with which they can evolve in this field. According to statistics, in the next 10 years, the number of "senior" tourists will increase significantly. They are a new category of tourists who have the opportunity, financial comfort, but also free time to travel, to explore new destinations. To be able to satisfy the requirements of new tourists and to offer a superior quality of services, the service providers introduce new technologies in the processing of the tourist offer. The research examines the tourism services offered to the elderly and their evolution through the implementation of technology because services are the basis of any tourist entity that influences the decision and opinion of consumers. During the research, a questionnaire was conducted with the participation of 25 elderly people. To detect the main needs of seniors in scheduling and then making the desired trips and how familiar they are with new technologies. Following this research, it was found that the main element in making a decision and in choosing a service provider, be it a travel agency, a transport company or an accommodation unit, is the process of communication and information. Although they are familiar with the new technologies, they prefer to buy a product from the provider for their safety.

**Keywords:** services, tourism, technology, industry, accommodation, travel agency, transport company

## 1. Introduction

Today's tourism is an economic, social and cultural activity that is developed locally and internationally. For many national economies, it functions as a main source of income. Tourism tries to satisfy one of the basic needs of contemporary people, which is the ability to change the environment and lifestyle, for a short period, at a high quality, depending on the mood and the size of the expenses that each can afford.

Tourism represents the field of activity in which one does not work with pure services, these being a combination of tangible and intangible elements that influence differently the achievement of the global effect, imprinting a series of characteristics and forms of manifestation. The specificity of tourism in the field of services also results from the way of their involvement in different processes such as:

- ability to adapt to the requirements of each

tourist (consumer);

- mobility of dynamism

**Tourist services** include a set of actions related to the purpose of travel, travel time, destinations and types of travel.

**The package of tourist services** is defined as a set of goods and services procured in a certain environment. This set consists of four elements:

- **Material base** (support facilities) is represented by the physical resources that must exist before a service can be provided. For example an aircraft, a hotel room, etc.

- **Support goods** are represented by certain materials purchased or consumed by the consumer. For example sports, skis, food, etc

- **Explicit service**, this benefits which can be observed with the help of the senses. For example, the absence of pain after the treatment of a tooth, the hotel room, after the cleaning looks more regular and smells fresh.



• **Default service** is understood by the psychological benefits, which the customer can feel vaguely only after the service.

These elements are very important in developing a package of tourist services for the elderly. The complexity of the tourist phenomenon places the provider of tourist services in a central position; it is obliged to get involved, in one way or another, in all other activities that have an impact on tourism (transport, trade, culture, health, etc.). It cannot in any way ignore the fact that any dissatisfaction of senior tourists caused by the adjacent sectors will harm its activity [1].

The aim and objectives of the paper are to study the tourist services provided to seniors: their characteristics, classification and quality that influence the client's decision and opinion and their evolution through the implementation of technology. The services are the basis of any tourist entity. Thus the following objectives were set:

- What are the main features of tourist services for the elderly?
- How familiar are the elderly with the new technologies used by tourism service providers?
- What are the categories of tourist services provided through technology?

It will be demonstrated that services are the dominant and determining element of the tourist offer, the most dynamic component, and their characteristics are found in the entire activity.

## 2. Tourist services for seniors.

The variability of the tourist services, their complexity and diversity determine the appearance of some problems regarding the unitary analysis of the offer, of the importance of each component, in the conception of some standards of structure and quality. That is why there is a need to group the services into homogeneous categories, easy to individualize and compare. In figure 1 according to their character, the tourist services can be represented as follows:

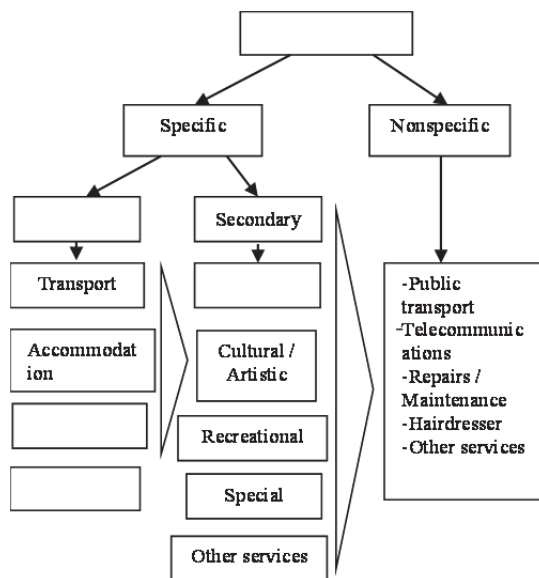
The peculiarities of the tourist services and their important role in the tourist offer were found in numerous preoccupations (attempts) of their structure. The importance of tourist services in the realization of the tourist product is highlighted by:

- They are the ones who value natural resources and anthropogenic of an area, resorts, making them accessible to tourists (resources will

take the form of tourist products only through the provision of specific services: transport, accommodation, food, leisure). International experience has shown that the existence of valuable natural and human resources is not enough to ensure the development of tourism. In the absence of services that enhance them, exceptional resources may remain outside the economic circuit;

- Through the originality and creativity with which the tourist services are combined and with the other components of the tourist product it is possible to ensure the increase of the attractiveness and especially the individualization of the tourist products [2].

For the elderly it is very important the peace and the natural landscape of the destination, it plays a major role in satisfying the need for relaxation.



**Figure.1** Tourist services (Source:Adapted after D. Turcu, J. Weisz, "Economy of Tourism", Timisoara (2008), pag.83., by the author.)

For many countries, tourism for the elderly is now an important part of the tourism industry. Many invest in the development of new tourism products, invest in units that provide specific health care and care services for the elderly or design special tourism packages for them. In countries such as Portugal, Spain and Italy, hotel complexes



are built that meet the specific requirements of seniors. In Spain, for example, the European Senior Tourism (EST) program attracts senior European tourists from other European countries to Spanish tourist destinations at very low prices in autumn or spring, different from the summer season [6].

The IMSERSO program subsidizes the improvement of tourism infrastructure so that it can serve the elderly or people with disabilities, while also subsidizing social tourism programs for the elderly [7]. In Italy, special programs have been set up, targeting, in particular, the medical support of the tourist population during the holidays, including the support of special groups of visitors such as the elderly. With the help of the Veneto Holidays project, a health campaign was launched (in which technology played an important role with smartphone applications) and laid the foundations for the operation of the largest health and prevention organization in Italy in the field of coastal tourism.

For seniors, quality is a particularly defining element of the tourist product. It expresses the extent to which the service provided meets their requirements. Starting from the framework in which the provider-consumer interactivity takes place, these elements can be grouped into three categories:

- Ambience;
- Material elements (equipment);
- Serving staff.

The ambience represents the totality of the elements that ensure the framework in which the contact of the provider with the client is made: the buildings and the furniture, the decoration, the functional character of the conditions of the organizer.

The quality of services is judged differently by the service provider and the elderly. Thus, the service provider appreciates the qualitative-objective technical quality, the observance of the technology of obtaining service, while an old person will be satisfied with the services received if he obtained what he expected and if he was satisfied with the way he was served (subjective quality) [3].

### 3. The orientation of results in the research – Methodology

Humanity is ageing. Today, about 1 billion

people over the age of 60 live on earth. It is estimated that by 2050 they will reach 2 billion. Children born in the 21st century have a 50% chance of living for more than 100 years. And as the elderly grows, so does their standard of living. They stay healthy longer and from the trends of the last decades, they travel more. At the same time, people with health problems are increasingly choosing to seek treatment in other countries or to combine treatment with holidays in popular tourist destinations. These trends have created two very large markets, which in the not too distant past were virtually non-existent: tourism for seniors and tourism for health [5].

Most international organizations consider that people over the age of 55 are seniors. According to researchers, it has been observed that after this age most people begin to worry about how to cope with the practical difficulties that will arise as they age. The World Tourism Organization defines a person over 50 as a "senior tourist".

To detect the main needs of seniors in scheduling and then making the desired trips and how familiar they are with the new technologies, a questionnaire was conducted in which 25 elderly people participated. Participants were separated into three age categories, 55-65, 65-74 and 75+, of which 60% were women and 40% were men. Of the total number of elderly, 68% have higher education and 32% have secondary education. The next table will present the results of the research conducted.

**Table 1.** Questionnaire

Source: Elaborated by the author.

Nr.	Questions	Answer in %
1	How often do you travel in one year?	80% 1 to 2 times 20% from 3 to 5 times 0% more than 5 times
2	How long does the trip take?	20% up to 3 days 32% from 3 days to 6 days 48% more than 7 days
3	Who do you prefer to travel with?	20% with the family 16% with friends 52% with groups (associations) 12% individual
4	How do you book a tourist product?	40% with the help of service providers 20% with the help of the internet, individually 40% with the help of

		family members
5	Why would you choose a specific service provider?	36% have a high rating on social networks 52% is recommended by friends/family 12% are award holders in the field
6	What activities will you select at your destination?	4% sports activity 28% culinary / gastronomy activity 44% visits to monuments / archaeological sites 16% visits to monasteries/churches 8% of health services
7	What are the obstacles to choosing a tourist destination?	60% fear of the existence of a contagious disease 8% religion and culture 16% the country's political situation 16% lack of security
8	At the destination, you prefer to	20% use gadgets to research their surroundings 24% had a personal assistant 56% purchase of group activity packages
9	What are the main elements that an accommodation unit must-have for you?	16% kind and informative staff 48% room equipped with special equipment for the elderly 24% of common areas comfortable and easily accessible 12% good lighting of the personal room, but also of the common areas
10	What are the criteria that a travel agency must-have for you?	20% central geographical position 32% easily accessible site 8% simplified booking procedure 40% of staff well informed and able to answer questions
11	Using air transport you prefer to	76% have a travel ticket on paper 16% have an electronic travel ticket 8% for both of them.
12	How do you make a reservation for visiting a	12% online 16% with the help of the representative of the

	museum?	accommodation unit 72% at the place of destination
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With the help of the data from table 2, we can conclude that most elderly people love to travel at least once a year, for 7 days, with their family or being members of some associations with them. It is easier for them to entrust the organization of the trip to the professionals of the field, with the concept that the organized package is of high quality and they are safer. Of course, the choice of service providers is made based on the opinions of the social group they belong to. They usually travel to relax and of course to get acquainted with the culture of dentition through visits to museums and archaeological sites. To get acquainted with the local cuisine, the seniors visit different local producers. Tickets for viewing are often purchased at the destination; few are those who will risk buying tickets online, afraid of doing something wrong. For the elderly, the security situation of the country in which they travel is very important, but also the health situation, they will avoid destinations that have contagious diseases. Depending on the financial situation but also on the spirit of adventure, some elderly people prefer to discover the surroundings of a destination with the help of gadgets, such as GPS, travelling by car. Some people want to have a personal assistant so that they do not have to worry about anything, just relax and learn something new. The highest percentage loves to be in a group, socialize seeing the wonders of an area and have a greater sense of security. When choosing a travel agency, they observe how easily accessible it is in terms of geographical location and whether, for example, it has an electronic staircase for climbing stairs. But the most important element is the staff of the organization. Proper communication and information are crucial for decision making. When choosing accommodation, they make sure that the rooms are equipped with special equipment for the elderly, such as handles both in the bathroom and in the rest of the room; easily accessible communication devices in case of emergency and generally the hotel environment are favourable. Using air transport they feel safer if they have a paper ticket in their hands, few will

use a smartphone as proof that they have the ticket in electronic format. From all the above, it is clear that elderly tourists, as the main element in organizing or purchasing a tourist package, have information and communication with the staff of service providers, and of course the safety that can be offered by them.

#### **4. Research limitations/implications.**

This article has certainly identified limitations that need to be considered when considering the results of the study and its contributions. Following the research was realized that new trends and technologies appear every day that help to improve the provision of tourist services, so the providers must be constantly informed and if necessary learn new methods and techniques to compete in the tourism industry. To further explore ways to improve the quality of tourism services offered to the elderly, future empirical studies of a qualitative and quantitative nature are recommended. These studies are necessary for the interpretation, validation and/or modification of the sites developed in this document. In this article, services are limited to the tourism industry, but the fundamental features of the services - whether tourist or non-tourist - are such that the features developed in this document can be applied to another part of the service industry.

#### **5. Sustainability**

The process of creating a tourist service for the elderly is complex. A multitude of providers are involved, which in turn must offer quality and fair services, within a specific time frame. Stakeholders in the senior tourism industry must take into account the selection criteria and the drivers and attractions of senior tourism to formulate the appropriate tourism product.

#### **5.1 Conditions and characteristics of the touristic destination**

The development and promotion of this category of an individual or group tourism based on the quality and safety of customers is a solution, perhaps a necessity, for tourist destinations during the low and medium tourist season. Besides, senior tourism programs are designed with an emphasis on the principles of sustainability, such as the protection of the environment and natural resources, the utilization of local products, the preservation of natural and

cultural heritage, the cooperation and integration of individuals into host societies, and the contribution to local prosperity and the development of local communities. Also, in the context of highlighting the quality level of these actions, policies aimed at quality assurance and sustainability are adopted, such as special certification programs.

#### **5.2 Conditions and characteristics of tourist packages for seniors**

Senior tourists can form a negative image of the services provided, even if the expected quality and safety standards are met, in case the product is bulk and standardized. The tourist product for the elderly must take into account certain specific elements, such as the choice of the most suitable period in terms of climate and conditions, the menu according to the eating habits of the tourists, the accessibility to the destination, and, at the same time, give special importance to the quality of the hospitality and the services provided, the security of the destination, the reputation of the travel agents and in general of the structures used for their service.

#### **5.3 Accommodation features**

The characteristics of the hotel accommodation infrastructure that are considered important for elderly travellers are the existence of a private bathroom with support facilities for people with mobility problems, accessibility, the personalized luggage transfer and handling service, etc. Many seniors who drive their car prefer a room close to where the car is parked [4].

#### **6. Conclusion**

The emergence of a new segment in the tourism industry, namely senior tourists, has led industry stakeholders, such as accommodation units/hotels, tour operators, and other activities, to implement targeted strategies and actions. To meet the demand as well as the special needs of the specific population.

A provider cannot be sure that it will satisfy the customer only because it has provided a good quality technical service, he must be aware of the importance of the buyer-seller interaction, the attitude with which the services were provided. The perception of quality therefore varies from one customer to another and is not equally important for the buyer and the provider. The quality of service will be perceived differently as

a service is new or already widespread, as the customer discovers it for the first time or has already used it. The quality of the services is ultimately appreciated by the consumer who compares his expectations with the experience gained during the service. Unlike the quality of products, the quality of services is more difficult to define and determine due to their intangibility. So the solution, to the problem of measuring the quality of services, is to determine how consumers evaluate the benefits they have received.

It was concluded that the quality of services received by seniors was evaluated according to several factors:

- correctness:
  - ✓ providing services on time and in the best conditions;
  - ✓ o the correctness of the payment note (invoice).
- receptivity:
  - ✓ prompt provision of the service;
  - ✓ a desire to respond to consumer demands.
- safety, the ability of services to inspire consumer confidence by:
  - ✓ the competence, politeness, respect and kindness with which the services are provided;
  - ✓ physical safety/absence of any danger (risk), as well as confidentiality
- individualization (personalization):
  - ✓ the provider's concerns for understanding specific needs;
  - ✓ offering services adapted to the clientele segment;
  - ✓ personalization of relationships.

Thus, some hospitality units and hotel providers have started to use advanced high-tech products to offer, at the same time, a wide range of care, promoting personalized services 24/7, health services, well-trained and qualified staff, comfortable rooms and beds, varied and healthy meals, spa facilities and other relaxation services.

The Internet has become a very reliable source of information and its impact on tourism from simple access to travel information search to online travel planning is crucial. The elderly now are not as specialized with the internet, but future generations of the elderly will be able to do anything. People involved in senior tourism have special health needs. The supply of health and

wellness tourism services to the elderly is expected to increase sharply in the coming years, due to the ageing population.

### Acknowledgements

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## Music - universal intergenerational language in Romanians

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It is presented the large-scale initiative to provide the psychological, spiritual, intellectual and emotional well-being of the intergenerational population through the implementation of the fundamentals of music among the 30 million

Romanians in the World within a 36-month evaluation period of the Project.



**Purpose:** We want to develop a three year intergenerational and international project for the implementation of music in the everyday life of Romanians. We are to educate 30 million

Romanians from the Balkan Peninsula on musical fundamentals, to raise spirituality, intelligence, and emotionality of population, and to support intergenerational collaborations.

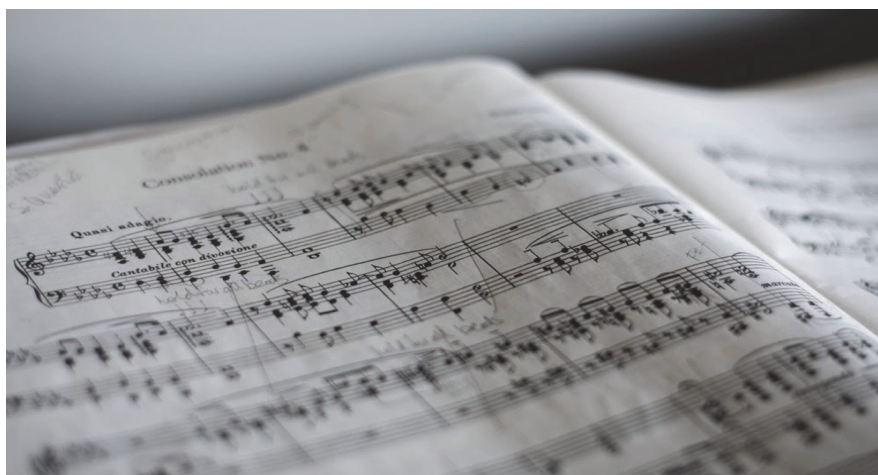


**Methodology:** We want to educate Romanians to increase the level of IQ and EQ and to improve collaboration between generations. We want people to study music literature in the field of welfare evolution, the methods of implementing music in the consciousness of people, the environments of ensuring the continuity of the learning processes of the basics of musical consciousness and their evaluation and implementation in everyday life.

Studies show that infants can recognize changes in tempo, rhythm and melody. Also,

music cures/helps cure a lot of mental diseases such as Alzheimer, depression, PTSD and schizophrenia.

**Findings:** Music therapy is the use of music interventions to help cure diseases such as Alzheimer, depression, PTSD/trauma, schizophrenia, anxiety, autism and more. It can also improve breathing, lower blood pressure, release serotonin and dopamine and overall, boost your mood.



Many Romanians schools from the Balkan Peninsula don't have the funding necessary for musical education lessons. Not all Romanians

from the Balkan Peninsula have access to mass media and television.





**Limitations:** Romania is considered a poor country. Nearly 40% of the entire population is at risk of poverty. Due to the lack of money, Romanian schools don't have the funding necessary for musical education lessons, instruments or teachers. Besides that, many people can't afford a gadget to watch the program.

This project needs a massive regional coverage (the Balkan Peninsula) and we need access to all possible mass media sources, including television, radio, social networks.



**Application value:** To expand our project, we need to advertise it across all mass media sources imaginable. Those include: television, radios and social media. Procedures for achieving the goal involves music education, starting with music theory and continuing with the musical

genres and categories, differentiating musical applications, promoting music circles, music ensembles and competitions. It's an alternative way to raise the population's spirituality, IQ and EQ. Additionally, it's the most pleasant way to do this.



**Novelty and scientific originality:** Studies show that music increases intelligence and improves mental health, just like any other arts. Other than that, it's the easiest and most emotional and pleasant way of learning. Watching a screen that tells you everything you need to know is the most addicting way and easiest way to attract more and more people to learn.

For example, to make a child learn more, you force them to read, document themselves, and

usually don't remember everything they have learned. If you put a video for your child, their attention is caught, and they will remember more from it than from a book.

In post-covid, we will do live sessions/festivals/lessons with all participants. This will help us reach our goal faster and more efficient. We can accelerate the progress by suggesting the most talented students to become teachers.



**Sustainability:** We want to create a multimedia network for spreading musical awareness to Romanian people within the European

Community. We can have from one to four episodes per week and categorize them by genre/age group. Post-covid, we can do a tour in







Classical music determines babies to distinguish sounds and speech sound, which helps them learn how to talk. Nowadays, the music presented to babies is very simple and monotone, such as nursery rhymes. Listening to classical music could help them learn how to talk faster and

start increasing intelligence from a very young age.

### **Children (5-11)**

Studies show that 3 years of weekly music lessons increase IQ by 6-7% in 9 year olds.



From our point of view, children should be introduced to classical, jazz, pop for brain development. We could also present them the basic notes and different rhythm games. The TV

programs could be interactional, thus making kids more interested. With the children's attention caught, they will most likely want to go to music lessons, hence expanding the program.



**Teenagers (ages 12-18)**

Music helps teens safely explore ideas and emotions. Display to influences through music can

help teens learn to cope and appropriately respond to stressful situations.



Teenagers, unlike children and babies, have a part of their brain developed. We could present them more genres, such as pop, rock, folklore, classical music, jazz and blues. Since their mind is more advanced, we could educate them more profoundly regarding music theory. We could teach them how to read music sheets, identify

rhythm and pitch.

**GAdults (ages 19-64)**

A research of 25 trials states that adults that learn music, even from a late age are way less anxious and generally are in a better mood. Also, there were no negative side effects.

R AGE



Adults always try to find hobbies to relax themselves or just take their mind off work, stress. From our standpoint, adults will be the majority of the audience. They must be shown all genres and all fundamentals of music theory (notes, pitch, scales, rhythm, melody and chords) and get them curious about learning music by ending each episode with the benefits of music.



N

Unlike adults, elders always try to occupy their brain with as many activities as possible. Music is an activity that stimulates the entire brain and helps it release positive hormones such as serotonin and dopamine. Elders should learn all about music, from musical theory to all important genres (folklore, classical music, jazz, blues, pop, rock and traditional Romanian music) and learn about the advantages of music. Before the pandemic, 70% of the audience at the concerts were occupied by elderly people. They will definitely want to be a part of this program.

### Solution

Television; Advertising in mass media; Social networks; Live festivals

In our vision, our solution will be a greater education among all age categories. How would we reach a 30 million coverage? Well, since almost everybody has access to internet or TV, it will be pretty simple to reach our goal. Of course, it has to be an accessible source such as a

### Elders (ages 65+)

Studies show that music can promote relaxation, improve productivity and lower stress. For seniors, relaxing tunes can deliver even more benefits for physical and mental health, memory and important social connections. EDUCATIO

news program. Obviously, it's just an idea now, but with sufficient funding, we would reach more people.



### How do we do that?

- Weekly episodes consisting of music piece, fundamentals of music theory, basic skill learning
- Involve young teachers
- Live performances



We will present from one to four episodes per week, each episode consisting of a musical piece for one of the age groups, basic music theory and basic skill learning (e.g. pitch). We would actively involve and promote young volunteers who want to teach. Post covid, we will have a lot of festivals in which people can participate and sign up for music lessons.

### Results

The raise in IQ by 8% in all age groups.

30 million people educated by the end of this program

Better education in schools

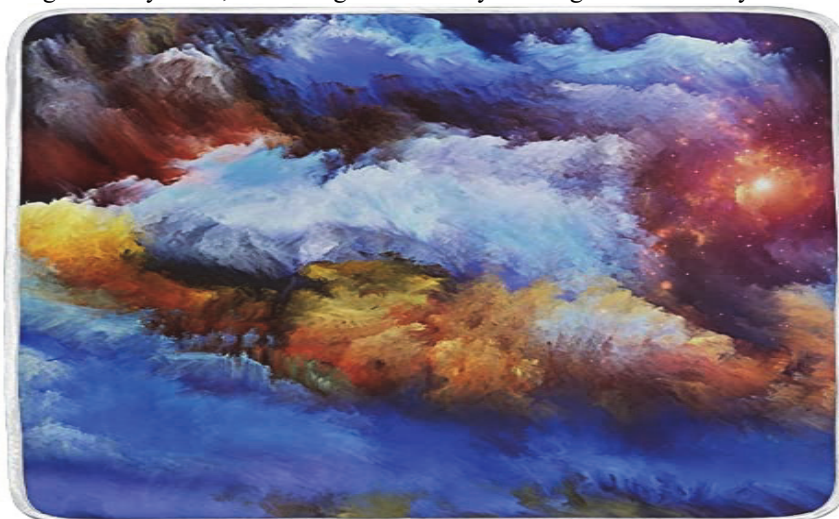
Better well being for adults and elderly We expect that by the end of this program, we will increase intelligence by 8%, have greater

education and funding in schools and a decrease in mental illnesses, especially for elders.

### D Acknowledgment:

Present research **was evaluated** under the guide and with the support of COST CA19136: NET4Age-Friendly the main aim and objective of which is to establish an international and interdisciplinary network of researchers from all sectors to foster awareness, and to support the creation and implementation of smart, healthy indoor and outdoor environments for present and future generations.

The results will contribute to solving problems and actions carried out within the COST CA 16226, Indoor living space improvement: Smart Habitat for the Elderly (SHELD-ON), this way creating a better society for everybody



## Continuity of intellectual and emotional activities of older people

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**Abstract:** This work presents the strengths and weaknesses of the continuity of intellectual and emotional activities of older people, but also their methods of social involvement in the daily life of society, which will allow debates on this topic addressed in those papers. They will reveal the real mental and economic situation of old people which will provoke controversy regarding to the socio-intellectual and emotional involvement of older people.

The communication channels between the Government and the elderly population could be improved through better representation and more topics of discussion. Mass media and communication models could be used effectively to creatively promote the idea of active aging. Communication channels between the Government and the people Companies should be encouraged to be more proactive in supporting employee participation in volunteer activities. More formal care options for children and the elderly would also allow the elderly population to consider a wider range of options for taking part in social life.

Based on the study we can conclude that continuity and involvement in the intellectual and emotional activities of older people in most cases is beneficial, morally and mentally, only a small part of the elderly suffering from diseases such as Alzheimer's, Parkinson's and dementia will accuse neurodegenerative diseases, low income, reduced opportunities to continue working, poor health are a major obstacle to active aging.

**Keywords:** Social Sciences, Elderly, Aging, Implication, Emotional health

### .Introduction

Old age should be a beautiful time, free from worries and prejudices, in which they carry out pleasant activities, free time, travel and moments spent with loved ones to be memorable.

Old age can be beautiful if we know if we live it, if we know if we accept it and if we do not prepare for it in time. It is important to accept old age in a natural way, then try to find solutions, alternatives and ways to overcome the difficulties that come with old age. Healthy eating, sports, taking on new roles and trying to work new are important for preventing and combating the negative effects of aging. For a long time, old age was considered a disease and not a natural stage in the old program.

Since 1988, the World Health Organization has included senescence among the top five health problems of the population, in addition to cardiovascular disease, cancer, AIDS and

alcoholism. According to the Larousse Dictionary of Psychiatry, old age is defined as the last period of life, corresponding to the normal result of senescence, characterized by the gradual decrease of physiological functions. The aging process includes physiological, biochemical and behavioral transformations, the mental decline being conditioned by a series of subjective factors, of a physiological nature, as well as by environmental conditions. In conclusion, aging takes place gradually and differs from person to person. Advances in medicine and nutrition have shown that much of what was once considered inevitable in terms of aging can be counteracted or slowed down. On average, people live to age much longer than they did a century ago.

### Purpose of work

The aging population is a global phenomenon and our country, Republic of Moldova is part of this general picture, facing worrying demographic



changes that have medium and long term implications at the demographic, social, economic level. The interest of people, in various fields, in a better quality of life and, implicitly, in the aspects and consequences of aging is reflected in the multitude of definitions, more or less contested, studies and classifications.

According to demographic data, it can be estimated that the population over 65 years old represents 5% in Western Europe at the beginning of the twentieth century, so that in the 90s the percentage increases to 15%, a third of this population being over 75 years old. According to data provided by INS (The International Neuropsychological Society), on January 1, 2018, the share of the population aged 65 and over was 18.2% increasing compared to 2017 (17.8%), and demographic projections for 2060 shows an increase of about 10% of them.

Active aging enables people to reach their potential for physical, social and mental well-being throughout their lives and to participate in society, while at the same time being provided with adequate protection, security and care when they need it. Therefore, promoting active aging requires a multidimensional approach and commitment through long-term support with the participation of all generations.

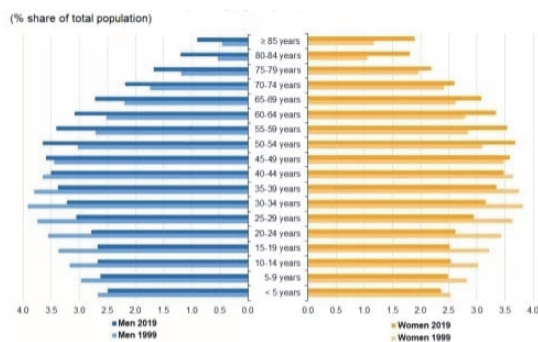


Figure 1. Population structure by five-year age groups and sex since 1999 until 2019

The following is a diagram with the forecast of the demographic distribution on the European continent since 2019 until 2050 before the pandemiological situation.

Due to the pandemic situation the UN assumptions, the following statistical data are

debatable and varied due to the large number of deaths recorded among the elderly,

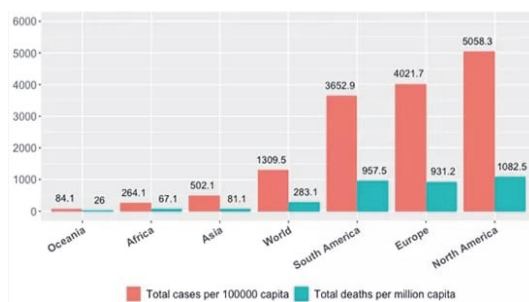


Figure 2. The influence of SARS-CoV-2 on the demographic situation of Europe compared to the world

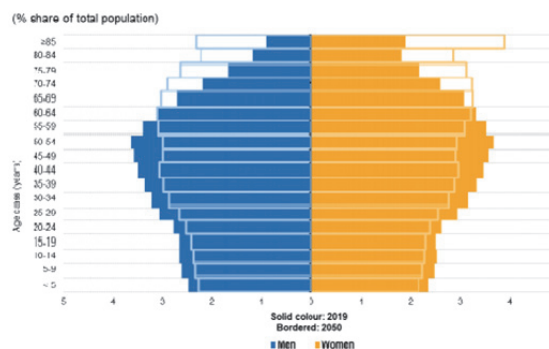


Figure 3. Population structure by five-year groups and sex since 2019 until 2050

The most common classification of the period of human old age includes:

- stage of transition to old age: from 65 to 75 years;
- average old age: from 75 to 85 years;
- old age: over 85 years;

The World Health Organization considers that:

- between 60 and 75 years we have elderly people;

- between 75 and 90 years old we have elderly people;

- In 90 years we have great elders.

In gerontology, there are differences between:

- chronological age - which is given by the number of years that have passed since the person's birth;

- biological age - the determination of the biological age presupposes the knowledge of the functional capacity of the vital organs and systems

of the person.

The younger the biological age, the longer the life expectancy of the person concerned. - morphological age, this means changes in tissues and organs; - physiological or functional age, which means the diminution of the capacities of some organs.

### **Retirement**

Retirement is the end of the official working period and a major moment in the life of all individuals. After retiring from work, the elderly endure a decline in living standards and become deprived of social prestige. Men feel the event more dramatically, for them retirement is a major stressor and can manifest itself through crises and adjustment disorders, because they identify more with their career and therefore find it difficult to find an activity comparable to the former place. for work. Instead, women adapt more easily and with retirement they have more free time and can take more care of household chores, the role of grandmother, housekeeping, and this makes it easier for them to exceed the retirement threshold.

Retirement is felt differently by everyone and depending on the living environment. Retirement is felt more strongly by those in urban areas than in rural areas. In rural areas, professional activity was continued in free time with household activities, instead, people in urban areas were fully dedicated to professional activity, and the time of retirement is for them a sudden interruption of daily routine, emphasizing the feeling of uselessness, and adaptive reactions are delayed. Retirement may be perceived as a total withdrawal, loss or reward. The retirement crisis is overcome when the elderly find meaning or are ready to deal with it.

The degree to which a senior citizen is able to perform various daily activities determines three functional categories, as follows:

- independents - are people who perform all daily activities without any difficulty;
- fragile - are people who have difficulty performing daily activities;
- dependents - are those people who can not do more than one activity alone and group people over 75-85 years, being considered to be elderly people.

### **Social participation**

Despite all the challenges, an aging population

also offers an opportunity for the development of Moldovan society. Further improvements in the field of health and education, as well as a larger number of people who have time after retirement will provide the Republic of Moldova with a group of elderly people able to contribute significantly to the development of Romanian society through their social participation. It was observed that there is a link between civic involvement, both through formal and informal social networks, and improvements brought about by a variety of measures to increase the level of well-being, including the level of happiness, life satisfaction, self-esteem. self-control, physical health and longevity The European Charter of Fundamental Rights recognizes the right to a decent and independent life, including participation in the social and cultural life of the community. Maintaining the highest possible level of social participation in old age is likely to have a positive influence on quality of life, emotional well-being and health.

Studies conducted by the World Health Organization in 2007 acknowledge that social participation refers to engaging in recreational, socializing, cultural, educational and spiritual activities, and encouraging and motivating older people to participate in cultural and social activities can help reduce isolation. .

Other studies and reports carried out at European level show that more active social participation is also related to the maintenance of older workers or the involvement of older people in voluntary activities.

It has been shown that volunteering in old age contributes to better physical and emotional health, stimulates the brain and contributes to maintaining cognitive functions. Social contact with new people is another advantage, preventing social isolation and maintaining vital energy and optimism. There are many companies and institutions such as hospitals, kindergartens, schools, churches, NGOs, organizations providing social, public or private services or public institutions that are in constant need of volunteers.

It is very important to encourage volunteering in old age. Thus, the elderly can make a valuable contribution by capitalizing on life experience

The proportion of elderly people involved in volunteering activities is small in our country,



compared to other countries of the European Union. In 2015, for people aged 50-64, involvement in formal volunteering was very low, at 2.4%, compared to 19.9% in the EU. With this value, the Republic of Moldova ranks last among the EU states.

There were no statistically significant differences between the participation of Romanian women and men in voluntary activities, whether formal or informal. For the population over the age of 65, the participation decreases to 1.6% at national level, compared to the European average of 21.3%.

### **Why is it important for seniors to engage in a variety of activities?**

First of all, recreational activities have a lot of health benefits. Both physical and intellectual or social.

The physical ones support the cardiovascular system, reduce blood pressure values to normal, prevent overweight and increase immunity.

Social and mental activities ensure the production of serotonin, melatonin, dopamine, oxytocin, endorphins that generate a state of well-being and that benefit the whole body.

Another reason why it is important for the elderly to have various activities is that they contribute to their social integration, to relationships with other people, which will reduce their anxiety and make them forget loneliness. Over time, people tend to become lifeless and feel more alone.

Their involvement in engaging activities gives them a purpose. It keeps their minds clear and their souls happy. Therefore, no matter what type of activity they undertake, the key is to be involved in at least one activity and thus feel important.

### **What activities are recommended by doctors?**

Doctors recommend a wide range of activities for the elderly, both physical and intellectual.

The physical activities recommended for the elderly can be of 3 types:

- cardio-respiratory exercises;
- balance / equilibrium;
- stretching.

The first category helps to slow down the onset of certain chronic diseases. This type of exercise

should be performed for at least 30 minutes daily. The second category helps prevent falls and is aimed at people with reduced mobility, and the third helps maintain flexibility and mobility of the body.

On the other hand, mind-training activities are perfect for keeping you young and active for as long as possible. This type of activity can be a real benefit especially for those suffering from neurological disorders because they slow down brain degeneration by keeping the brain active constantly.

### **1. Gardening**

There is a study by the University of Washington that found that gardening, caring for flowers or vegetables simply rejuvenates the mind and body.

By exposure to the sun, the body produces vitamin D, with an important role in fixing calcium in the bones. Not to mention the delicious scents that we can enjoy when we take care of beautifully scented flowers, thus having a 100% natural aromatherapy.

According to studies, aromatherapy reduces stress, relieves pain, generates emotional balance and fights depression.

### **2. Outdoor walks / excursions**

Excursions, walks, hikes come with new landscapes and drive away the monotony.

It is recommended to walk outdoors either on foot or by bike and even in a wheelchair. No matter how cold it is outside, with proper clothing and attention to the feet, such an activity will clear the mind and lungs.

A walk in a park and a break before returning home on a bench can be a time for reflection and relaxation.

If fitness allows, a bike ride is recommended because it moves more muscle groups and in addition, it is more engaging.

### **3. Swimming**

Improves the immune system, moves the internal organs, helps strengthen all muscle groups, improves mobility and develops the lungs.

It is also the sport that burns the most calories.

### **4. Gymnastics / Yoga**

Aerobic gymnastics, known as aerobics, involves performing the exercises alone, together with someone else or even in a group of several people. Aerobics helps to develop coordination, which leads to improved daily posture. It also develops flexibility and helps develop muscle strength.

On the psychological side, gymnastics brings beneficial changes in terms of self-esteem and self-confidence, because due to the endorphins released during training people feel happier and more confident.

Yoga is not just for young people who are in good physical shape. There are many positions that can be adapted for the elderly.

It is ideal for rediscovering inner balance.

It also lowers blood pressure, strengthens bones and improves postural balance.

Water gymnastics can also be considered.

## 5. Reading

Who could say NO to a captivating book, what keeps you breathless until the last page? The advantage of reading is that we can live several lives in one, passing one by one through the skin of each fictional character. The benefits here are many and important. It helps us become smarter, our ability to focus and our attention increases, our memory improves, our vocabulary becomes richer and we get rid of boredom. Researchers at the University of Sussex (UK) say it is the best way to get rid of stress.

Six minutes spent reading something pleasant reduce stress by 68%, thus being more effective than music, a cup of tea or walking.

## 6. Solving puzzles and integrals

The main advantage of this activity is without a doubt and maybe, moving the brain. Rebus and integrals are also very healthy for the brain, therefore reducing the risk of Alzheimer's and Parkinson's.

It is a very effective means of anti-stress and anti-negative thinking and is a much healthier habit than sitting in front of the TV.

## 7. Board games

Keeping in touch with other people can only be a beneficial thing, which reduces the feeling of loneliness.

Board games such as chess, backgammon, rummy, playing cards, puzzles combine perfectly with a pleasant and relaxed evening of socializing.

## 8. Painted / drawn

Drawing or painting are extremely beneficial for the elderly. The systematic movement of the hands helps to loosen the joints and makes them stronger.

Pencils, crayons or brushes can be used on paper, canvas or wood.

It is a wonderful activity for banishing boredom especially for people with a rich imagination.

The good part is that there are solutions for even the least talented in painting: painting on numbers.

Each space on the board is assigned a certain number which in turn is written in a certain color. Thus we can all become artists just by coloring each space according to the instructions.

This type of painting is very popular, suitable and even suitable for any age.

## 9. Knitting

Knitting is also called "wool therapy". Besides the fact that it makes us think of mother / grandmother and awakens pleasant memories, it requires a certain rhythm and mental agility, the hands being also permanently active.

It is also very helpful in increasing self-esteem. It involves reaching a goal, whether the end result is a scarf, a sweater or a pair of gloves.

And what a pleasant feeling it is when the result of the activity is given as a gift to a loved one!

## 10. Music and dance

Music and dance, we say, come bundled. You can enjoy music either sitting down or moving your body on the hits of your youth.

The advantage is that the music is very versatile, the genres are countless and you can choose what to listen to according to your own tastes. These two activities can bring old emotions and feelings to the surface or they can arouse new ones. If you choose to learn a new style of dance for example, know that new movements stimulate the brain, as well as the process of forming new neural connections. Their appearance will prevent the aging of the brain.

## 11. Cooking

You just didn't know it could be a therapy. Psychologists say that food preparation helps you to be more creative and better focused.

One study states that people who cook are happier, so therapists recommend cooking classes against depression, often encountered with age.

## 12. Play with grandchildren

Most relationships between grandparents and grandchildren are special.

The time spent together is a perfect opportunity for grandparents to get acquainted with today's news - how a smartphone works, how to search for a new cake recipe on the internet and so on.

Grandparents, on the other hand, bring into the relationship with their grandchildren the traditions that date back tens, even hundreds of years. Thus, each always has something to learn from the other.

Grandparents thrive right next to grandchildren, so no matter where you are, always make time to spend time with your grandparent / grandchild. Whether you go for a walk, make a cake together or just enjoy a cup of tea and tell each other the latest news, it will be beneficial for both parties.

## 13. Caring for a pet

It is called PET THERAPY and has extraordinary benefits for a senior.

First of all, the connection with a pet determines the secretion of oxytocin, a hormone of happiness, also called hormone of social ties and trust.

Those who take care of at least one pet have more energy, feel more motivated and full of vitality.

From a medical point of view, it protects cardiovascular health, as it changes certain physical parameters, such as blood pressure and pulse. It also works very well on mental health, because it contributes to the stimulation of cognitive functions.

Depressive episodes are also reduced, if any, because anxiety is reduced and is an excellent way to ward off loneliness.

## 14. Using a social networking platform

Social platforms have become very useful and sought after both among young people and among those in their second youth.

It has become an activity more and more appreciated by people aged 60+, because they can replace, for example, the classic newspaper with the internet, which, unlike the first category, requires an infinite source of new information.

They can also use social platforms to keep in touch with relatives, friends, especially during this period of isolation, or why not, even to resume long-lost connections with people in their youth.

## How do you persuade an elderly person to engage in recreational activities?

We already know that the elderly are like children and it takes a lot of work to convince them to get out of their comfort zone.

First and foremost, if suggestions for activities come from knowledgeable staff, such as a doctor, for example, they will be taken much more seriously than if we try to get them to do them. or it helps highlight the importance of these activities in maintaining health and makes older people more receptive to initiatives.

At the same time, if the suggestion comes from a person of the same age to have as a model, it can be encouraging. forget, after all, their purpose is to generate a state of well-being and we do not want them to feel forced to do these activities.

## Proposals

In order to ensure an active aging in the Republic of Moldova, it is necessary to apply measures such as:

- prolonging life and healthy aging;
- appropriate living conditions: healthy eating, health, standard of living; - promoting employment for a longer period of time;
- providing incentives to employers who employ the elderly;
- increasing the social and political participation of older groups;
- reducing the dependency of the elderly and providing long-term care services;
- the introduction of facilities to promote and stimulate home care for the elderly;
- ensuring access to social services for the elderly at risk of social exclusion

(development of home care services and other alternative services);

- developing volunteer centers for the elderly at Community level, encouraging volunteering through various rewards and facilities;
- increasing respect for the elderly among young people by promoting a positive attitude towards them in public campaigns;
- the establishment of centers within NGOs, from own funds or in public-private partnership where activities can be carried out for the elderly, in which the life and professional experience to be valued: cooking courses, first aid, tourist orientation, etc.

Despite all the challenges, the aging of the population also offers an opportunity for the development of the Romanian society. Further improvements in the field of health and education, as well as a larger number of people who have time after retirement will provide the Republic of Moldova with a group of elderly people able to contribute significantly to the development of Romanian society through their social participation.

It was noted that there is a link between civic involvement, both through formal and informal social networks, and improvements through a variety of measures to increase the level of well-being, including happiness, life satisfaction, esteem, self-esteem, a sense of control, physical health, and longevity.

The communication channels between the Government and the elderly population could be improved through better representation and more topics of discussion. Mass media and communication models could be used effectively to creatively promote the idea of active aging. Companies should be encouraged to be more proactive in supporting employee participation in volunteer activities. More formal care options for children and the elderly would also allow the elderly population to consider a wider range of options for taking part in social life.

Reducing barriers to income, health and access to infrastructure will undoubtedly increase the level

of volunteering.

## Conclusion

Older people are valuable members of the families and communities they belong to. For a better capitalization of the human capital present in the society, the elderly must be positively appreciated for the contribution they make.

Aging must be approached as a period of new opportunities, the rights of the elderly must be promoted, and negative attitudes and discriminatory and abusive behavior towards the elderly must be annihilated. The achievement of these objectives is largely determined by strengthening the efforts of all social actors (central and local public authorities, the media, the church, civil society, etc.) and coordinating their activities.

Low incomes, reduced opportunities to continue working, poor health are a major obstacle to active aging.

## Acknowledgment:

This publication is based upon work from the Sheldon COST Action CA16226 Indoor Living Space Improvement: Smart Habitat for the Elderly, supported by COST (European Cooperation in Science and Technology). COST is a funding agency for research and innovation networks. Our Actions help connect research initiatives across Europe and enable scientists to grow their ideas by sharing them with their peers. This boosts their research, career and innovation. [www.cost.eu](http://www.cost.eu)

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## FOR AN ACTIVE LIFE AT ANY AGE

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**Abstract:** In this paper we mark the importance of activities but also their diversity for the Elderly in the Republic of Moldova. This paper outlines the opportunities and strengths for an active life of the Elderly and describes the activities practiced by the elderly that promote a healthy, active and beneficial lifestyle. Old age cannot be precisely defined, because this concept does not have the same connotation in all societies. In general, the age of 65 is associated with the onset of old age. Worldwide, the number of people over the age of 65 is growing sharply, mainly in developing countries. During old age the whole body becomes more vulnerable and less efficient compared to the period of youth, our goal is to promote a more efficient lifestyle during old age, as well as creating good conditions in which to carry out their activities after reaching old age. retirement. Spending free time in the most enjoyable way is essential for the active elderly, who are still in power. The way they manage to enjoy their favorite activities and interact with other people contributes a lot to their physical and mental health. We know that an elderly person, if he is active and occupies his time in a pleasant and creative way, will feel better and will be able to remain independent for a longer time. In addition, even cognitive decline can be greatly slowed down by these activities. Based on our studies, we can conclude that a large part of the activities of the elderly consists mostly only of work, but besides them there are also people who promote a healthy and dynamic lifestyle.

**Keywords:** activity; efficiency; sports; health; medium; society; economy; medicine.

### 1. Introduction

Moldova is aging rapidly. Given the low level and continuing decline in fertility and the high rate of net emigration, it is expected that Moldova's population will shrink, while the share of older people (over 65) will increase. By 2060, a population reduction is forecast by 29 percent, or 1.2 million people, while the share of the elderly triples and is 30 percent. Although the mortality rate of the elderly is high, increasing longevity will accelerate the aging process. It is worrying that the demographic dividend will end before Moldova feels its benefits. The modest increase in the birth rate during the 1980s, along with the decline in fertility in recent decades, led to a decline in child dependency and an increase in the share of the working age population in the 2000s. However, the demographic dividend was not used at all. maximum due to the massive emigration of young people abroad in search of unskilled jobs, insufficiently capitalizing on their studies. Moreover, the inactivity rate in Moldova is the highest in the region, especially among the elderly. The share of people of working age reached

maximum levels in 2014, and the opportunities brought by the initial demographic dividend disappear in Moldova. This raises serious concerns about the ability of society and the economy to support a growing elderly population. The burden of aging in Moldova is enormous. The average age is growing at a much faster rate in Moldova than in neighboring countries, and the size of the population is declining[1].

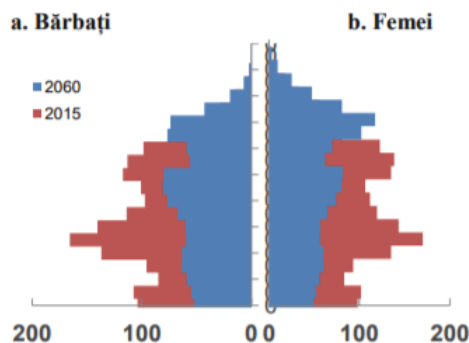


Figure 1. Moldova's population will shrink and age, 2015 and 2060 Population pyramid, thousands.

Demographic developments are determined by three factors: *low fertility, high net emigration and low life expectancy*. Moreover, there are various risks to the well-being of the elderly. For example, Moldova is one of the few countries in Eastern Europe and Central Asia where the elderly are poorer than the average population. In addition, older people in rural areas are at particularly high risk of poverty, with less access to essential services.

## 2. General points

Mortality among the elderly, especially men, has not improved in the last 25 years. In 2015, life expectancy at the age of 60 was 16.4 years compared to the average of 21.0 years in the region. The population is going through an epidemiological transition, characterized by the substitution of infectious diseases by chronic diseases as major contributing factors to morbidity and mortality, chronic diseases being on the rise. The low level of awareness by older people of their health rights, access to and use of healthcare in the context of inefficient service delivery contributes to the deterioration of health indices among the elderly. The high and rising level of economic inactivity in all age groups is a major challenge in Moldova, particularly in the context of the aging population and high dependence on pension income.

Since 2000, the population of pensioners has increased, and the share of workers who choose to continue working professionally after the age of 54 has been steadily declining. Recent economic growth has been particularly concentrated in the production sectors, supporting some employees and forgetting others; older workers are predominantly employed in low-productivity agriculture. Promoting employment among the elderly today and tomorrow requires addressing the main challenge in the Moldovan labor market: accelerating job creation. However, measures are also needed to remove the barriers faced by older people and to encourage a higher level of participation, formality and quality of employment in the coming years.

The majority of the elderly population, including all the elderly in the last quintile of well-being, is covered by the social protection system, and the elderly are highly dependent on pensions as a source of income. However, coverage with social security contributions has decreased over the years

(in line with declining employment rates) and remains low, and the rate of dependence on the pension system is increasing. This means that, in the future, the risk of poverty will increase among the elderly, as the pension system, in the absence of reforms, becomes financially unsustainable. Promoting healthy aging requires ensuring affordable healthcare, including financial assistance, for all the elderly, as well as providing quality and affordable medicines to treat non-communicable diseases and prevent them from an early age.

The current reform agenda in Moldova seeks to address many of these challenges, and efforts must be sustained. This includes, for example, the revision of the benefit package, increasing the reimbursement rate for antihypertensive drugs, as well as the existing performance-based remuneration scheme in primary care to provide more robust incentives for GPs to improve the management of chronic diseases. Promoting productive aging, in addition to those related to sustainable economic growth and the promotion of job creation by companies, include investing in lifelong learning, with a particular focus on continuous training to update the skills of older employees; supporting greater access to formal care institutions for children and the elderly, with potentially positive effects on women's participation in the labor market; reducing the discouraging factors in the social protection system for official professional activity, including raising the retirement age; and raising awareness of potential age discrimination in the labor market.

## 3. Generalities

The elderly face many risks that are mutually reinforcing and that could put these people in a situation of insecurity. Risks associated with old age and their manifestations:

### *Of health :*

Dependence on the assistance provided by others;

Limited participation in social and economic life.

### *Economic:*

Low earning potential;

Loss or lack of economic resources.

### *Psychological:*

Feeling of isolation and helplessness;

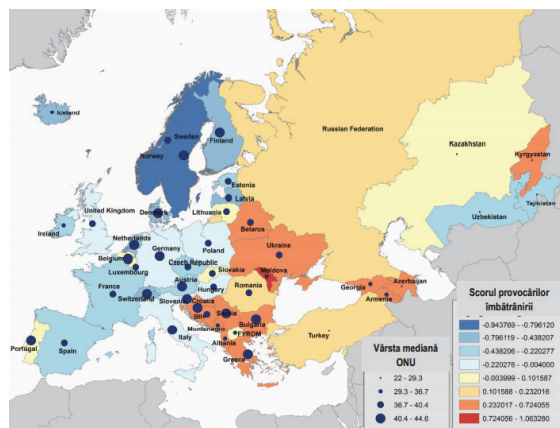
Loss or lack of ability to ensure better living conditions.

### **Social:**

Lack of visibility;

Discrimination Exclusion from policy decision-making;

The problem of aging in Moldova is pressing even compared to other aging countries in Europe and Central Asia. Scoring the challenges of aging.



**Figure 2.**The problem of aging.[5]

Together with Bulgaria, Moldova has the highest population decline rate in Europe and Central Asia. The regional report on aging in Europe and Central Asia identifies Moldova as the country with the worst problems in terms of aging policies, especially related to migration, fertility, life expectancy, dependency ratios and poverty due to aging. It clarifies the need to ensure the economic and social security of the elderly - a segment of the population that will grow in the coming decades.

*In conclusion*, Moldova faces the biggest aging challenges in the region. The average age of the population is declining at a much faster rate in Moldova than in neighboring countries, and the population is shrinking due to declining fertility, considerable emigration and low life expectancy. As a result, the dependency rate of the elderly is projected to triple in the next 45 years. In addition, the current cohort of elderly people in Moldova face a lower quality of life than the rest of the population, with a higher average level of poverty, more limited access to services and more reserved perceptions of their own well-being.

The elderly depend to a large extent on

pensions, in particular the elderly living alone. It clarifies the need to ensure a sustainable and adequate pension system. Analyzing some of the problems of the Elderly in the Republic of Moldova, we deduce the importance and need for youth involvement to change and develop a new healthy and efficient lifestyle for all the elderly in the country.

### ***How the moment of retirement is perceived***

Retirement of the elderly is seen by society as a normal and expected behavior of the elderly. The reality is that not all seniors look forward to retirement. Disengagement can be a process caused by the elderly person or by society through the established social norms that regulate the retirement age and the conditions under which people can retire early or extend the retirement age. Disengagement is seen by specialists as an adaptive behavior, due to the fact that the loss of skills, energy and roles they have freed the elderly from the expectations of competitiveness and productivity, the elderly is thus protected, managing to -keep her self-confidence and self-esteem, even if she performs less important social roles, being much more involved in family life. The interruption of the activity of the elderly is necessary as a result of the gradual loss of their abilities, which makes possible the transfer and accompaniment in the process of taking over the responsibilities by the younger generations. The differences between men and women in terms of interruption of professional activity are significant, men being more affected by the loss of roles held until then, by professional authority, social position and prestige of the position held, while for women retirement is less painful. achieved gradually, women being much more involved in domestic activities than men, the interruption of professional activity offering the opportunity of more accentuated involvement in family roles. The environment influences the attitude towards the time of retirement, people in urban areas who have been involved exclusively in professional activities, are very pessimistic about the time of retirement, while in rural areas due to the specific activities carried out here, where people are forced to carry out other types of home maintenance activities, household and even agricultural activities, for which the

cessation of activity is not perceived as a rupture, it is not achieved suddenly.

***So, what are the basic occupations of the elderly in the Republic of Moldova:***

The population of the Republic of Moldova aged 60 and over for more than half of their daily time consumes it for personal care activities, works more than 7 hours, takes care of the household or volunteers. However, only almost four percent of older people have a preferred occupation, and travel is not even mentioned, according to the National Bureau of Statistics. During a day (24 hours), as a share, after personal care activities, follow the activities of household and family care: one-fifth of the day, or an average of 4.7 hours. Women spend an average of 1.6 hours a day more on these unpaid activities than men. The tenth part of the day (2.8 hours) is dedicated to media activities, and men seem to be much more interested in the press, dedicating half an hour more to them. The majority of the elderly (86.4%) spend on average 3.2 hours a day of free time for reading, watching TV, listening to radio / recordings, etc.

About 16.0% read the daily press (magazines, newspapers, etc.), books or other publications, dedicating an average of one hour a day to these activities. Only 3.8% of the population aged 60 and over in the country said they are passionate about a type of art or have a hobby, allocating an average of 1.4 hours per day to these activities. About 2.3% of the elderly spend 1.4 hours / day on the computer communicating with someone (41.4% of the time) or searching for information on the Internet (58.6%)[3].

I was wondering, these days, what a man should do to proudly wear his age and how he should proceed to always remain young. Relevant questions, to which every man would like an answer. Until he reaches a certain age, man can be proud of adding a new year to the spike of years, this is the truth!

Each added year seems to make him wiser, richer in experiences, in feelings and, why not, more sensitive.

But we must recognize that for some time the years seem to be added not only

calendarically, but also physically and mentally. No matter how good his mental tone is, he can't help but notice that his physique is no longer the same as when he was young, that the person he looks at in the morning in the mirror is not known to him, most of the days. He can't help but experience moments of nostalgia, when he sees that no matter how many diets he would follow and no matter how many maintenance exercises he would do, no matter how positive his thinking, his body would be, he would not want the cooperation they had in their youth. He seems to have his own rules to follow and all the man can do is follow him, try to understand his signals, accept that he is now in control, unfortunately.

***So what should man do?***

He could go on with his life in a permanent lament or he could take on every year that he adds to the crown of his life, with all that it entails, trying to alleviate his physical suffering as he gets older. He could see that in life the empty part of the glass can also be seen as a full part, if it is accepted as it is. I strongly believe that beyond maintaining a young, beautifully harmonized physique, man and what he does for himself, but also for those with whom he interacts, prevail. And I think that when you try to do something for those around you you can feel fulfilled and that can be beneficial for your physique as well. So, all that remains for him to do, to be proud of his age, to grow old beautifully, is to learn to give, to love and to accept that physical youth is not eternal, but the soul has no age. Every age has the beauty that the soul gives it and not the physique!

***How to live beautifully as we age?***

Each of us tries to keep our youth, to look good at any age and to enjoy life at all costs. But unfortunately, or fortunately, aging is an irreversible process and we must all accept the idea that we will age and try to age beautifully. And the signs of aging are not just a few wrinkles and degradations of the skin and skin, but involve many more. The concept of aging beautifully does not mean that we make an effort to look like we are at 20 years old, but it means to live our lives beautifully at any age and to have the physical and mental health to be able to do it. And just as wine is said to be better the older it is (the older it is), so it



is with people, with proper care [6].

Healthy eating is one of the most important goals of aging well. Nutritionists' recommendations regarding healthy food are multiple:

1. Vegetables and fruit, fresh, frozen or preserved;
2. Low protein, such as fish meat or legumes (lentils, beans, peas);
3. Whole grains (wheat, oats, rye, barley), brown or wild rice, wholemeal pasta;
4. Skimmed or partially skimmed dairy products, such as milk, yoghurt or cheese that add calcium and vitamin D;
5. Healthy fats (avocado, olive or sesame oil, nuts, almonds, seeds, soy milk)

Avoid using solid fats for cooking and use oils instead. Stay away from processed foods, refined sugar and unhealthy fats (fatty pork, chicken skin, butter and lard, fast food and pastries, chips, margarine, etc.).

Do not eat salty to avoid high blood pressure. If you consume enough water, your body will be hydrated and your energy level and brain function will improve. Also, the skin will be more hydrated, which will lead to a healthier appearance of the skin, and the signs of aging will be delayed. The recommended amount of water depends on how thirsty you are, the climate, the activity. Going to the doctor regularly is an important condition for health, because he can discover new conditions or even before they appear. How often to go to the doctor depends on age, lifestyle, family history and existing conditions. It is important to listen to our body, and whenever it warns us of certain symptoms, to take action and go to the doctor [6].

Aging beautifully is not only an art, but it is also a real quality. Fortunately, success depends only on us. To age beautifully means to feel good in your skin, to feel good about yourself, to be independent, so not to need the help of others, to have a creative and active mind. People who age beautifully are calm, wise and generous people, who not only look good, but are even healthier than others. Aging beautifully means having a body and a mind as healthy as possible, until very old age. "Each individual has two ages: a chronological one, the one in the bulletin, and a biological one, that is, the one he shows. Aging well means that the

biological age is less than the chronological one. It's what makes everyone happy, when they are told that they look much younger than their age in the bulletin. "But the way we age depends a lot on the way we live.

### ***How to plan beneficial activities for the elderly?***

In general, activities for the elderly are sedentary and have an extremely low impact. However, today, the elderly are as vibrant and full of energy both physically and mentally as their younger relatives and friends and the things in which the elderly are involved are extremely beneficial. It must be understood that any weakness that seniors have should not be an obstacle in carrying out the various activities that they can perform. The best approach is to ask themselves about the activities they want to do. This is much more effective than assuming something you want. Asking open-ended questions about what they like and don't like to do is a good start for planning activities and discovering their interests. Assess the person's mental needs and if it is a group, the activities must be planned in such a way that the whole group participates. Consider physical activity to keep the elderly in shape, both mentally and physically.

The most effective activities are often a challenge, but in some situations they must mean more than just a walk. For example, an activity such as fitness, swimming or dancing can improve mental and physical health.

One can start looking for travel opportunities that will help the elderly to explore their interests. If they are interested in nature, wildlife or photography you can look for a route that suits their power of effort. Also, if you are interested in history, you can plan a history tour among the local museums. Every city and region has such places. Also, encourage the elderly to socialize, to share their knowledge, history and life. Socialization is an important pillar for anyone. You need to make sure that the activity you are subjecting your elders to directly or indirectly is meaningful and engaging so that seniors can enjoy it.

The aim is not necessarily to give them employment but to enjoy their activity in parallel. The caregiver of the elderly is not only responsible for taking care of the physical health of

the senior, but also for the mental health (to help him face the challenges of old age). The latter is a real challenge because it requires a detailed knowledge of the elderly person's character, abilities and hobbies. Once this information is gathered, the caregiver can make the elderly person's free time busy with interesting activities that will please both of them.

**Games** - activities that maintain mental abilities. It would be good to introduce a series of intellectual games that will be beneficial. Games are meant to relax the mind and drive away loneliness. An elderly caregiver should try the following games with the patient:

**Domino** - It is the ideal game for people suffering from dementia. In addition to traditional pieces, you can use pieces with pictures and words, which can put the elderly person's mind to work and help him maintain his vocabulary.

**Checkers** - It is a game similar to chess and requires strategic thinking, being recommended for patients with difficulty concentrating. Given that it is a game in which the caregiver competes with the person being cared for, the gain can increase the self-esteem of the latter.

**Puzzle** - These games require memory, attention and imagination. They do not impose a time limit and are suitable for people who cannot perform activities for longer periods of time, for various reasons[4].

### ***Time spent outside***

Nature has the gift of making each one happy and oxygenating the brain, considering the inspiration of a cleaner and healthier air than the one in the house. On top of that, vivid colors and shapes will relax the eyes and release eye strain. Relaxation cannot be forgotten either, as it is accompanied by an improvement in the mental state. Movement in nature can be represented by going out on the porch, in the garden, near the house or in the park or another area full of greenery and color, where you can breathe fresh air, so that those with limited mobility can enjoy[2].

### ***The read***

It is obviously an ideal activity for the elderly, helping to exercise the brain and keep it active, without physically affecting it. It can encourage memory retention, reduce stress, slow down cognitive decline and help you sleep

peacefully. Any reading medium can become a medium in maintaining good mood, whether it is a fiction book, a newspaper or audio books, because a good story will attract through its content, through the attached images or by approaching a topic of interest to reader. Reading clubs can be an interesting addition to which an older person can participate, so that they can read, discuss and socialize more easily, having a theme in common with other people[1].

### ***The sport***

Physical activity, however little, is important for the proper functioning of the body. It can be a walk, simple yoga or even sitting exercises that do not put pressure on the wrists or other weaknesses of the individual.

**Artistic activities** - help to regain mental balance

The caregiver can participate in various artistic activities (drawing, painting, sculpture, collage) with the elderly person, in a group or at home, in the comfort of their own home. The artistic activities have the role of helping to regain mental balance, to release frustrations and significantly reduce states of depression and anxiety. They improve a person's inner life, strengthen the intellect and give him a sense of new depth, while entertaining him.

From the category of artistic activities that an elderly caregiver can consider, we mention:

**Origami** - Creating paper shapes is simple and extremely beautiful. The elderly person can be encouraged to make different images in order to stimulate his imagination.

**Drawing** - It is the activity that helps the elderly the most so that a pencil and a sheet of paper at hand can be very helpful in fighting boredom.

**Painting** - More complex than drawing (because it requires specific materials and appropriate conditions), this activity is fun and will help the elderly to rediscover themselves. Of course, there are many activities that we can still apply, but these are the basis of intellectual development.

Aging is a process characterized by gradual and spontaneous changes, with the effect of maturing during childhood, puberty and young adulthood, and then the decline of many body functions during the second and third ages. Aging is a continuous

process that begins at birth and continues at all stages of life. It has both the positive component of development and the negative component, decline. Aging is a process characterized by gradual and spontaneous changes, with the effect of maturing during childhood, puberty and young adulthood, and then the decline of many body functions during the second and third ages. Also, aging is a continuous process that begins at birth and continues at all stages of life. It has both the positive component of development and the negative component, decline.

Normal aging refers to the usual complex of diseases and conditions that affect, in particular, the elderly. It covers a wide range, as people age very differently, including how they deal with various diseases and conditions. Beautiful (healthy) aging refers to a process by which aging is not accompanied by debilitating illness and disability. People who age well can maintain an active life until death, saying that they "died of old age."

#### ***How does the body change as we age?***

With advancing age, the human body changes in several visible aspects. Often, the first signs of aging affect the musculoskeletal system. After the age of 35, peak performance, even among high-performance athletes, begins to decline. In addition to the internal diseases and ailments that set in with age, there are also unpleasant visible signs. body fat increases by more than 30% towards the last part of life. The distribution of fat also changes: there is less fat under the skin and more in the abdominal region. Thus, the skin becomes thinner and wrinkles appear (although sun exposure and smoking have a greater influence on the appearance of wrinkles), it becomes more fragile and the shape of the body changes. Determining changes that are purely associated with age and those due to the way in which a person lived is often difficult. A sedentary lifestyle, improper diet, smoking and alcohol and drug abuse can affect many organs over time, often even more intensely than aging as such.

#### ***How do we stop aging?***

Aging is universal, as is death. We can't stop aging. This would mean being immortal and leading to the complete annulment of life to the full. But we can control it and delay it. Both the pace of aging and longevity can be influenced

more than you ever dreamed - and more than scientists have realized until recently. The explosion of research in the field of aging and related diseases suddenly brings amazing prospects. Recent discoveries are enough to leave you speechless as you enter hitherto unexplored territory, becoming closer witnesses to the capital's biological mysteries of life and death. You've heard of miraculous cures for cancer, people who have lived for over 100 years, or other similar miracles. How is that possible? It's easier than you think! And no, it's not a miracle liqueur, it's not a miracle drug. It's about the lifestyle you choose to follow! It would be so simple if you could take a single anti-aging pill and say goodbye to wrinkles, say goodbye to fat, say goodbye to muscle aches, say goodbye to blurred vision! But this is not the case at all. There is not a single vitamin, mineral, medicinal plant, food or other substance known to science that contains everything you need to stop aging. The more scientists investigate, the more they realize that nature works through a subtle synergy, in which the elements support and enhance each other to achieve the strongest impact on cell functioning. The unique remedy we expect from medicines is not valid for complex areas related to the fight against aging and prolonging life.

#### ***What to eat and what to avoid for longevity and anti-aging?***

Eat fruits and vegetables! Of all the things you can do to delay aging, this is number one, because it provides you with the greatest amount and variety of antioxidants (the "key to eternal youth"). Eat as many fruits and vegetables as you can - at least five servings a day. Even at an advanced age, fruits and vegetables can provide your cells with the ammunition needed to counteract the damage that causes illness or premature death.

The elderly person's relationships with others

The environment also conditions the relationships with others, which are influenced by the age homogeneity of those in the vicinity. Thus, for the elderly who are in communities where the elderly are the majority and the environmental conditions facilitate visits and collaboration, friendships are maintained and there is the possibility that new ones can be

established. The most common activities are going to church, meetings to discuss politics, drinking coffee together, etc. The elderly who live in blocks of flats or in houses that are at a distance that make visits more difficult, are disadvantaged in terms of social interactions, because due to the low proximity, meetings between these people are more difficult, except for actions aimed at this or in activities that involve the whole community, on the occasion of various holidays or events. In the homes where multigenerational families live, the friendship and collaboration between the elderly is more difficult, because even if they see, know and have the opportunity to meet, they do it quite rarely, being preoccupied with fulfilling roles and tasks. they have in the family. These situations are frequently found in urban areas in nearby houses and apartments. Situations in which the elderly are few in number and the distance between them is quite large are encountered in rural areas where the houses are at appreciable distances; here the possibility of the elderly to interact is greatly diminished. Social welfare institutions offer older people the opportunity to interact, due to the fact that they are in close proximity and homogeneity of age is ensured, but this is not enough. Institutionalized people interact until a certain moment, after which saturation occurs, there is a need for change, to know other people, which offers the possibility of gaining new satisfactions and appreciations. In order to ensure the observance of the rights of all beneficiaries in these institutions, internal regulations and norms are elaborated which are perceived to be too severe for some of the beneficiaries, as a result there are dissatisfactions, internal conflicts between beneficiaries, but also between beneficiaries and employees. The most contested bans are those related to alcohol consumption, compliance with hygiene rules and food preferences of beneficiaries.

### ***The roles of the elderly***

The roles of older people are closely linked to the expectations of contemporary society from these people. From this point of view there are two poles, the first representing the elderly person in power, active, who is useful to society, who benefits from the life he still has to live and continues adult life, and at the other pole is the

person dependent elderly woman, alone, sick and with nothing to look forward to but death. Aging as well as society's expectations affect the way older people play these roles. Aging is characterized more by the loss of roles than by the acquisition of new ones; thus, the role of active person in the exercised profession is lost with the retirement and the death of the life partner brings with it the loss of the role of spouse, the loss of friends, colleagues, relatives; as a result of their death, their roles diminish even more. The roles of the elderly are also dependent on other aspects, which, compared to the elderly of two decades ago are the following: - the elderly today feel less alone; this is possible due to the easier and shorter possibility to travel long distances and technological progress makes it possible for the elderly to have access to the telephone in both urban and rural areas; the incomes of the elderly are higher and cover to a greater extent their needs, which makes the coexistence or maintenance of an elderly person attractive;

- The number of elderly people with higher education is much higher, which influences the level of relationships, balanced acceptance of the retirement age, identification and involvement more easily in income-generating activities but also satisfaction;

- Housing is more comfortable, habitat conditions better; - Access to medical services has highlighted improvements in health and life expectancy has increased;

- Access to information is easier, the offer of TV programs is much improved;

- The elderly are much more active and concerned with ways of spending free time;

- Tolerance of homosexuality and abortion has increased;

- The differences between the offers made to the elderly and the other categories for the party are decreasing the holidays for example. The loss of some roles forces the acquisition of new ones. Free time, neighborhood, physical abilities, skills and values require the involvement of the elderly in activities that are offered by the environment or opportunities and that impose certain responsibilities.

- Responsibilities agreed by the elderly: - household activities and maintenance of living space; - In rural areas, garden cultivation; - Repair

and maintenance activities of the dwelling house;

- Help given to family members, taking on the responsibilities of caring for grandchildren;

Institutionalized persons are prejudiced by the acquisition of these roles because the decisions are within the competence of the staff, therefore the involvement in the life of the institution is limited. Older people also face the problem of losing consistency of roles, such as the role of mother and father, but also of expectations and demands, which release them but also limit their options. The best ways to intervene are to involve the elderly in acquiring new roles according to personal characteristics, the expectations that a person who has not been active all his life, to become an elderly person involved in community life is unrealistic, but the roles of grandfather or responsibility to makes the market are welcome because it makes it possible to maintain autonomy for as long as possible. Institutionalization, regardless of its reasons, is perceived by the elderly as an isolation from the rest of the community in the situation where his domicile is in another locality and a stigmatization if the institution is in his locality of domicile. With the loss of roles due to retirement, loss of life partner and deterioration of parenting, the institutionalized elderly have no opportunity to gain other roles or keep those that involve maintaining their own household, relationships with friends who are still alive , or good neighborliness, the institution requires the acquisition of roles to which it is more difficult to adapt, and the environment is more difficult to control or change.

The support of the elderly is ensured through two forms of solidarity, the family and the public. Family solidarity ensures the transmission of the values of the next generations but also financial resources, and public solidarity ensures financial transfers from active adults to the elderly. The two forms of solidarity intersect and complement each other, the situations being different, some elderly people in the fulfillment of their roles support the family by taking over the activities of housekeeping or fulfilling the tasks of grandfather, which makes it possible for adults to carry out their activities. work, financially supports the family through the contribution it has, but there are also situations in which the family is forced to

reorganize their normal way of life due to the fact that the elderly member of the family has lost his autonomy and is dependent on their help, situation in which they can keep the elderly in the family or they can use the services offered by the society. The family is involved in informal support services provided to the elderly through routine activities of cooking, washing, emotional support, etc., highlighting the fact that informal services provided by family, friends, volunteers are provided in different proportions and depend on the existence and degree of use of formal services by the elderly. The number of institutionalized persons, who have their domicile in the locality where the social assistance institution is located, is much higher compared to other localities. At the same time, however, the emergence and development of community services are determined by the economic situation which together with the social and political situation influences the way of interpretation and intervention in the problems of the elderly.

#### 4. Conclusion

Living creatively means keeping something personal that is definitely yours. Aging, at every stage of life, can be actively beneficial. After a life in which they have been attentive to the needs of others, they are much more satisfied to put their own needs first as they get older and to enjoy the pleasures of being on their own. The aging process differs from individual to individual. In addition to the daily decisions that influence the aging process, the genetic heritage of each of us makes a difference. Thus, people who have led the same way of life may end up suffering from different ailments, of different intensity. Prevention, which consists of a healthy and balanced lifestyle, is the most important thing when it comes to the diseases of old age. We have a different age in the bulletin and a different age of the devices in our body. Each of us is born, lives and ages in an individual way, hence the difference between the two ages. Environmental factors - stress, sun, chemical and physical factors, airborne infections change the initial genetic baggage. Risk factors must be known and diagnosed in a timely manner.

Aging means for many different changes, which you have to accept as such. Most people find that their energy levels change as they get

older, and they need to learn to adjust their pace. "Aging inevitably means loss, and usually some physical damage, but those who remain involved in life manage to maintain it. a positive relationship between enthusiasm and resignation. Those who do best not only do not synchronize with what they will leave behind for the next generation, but are also able to continue to learn from younger people, and from those older than them. We can age beautifully and remain eternally young, if we do not treat old age as an incurable disease, if we are generous and tolerant of young people, because the lack of understanding towards young people is a sure sign of old age. Let's not treat those around us as if they are guilty of getting older. We can age beautifully, if from a young age we make efforts to correct defects, because they get worse with age and become much more annoying. We can age beautifully only if we can look to the past with much wisdom, without regrets and without anger.

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# Directions For Supporting The Activity Of Economic Agencies

## Having Disabled Employees

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**Abstract:** The Treaty on the Functioning of the European Union provides that the European Union shall take into account discrimination on the grounds of disability in the development and implementation of policies and shall have the right to adopt the legal and regulatory framework and directly implement measures to combat discrimination on the grounds of disability. These provisions contribute to the achievement of the goal of the European Disability Strategy, according to which the full participation of people with disabilities in the social and economic life of society must be equal to the other members.

**Cuvinte-cheie:** economy, facility, people with disabilities, economic agents, inclusion.

### 1. Introducere

Statul este unicul actor important, ce are ca rol principal reglarea proceselor economice, sociale ş.a., mai cu seamă în ceea ce ţine de perturbaţiile şi deficienţele manifestate în aceste domenii pe plan economic, social ş.a. Autorii şi-au propus să analizeze cazul reglării fenomenului incluziunii persoanelor cu dizabilităţi în câmpul muncii, prin aplicarea pîrghiilor de politică fiscală, şi anume prin acordarea unui set de facilităţi agenţilor economici angajatori ai acestei categorii de persoane.

Fenomenul incluziunii persoanelor cu dizabilităţi în câmpul muncii pe teritoriul Republicii Moldova, este un obiectiv urmărit de RM, dar totodată prezintă o latură a problemei sociale în ceea ce vizează încadrarea în câmpul muncii cât şi valorificarea drepturilor egale a persoanelor cu dizabilităţi la etapa de angajare, deşchiar dacăodată cu ractificarea Convenţiei ONU privind drepturile persoanelor cu dizabilităţi şi intrarea în vigoare a Legii privind incluziunea socială a persoanelor cu dizabilităţi acestora le-au fost acordate drepturi egale.

Urmare, în vederea eliminării deficienţelor fenomenului incluziunii sociale statul intervine cu un set de instrumente, ce ajută să răspundă provocărilor create de fenomenul incluziunii

persoanelor cu dizabilităţi în câmpul muncii. Astfel, în scopul asigurării statului împotriva eventualelor progrese a fenomenului excluziunii persoanelor cu dizabilităţi, statul a creat o interdependenţă dintre disponibilitatea acestuia de a acorda a facilităţilor agenţilor economici care dispun de salariaţi cu dizabilităţi şi evoluţia fenomenului incluziunii persoanelor cu dizabilităţi în câmpul muncii.

Potrivit aspectelor practicilor de susţinere directă de către stat şi fundamentării direcţiilor de susţinere a activităţii agenţilor economici care dispun de salariaţi cu dizabilităţi, în mod repetat subliniem caracterul de actor principal al statului pe tribuna naţională şi anume prin faptul că, la crearea interconexiunii dintre facilităţile acordate de către stat şi fenomenul incluziunii în câmpul muncii a persoanelor cu dizabilităţi, statul pe deoparte “jertfeşte” facilităţi pentru angajatorii ce creează locuri de muncă şi se oferă persoanelor cu dizabilităţi, iar pe de altă parte rezolvă aspectele problemei sociale privind includerea persoanelor cu dizabilităţi în câmpul muncii.

### 2. Facilităţile adoptate de stat pentru agenţii economici care dispun de salariaţi cu dizabilităţi.

Majoritatea statelor utilizează acordarea facilităţilor agenţilor economici, drept măsură de

stimularea a cărorva procese precum ar fi: incluziunea persoanelor cu dizabilități în câmpul muncii, susținerea domeniilor prestatoare de servicii sociale necesare tuturor membrilor societății, dar care nu generează profit, etc.

Vorbind despre facilitățile adoptate de către stat în vederea susținerii activității agenților economici angajatori de persoane cu dizabilități acestea prezintă, în acest context, un instrument de vază al statului prin acordarea suportului mediului de afaceri cât și stimulării dezvoltării proceselor sociale, economice ș.a.

Monitorizarea implementării și promovării politicii naționale privind incluziunea socială a persoanelor cu dizabilități în Republica Moldova este realizat de Consiliul Național pentru drepturile persoanelor cu dizabilități.

Reglarea fenomenului incluziunii persoanelor cu dizabilități în câmpul muncii este remarcată atât la nivel național, cât și internațional, astfel practica țărilor dezvoltate arată că statul poate dirija deficiențele fenomenului incluziunii persoanelor prin acordarea de facilități angajatorilor și anume:

- acordarea de subvenții pentru salariile achitate persoanelor cu dizabilități;
- acordarea suportului financiar pentru ajustarea numărului de locuri vacante;
- reducerea mărimii contribuției sociale de stat;
- achitarea unei prime angajatorului pentru angajarea unei persoane cu dizabilități pe un termen nedeterminat sau fie pentru o perioadă de minim 12 luni [1].

Reieșind din analiza practicii internaționale, de acordare a facilităților agenților economici angajatori de persoane cu dizabilități este de remarcat și practica din Republica Moldova îndreptată spre creșterea disponibilității angajatorilor de a angaja astfel de persoane, precum și în vederea susținerii activității agenților economici.

Prin urmare, în vederea reglementării

drepturilor persoanelor cu dizabilități în parte ce vizează incluziunea socială a acestora, garantării posibilității participării lor în toate domeniile vieții fără discriminare, la un nivel identic cu ceilalți membri ai societății a fost constituit cadrul normativ și anume aprobată Legeanr. 60 din 30.03.2012 privind incluziunea socială a persoanelor cu dizabilități, cu modificările și completările ulterioare.

Astfel, prin prezenta lege sunt invocate modalitățile prin care statul intervine în susținerea întreprinderilor specializate și/sau întreprinderilor sociale de inserție care angajează în muncă persoane cu dizabilități. În acest context enumerăm următoarele facilități:

- acordarea subvenționării parțiale la procurarea utilajului, materiei prime precum și la crearea locurilor de muncă;
- compensarea parțială a contribuțiilor de asigurări sociale de stat achitate de către întreprinderile specializate ale Societății Invalizilor din Republica Moldova, Societății Orbilor din Republica Moldova și Asociației Surzilor din Republica Moldova, precum și de către întreprinderile sociale de inserție al căror capital social este deținut în proporție de 100% de societățile și asociațiile obștești ale persoanelor cu dizabilități, create pentru realizarea scopurilor statutare proprii, în cadrul cărora 50% și mai mult din numărul total al lucrătorilor angajați sînt persoane cu dizabilități. [2]

Mijloacele financiare aferente acordării facilităților menționate anterior sunt aprobate anual prin Legea Bugetului de Stat (Tabelul nr.1), astfel în bugetele unor autorități/instituții bugetare, conform domeniilor de competență, se aprobă respectivele alocații pentru scopurile specifice precum ar fi pentru susținerea activității întreprinderilor create de Asociațiile Obștești “Asociația Nevăzătorilor din Moldova”, ale Asociației Surzilor din Republica Moldova și ale Societății Invalizilor din Republica Moldova.



**Tabelul nr.1.** Evoluția alocațiilor aferente persoanelor cu dizabilități aprobate pentru bugetul Ministerului Sănătății, Muncii și Protecției Sociale.

Anul	2017	2018	2019	2020	Abaterea relativă (%)
Alocații pentru compensarea parțială a contribuțiilor de asigurări sociale de stat obligatorii (mii lei)	1 528,30	1 563,20	1401,50	1 338,00	4,53
Alocații pentru procurarea de utilaj și materie primă (mii lei)	4 108,8	4 860,8	5 160,8	5 160,80	-
Alocații pentru crearea locurilor de muncă (mii lei)	500,00	500,00	500,00	500,00	-

Potrivit datelor prezentate în Tabelul nr.1 putem stabili că în perioada supusă examinării (anii 2017-2020), statul anual conform Legii anuale privind aprobarea Bugetului de Stat, aprobă mărirea alocațiilor îndreptate spre susținerea activității întreprinderilor specializate și/sau întreprinderilor sociale de inserție create de societățile și asociațiile obștești ale societăților orbilor, surzilor și invalizilor.

În contextul datelor prezentate în tabelul de mai sus putem observa că, pentru perioada supusă examinării statul a alocat în aceeași mărime alocația pentru crearea locurilor de muncă, și anume 500,00 mii lei.

Totodată, potrivit indicatorului privind abaterea relativă s-a stabilit că în perioada A/2020 s-au diminuat alocațiile pentru compensarea parțială a contribuțiilor de asigurări sociale de stat obligatorii și anume din motivul că a scăzut numărul de salariați cu dizabilități.

Totodată, în contextul facilităților este de menționat facilitatea fiscală privind TVA, și aici facem trimitere la Hotărârea Guvernului nr. 819/2017 pentru aprobarea Regulamentului cu privire la modul de acordare a unor categorii de facilități privind TVA conform prevederilor art. 103 alin. (7) din Codul fiscal nr. 1163/1997 și art. 4 alin. (18) lit. b) din Legea nr. 1417/1997 pentru punerea în aplicare a titlului III al Codului fiscal (în continuare Regulament).

Conform prevederilor prezentei Hotărâri a Guvernului nr.819/2017, cu modificările și

completările ulterioare, facilitatea prevăzută de prezentul act normativ vizează acordarea scutirii de TVA fără drept de deducere la importul materiei prime, materialelor, articolelor de completare și accesoriilor necesare procesului de producție, precum și scutirea de vărsarea la buget a TVA pentru mărfurile produse și serviciile prestate, cu condiția că subiecții acestor facilități cumulativ îndeplinesc pentru întreaga perioadă de beneficiere a facilității privind TVA cerințele stabilite conform Hotărârii Guvernului nr. 819/2017.

Urmare în contextul cerințelor ce trebuie să fie îndeplinite de către beneficiarii acestei scutiri este de menționat că unele dintre cerințe prevăd, ca întreprinderea sau organizația care dorește să obțină această scutire să aibă în calitate de fondator/asociat unic una dintre asociațiile nevăzătorilor, asociațiile surzilor și/sau societățile invalizilor precum și să dispună nu mai puțin de 50% de persoane cu dizabilități din numărul total de salariați [3].

Referitor la beneficiarii efectivi ai scutirii de TVA fără drept de deducere la importul materiei prime, materialelor, articolelor de completare și accesoriilor necesare procesului de producție, precum și scutite de vărsarea la buget a TVA pentru mărfurile produse și serviciile prestate este de menționat că în acest context anexat la Hotărârea Guvernului nr.819/2017, este prezentată Lista beneficiarilor facilității privind TVA care

sunt total 7 agenți economici la număr (Anexa nr.2 la Hotărârea Guvernului nr.819/2017).

Ulterior introducerii beneficiarilor efectiv în lista menționată supra, aceștia sunt supuși monitorizării minuțioase după competență de către Serviciul Fiscal de Stat și Serviciul Vamal în vederea evitării beneficiilor în scopuri frauduloase a scutirii privind TVA menționate anterior.

În parte ce ține de monitorizarea asigurată de către Serviciul Fiscal de Stat este de menționat că, conform pct.11 din Regulament, beneficiarii facilității privind TVA sunt obligați să prezinte trimestrial, cel târziu în ultima zi a lunii care urmează după trimestrul de raportare, Serviciului Fiscal de Stat Raportul privind conformarea la modul de acordare a scutirii de TVA fără drept de deducere la importul materiei prime, al materialelor, articolelor de completare și accesoriilor necesare procesului propriu de producție și/sau a scutirii de vărsarea la buget a TVA la livrarea mărfurilor produse și la prestarea serviciilor. Urmare, dacă în cazul examinării raportului prezentat la Serviciul Fiscal de Stat cât și în rezultatul controlului fiscal se stabilește că subiectul facilității fiscale privind TVA nu îndeplinește cumulativ cerințele stabilite pentru întreaga perioadă de beneficiere a facilității privind TVA stabilite conform Hotărârii Guvernului nr.819/2017, atunci agentului economic i se aplică modul general de impozitare cu TVA și subiectul responsabil de administrare fiscală emite Raportul privind excluderea întreprinderii sau organizației din Lista de beneficiari[4].

Potrivit datelor stabilite pe marginea abaterilor înregistrate de către beneficiarii facilității TVA menționate anterior, precum și a aspectelor invocate pe marginea propunerilor Politicii bugetar-fiscale pentru anul 2021, s-a stabilit că agenții economici beneficiari ai scutirii TVA au comis repetat mai mult abateri de la prevederile Hotărârii Guvernului nr.819/2017, astfel acționând în scopuri frauduloase.

În contextul abaterilor stabilite, conform Legii Nr. 257 din 16.12.2020 cu privire la

modificarea unor acte normative, Guvernul a aprobat anularea scutirii TVA aferent materiei prime, materialelor, articolelor de completare și accesoriilor necesare procesului propriu de producție, importate de către organizațiile și întreprinderile societăților nevăzătorilor, societăților surzilor și societăților invalizilor,, concomitent cu instituirea unui mecanism de subvenționare a plăților salariale în cazul salariaților cu dizabilități [5].

Potrivit Legii nr. 1417/1997 pentru punerea în aplicare a titlului III a Codului Fiscal, scutirea privind TVA nu va mai fi valabilă din 01.05.2021.

Decizia de anularea facilității respective a fost propusă și aprobată în vederea eliminării abuzurilor față de persoanele cu dizabilități și înlăturării schemelor depistate în procesul implementării măsurii existente, care urmăreau prejudicierea veniturilor Bugetului Public Național.

Referitor la alte facilități acordate angajatorilor de salariați cu dizabilități este de remarcat facilitatea privind subvenționarea plăților salariale în cazul salariaților cu dizabilități.

În contextul instituirii unui mecanism de subvenționare a plăților salariale în cazul salariaților cu dizabilități este de menționat că, în perioada 09.02.2021-25.02.2021 a fost supus consultării publice/avizării/expertizării proiectul hotărârii Guvernului pentru aprobarea Regulamentului privind mecanismul de subvenționare a locurilor de muncă.

Potrivit prevederilor proiectului hotărârii Guvernului menționat, unul dintre obiectivele principale ale proiectului este stimularea agenților economici, organizațiilor necomerciale în vederea angajării persoanelor cu dizabilități.

Drept finalități urmărite prin adoptarea proiectului respectiv ar fi susținerea persoanelor cu dizabilități sub aspectul stimulării angajării acestora în câmpul muncii, susținerea mediului de afaceri, precum și a organizațiilor necomerciale, prin subvenționarea cheltuielilor privind plata salariului în cazul angajării inclusiv a persoanelor cu dizabilități, astfel identificând una dintre

soluțiile optime de stimulare a angajatorilor în vederea angajării persoanelor cu dizabilități.

Cuantumul subvenției acordate prin prisma mecanismului de subvenționare urmează a fi stabilit în dependență de categoria angajatului, și anume:

- 100% din impozitele salariale declarate și achitate, dar nu mai mult de 2000 lei lunar per salariat pentru persoanele angajate cu dizabilitate severă ;

- 50% din impozitele salariale declarate și achitate, dar nu mai mult de 1000 lei lunar per salariat pentru persoanele angajate cu dizabilitate accentuată și medie;

- 200% din impozitele salariale declarate și achitate, dar nu mai mult de 4000 lei lunar per salariat.pentru persoanele cu dizabilități angajate în cadrul întreprinderilor specializate [6].

Perioada de implementare a mecanismului de subvenționare constituie perioada angajării persoanelor cu dizabilități.

O altă categorie de facilități, care vine întru susținerea agenților economici ce oferă locuri de muncă persoanelor cu dizabilități,sunt înlesnirile acordate întreprinderilor specializate și în întreprinderilor sociale de inserție.

În acest context stabilim că, societățile și asociațiile obștești ale persoanelor cu dizabilități, precum ar fi societățile orbilor, surzilor și invalizilor creează întreprinderi specializate și/sau întreprinderi sociale de inserție în scopul utilizării forței de muncă a persoanelor cu dizabilități, în conformitate cu Legea privind incluziunea socială a persoanelor cu dizabilități [7].

Întreprinderile asociațiilor obștești își desfășoară activitatea în conformitate cu Legea nr. 845 din 03-01-1992 cu privire la antreprenariat și întreprinderi.

Urmare, conform prevederilor din Codul Fiscal al Republicii Moldova, se acordă următoarele înlesniri întreprinderilor create pentru realizarea scopurilor statutare ale societăților orbilor, surzilor și invalizilor, după cum urmează:

- se scutesc de plata impozitului pe venit din activitatea de întreprinzător (art 53<sup>1</sup>);

- se scutesc de plata impozitului pe bunurile imobiliare (art.283 );

- se scutesc de taxa pentru apa extrasă de întreprinderile societăților orbilor, surzilor, invalizilor (art.306).[8]

## Concluzii

Analiză aplicată în cadrul cercetării a permis prezentarea coerentă a informației de actualitate și de interes public, și formularea unor concluzii relevante despre modalitățile prin care statul acționează pentru a regla mersul activității economice a agenților economici, deoarece de rezultatul activității acestora depind și încasările la Bugetul Public Național care asigură acoperirea cheltuielilor statului.

Situația agenților economici la nivel microeconomic influențează careva aspecte și la nivel macroeconomic, indicatorii de activitate ai agenților economici având impact asupra mărimii Produsului Intern Brut.

Implicarea statului în activitatea agenților economici ține de acordarea de către stat a unor facilități a căror mărime depend de factorii economici și sociali.

În contextul temei abordateeste de menționat că, anularea scutirii privind TVA din 01.05.2021, prezintă un efect al factorului social.

Prin anularea facilității fiscale privind acordarea scutirii TVA aferent materiei prime, materialelor, articolelor de completare și accesoriilor necesare procesului propriu de producție, importate de către organizațiile și întreprinderile societăților nevăzătorilor, societăților surzilor și societăților s-a evitat dezvoltarea abuzului întreprins de angajatori față de persoanele cu dizabilități și s-au stabilit noi subiecți ai vărsării TVA la buget.

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# Effects Of Fiscal Policy On The Quality Of Life Of Older People

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**Abstract:** This article aims to analyze the situation of the elderly population in the Republic of Moldova, from the perspective of the rights of this group to a decent life, in terms of analysis of the objectives and effects of fiscal policy promoted at national level, which would ensure an adequate standard of living of older people. The Republic of Moldova faces major challenges related to aging. The population is declining due to declining fertility, considerable emigration and low life expectancy. Emigration has contributed to the aging population and changed the social structure and dynamics of families. The elderly people depend to a large extent on pensions. Thus, it is necessary to ensure a sustainable and adequate pension system. The general objective of the pension system that the Republic of Moldova must ensure is the creation and substantiation of a fair and sustainable pension system, which guarantees a decent living to the pension beneficiaries.

**Keywords:** Fiscal policy, pension system, aging process, quality of life of the elderly people, migration, fiscal. sustainability

## 1 Introducere

În conformitate cu Declarația Universală a Drepturilor Omului, orice persoană are dreptul la un nivel de trai care să-i asigure sănătatea și bunăstarea lui și a familiei sale, cuprinzând hrana, îmbrăcămintea, locuința, îngrijirea medicală, precum și serviciile sociale necesare; el are dreptul la asigurare în caz de șomaj, boală, invaliditate, văduvie, bătrânețe sau în celelalte cazuri de pierdere a mijloacelor de subsistență, în urma unor împrejurări independente de voința sa [1].

Un fenomen prezent pe tot parcursul ciclului de viață al omului este îmbătrânirea. În ultimul timp, procesului de îmbătrânire a populației s-a amplificat. Astfel, actualmente, îmbătrânirea demografică a populației a devenit o problemă socială extrem de sensibilă, întrucât afectează un număr mare de persoane și prezintă interes nu doar pentru populația respectivă, ci și pentru societate în general, având un profund impact asupra tuturor generațiilor și asupra celor mai multe domenii, inclusiv și cele economice. Fenomenul respectiv necesită nu doar atenția, dar și acțiuni sociale concrete, din partea autorităților, care să influențeze

o evoluție, în sensul creșterii autonomiei și bunăstării vieții vârstnicilor, al îmbătrânirii sănătoase, al asigurării unei vieți de calitate cu costuri sociale cât mai scăzute.

Diversi autori au încercat să definească bătrânețea și să stabilească limite. Totuși, cea mai răspândită clasificare a bătrâneții cuprinde:

- a) etapa de trecere spre bătrânețe: de la 65-75 de ani;
- b) etapa bătrâneții medii: 75-85 ani;
- c) etapa mării bătrâneți: peste 85 de ani.

Ar fi frumos și ideal ca cel puțin unul din doi oameni în etate să afirme că cea mai frumoasă perioadă a vieții lor este bătrânețea.

## 2. Analiza calității vieții oamenilor în etate

Noțiunea de calitate a vieții caracteristică vârstnicilor s-a impus, în ultimele două decenii, ca una dintre cele mai utile noțiuni evaluative pentru analiza standardelor și stilurilor de viață, folosită în numeroase studii și cercetări dedicate acestei categorii de vârstă [2].

Calitatea vieții poate fi măsurată prin indicatori direcți, cum ar fi: veniturile, cheltuielile, nivelul sărăciei.

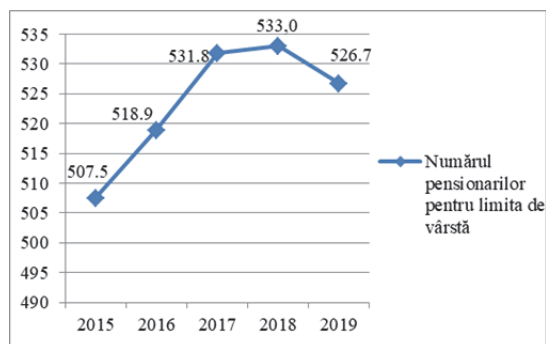
După cum este cunoscut numărul vârstnicilor

nu se suprapune cu cel al pensionarilor, dar aceștia din urmă reprezintă ponderea cea mai însemnată.

Republica Moldova îmbătrânește rapid, fapt datorat nivelului scăzut și descreșterii continue a fertilității, cât și ratei înalte a mortalității, și nu în ultimul rând emigrației nete. Este de așteptat că, populația Republicii Moldovei se va micșora, iar proporția vârstnicilor se va mări.

Actualmente, în Republica Moldova, vârsta de pensionare pentru bărbați este stabilită de 63 ani, femei – 59 ani. Până în anul 2028 vârsta de pensionare pentru femei se va majora până la 63 de ani. Îmbătrânirea demografică și reducerea numărului locurilor de muncă produc modificări structurale, din punct de vedere socio-economic, asupra populației active și inactive.

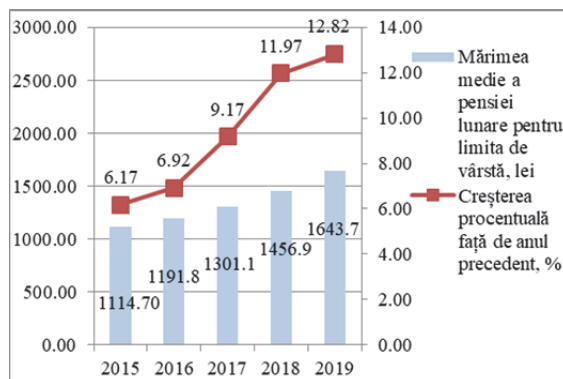
Statisticile demografice ale ultimilor ani indică o creștere a persoanelor vârstnice în cadrul populației.



**Figura 1.** Dinamica numărului de pensionari pentru limita de vârstă în perioada 2015-2019, mii persoane, elaborat în baza [3]

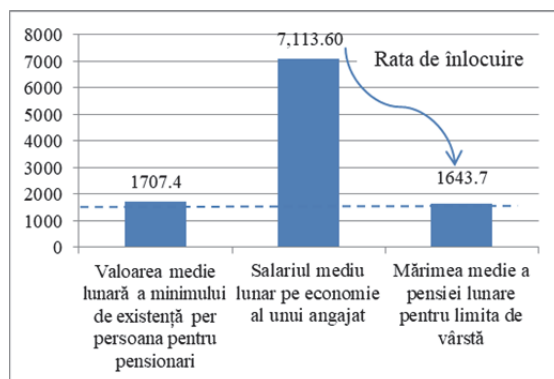
Conform figurii 1, în Republica Moldova numărul pensionarilor pentru limita de vârstă în perioada 2015-2019 s-a majorat cu 19,2 mii persoane (3,8%). Ponderea acestora în cadrul populației stabile are o tendință de creștere, astfel în anul 2019 față de 2016 ponderea s-a majorat cu 0,7 p.p., constituind 14,9% în 2019. Datorită ponderii mai mari în numărul populației vârstnice și diferenței de longevitate dintre femei și bărbați, femeile au constituit 70,6% în numărul total de pensionari pentru limita de vârstă.

În continuare se prezintă evoluția marimii medii a pensiei lunare pentru limita de vârstă în perioada anilor 2015-2019.



**Figura 2.** Dinamica marimii medii a pensiei lunare pentru limita de vârstă în perioada 2015-2019, elaborat în baza [4]

Analizând datele din figura 2, mărimea medie a pensiei pentru limită de vârstă la 01.01.2019 a constituit 1643,7 lei, fiind în creștere față de anul precedent cu 12,8%, iar, comparativ cu ultimii cinci ani, aceasta s-a majorat cu 47,5%. Mărimea medie a pensiei pentru limita de vârstă în cazul bărbaților a constituit 1940,1,8 lei, comparativ cu 1520,2 lei în cazul femeilor.



**Figura 3.** Valoarea minimului de existență pentru pensionari și rata de înlocuire a salariului prin pensie în anul 2019, lei, elaborat în baza [5]

În conformitate cu figura 3, în anul 2019 pensia pentru limita de vârstă (1643,7 lei) nu acoperă valoarea minimului de existență pentru pensionari (1707,4 lei). Rata de înlocuire a salariului prin pensie constituie 23,1% în anul 2019, cu o tendință de diminuare comparativ cu anul 2014 (-1,1 p.p.). Nivelul redus al ratei de înlocuire denotă un nivel scăzut al calității vieții pensionarilor din Republica Moldova.

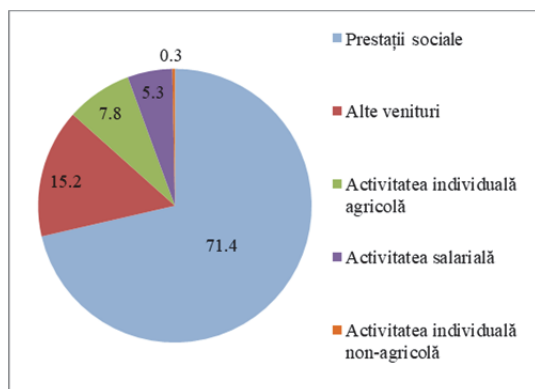
Din analiza ratei de ocupare pentru grupa de vârstă 65 de ani și peste, în anul 2019, se constată:

- rata de ocupare a femeilor, respectiv de 6,0% este mai mică decât cea a bărbaților (10,1%);

- persoanele de 65 de ani și peste, din mediul urban, au o rată de ocupare mai mare decât cele din rural (8,7% în anul 2019 în urban, față de 6,9% în rural).

În contextul indicatorilor sociali analizați, prezența vârstnicilor de peste 65 ani pe piața muncii este determinată nu atât de o disponibilitate pentru o activitate aducătoare de venit, cât de nevoia de a munci pentru câștigarea traiului zilnic, în condițiile absenței sau insuficienței surselor de venit.

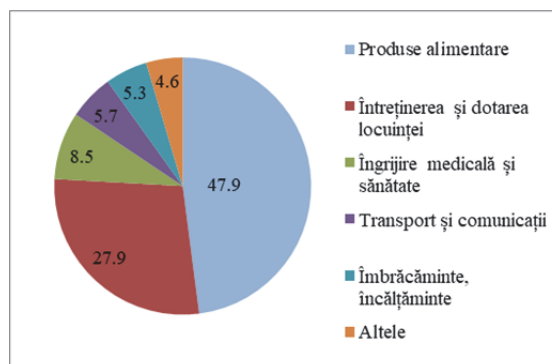
Pentru o analiză mai amplă a calității vieții vârstnicilor se prezintă structura veniturilor și cheltuielilor acestora în anul 2019.



**Figura 4.** Structura veniturilor unei persoane singure în vârstă de 65 ani și peste în anul 2019, %, elaborat în baza [6]

Conform datelor din figura 4, prestațiile sociale reprezintă principala sursă de venit a persoanelor vârstnice, fiind constituite din pensii (64,0 % în totalul veniturilor), după care urmează alte venituri bazate, în principal, pe transferuri din afara țării. Astfel, mai multe persoane vârstnice beneficiază de remitențe, iar acest sprijin inter-generațional este o importantă sursă de îmbunătățire a bunăstării acestora. Totodată, fenomenul emigrării are și un aspect negativ. Emigrarea membrilor mai tineri ai gospodăriilor casnice a lăsat generațiile mai în vârstă neajutate, în special în zonele rurale. Această schimbare în componența gospodăriilor casnice a afectat condițiile de viață ale persoanelor

vârstnice, prin creșterea poverii, care constă în apariția suplimentară a sarcinilor în gospodărie și a responsabilităților de îngrijire.



**Figura 5.** Structura cheltuielilor unei persoane singure în vârstă de 65 ani și peste în anul 2019, %, elaborat în baza [7]

Analizând figura 5, se constată că circa jumătate din cheltuielile de consum sunt alocate de către vârstnici pentru alimente. Totuși, există o inegalitate între ei și restul populației în ceea ce privește cantitatea, calitatea și structura consumului alimentar, care se situează la limitele inferioare, plasând o mare parte dintre bătrâni în zona sărăciei. Aceasta în condițiile în care hrana pentru această categorie de populație ar trebui să fie superioară din punct de vedere calitativ, dat fiind importanța ei pentru menținerea sănătății. Următoarele componente în structura cheltuielilor sunt întreținerea și dotarea locuinței (27,9%), și îngrijirea medicală și sănătatea (8,5%). Cheltuielile vârstnicilor pentru îngrijirea medicală și sănătate ar trebuie suportate de Guvern integral, nu și de persoanele în etate.

## 2. Analiza politicii fiscale a Republicii Moldova în contextul asigurării sociale a oamenilor în etate

Politicele macroeconomice trebuie să fie axate pe persoanele în etate și să vină ca răspuns la provocările pe care le prezintă îmbătrânirea.

În acest sens, politicile la nivel național trebuie să asigure:

- garantarea asistenței medicale accesibile, cât și furnizarea medicamentelor calitative;
- promovarea creării locurilor de muncă de către companii, ce includ investirea în instruirea continuă pentru reactualizarea competențelor

angajaților vârstnici;

- sprijinirea accesului mai mare la instituțiile oficiale de îngrijire a persoanelor vârstnice;
- fundamentarea unui sistem solidar de pensii, social și fiscal durabil.

Politicele sunt necesare, atât pentru garantarea securității economice a persoanelor vârstnice în Republica Moldova, cât și pentru instituții, pentru a le permite adaptarea la populația în curs de îmbătrânire.

Politica fiscală este o componentă a

politicilor macroeconomice, care are un impact semnificativ asupra asigurării sociale a oamenilor în etate. Una dintre prioritățile de politici pe termen mediu prezentată în Cadrul Bugetar pe Termen Mediu 2019-2021 este asigurarea sustenabilității financiare a bugetului asigurărilor sociale de stat.

În continuare, sunt prezentate cheltuielile asigurărilor sociale de stat pentru plata prestațiilor sociale.

**Tabelul 1.** Cheltuielile asigurărilor sociale de stat pentru plataprestațiilor sociale în perioada 2015-2019, elaborat în baza [8]

Denumirea cheltuielilor	2015	2016	2017	2018	2019
Prestații sociale, mil. lei	13446	14650	17182	19111	21206
Prestații de asigurări sociale, mil. lei	10214	11060	12242	13685	15344
Pensii de asigurări sociale, mil. lei	8663	9584	10611	11860	13343
Pensii pentru limită de vîrstă, mil. lei	6907	7682	8577	9390	10701
Ponderea pensiilor pentru limită de vîrstă în totalul prestațiilor sociale,%	51,37	52,44	49,92	49,13	50,46
Ponderea pensiilor pentru limită de vîrstă în totalul pensiilor de asigurările sociale,%	79,73	80,15	80,83	79,18	80,20

Conform datelor din tabelul 1, din suma cheltuielilor destinate pentru plata „Prestațiilor sociale”, cea mai mare parte, 72,4% le revine cheltuielilor pentru plata prestațiilor de asigurări sociale, finanțate din resursele generale ale bugetului asigurărilor sociale de stat. Ponderea majoră în cheltuielile pentru prestațiile de asigurări sociale o constituie cheltuielile pentru plata pensiilor de asigurări sociale de stat (87,0%). În perioada 2015-2019 acestea au avut o tendință de creștere, astfel în anul 2019 comparativ cu 2015 cheltuielile pentru pensiile de asigurări sociale s-au majorat cu 4679,8 mil. lei (54,0%). În anul 2019 ponderea cheltuielilor pentru pensii pentru limită de vîrstă în totalul pensiilor de asigurările sociale au constiuit 80,2 la sută.

În pofida faptului că, în Republica Moldova majoritatea politicilor sunt deja axate pe persoanele în etate, totuși, se constată tot mai

multe motive de îngrijorare că, de exemplu, în timp ce actuala cohortă de persoane în etate este acoperită de sistemul de protecție socială, există un risc mare ca viitoarele cohorte să se confrunte cu creșterea nivelului sărăciei pe motiv de îmbătrânire, dat fiindemigrarea populației tinere. În plus, în Republica Moldova proporția populației apte de muncă angajate în câmpul muncii este mică comparativ cu cea a altor țări din regiune, ridicând problema protecției actualei și viitoarelor generații cu vîrstă înaintată.

Este de menționat că, veniturile pensionarilor din plățile salariale în RM se supun impozitării la fel ca și veniturile celorlalți angajați, fiind diminuat pentru impozitare doar cu suma scutirilor personale la care au dreptul. Acest fapt, nu vine întru susținerea vârstnicilor, dar, totuși, a contribuit la inițierea procesului de recalculare a pensiilor celor care au activat după atingerea



limitei de vârstă timp de 10 ani, 7 ani, la moment.

Totuși, ținem să menționăm că persoanele în etate din RM obțin venituri și din alte surse, cum ar fi darea în arendă a pământurilor cu destinație agricolă, venit, ce conform Codului Fiscal, este scutit de impozitare pentru această categorie de contribuabili. O altă sursă ar fi veniturile din depozitele bancare, care până în anul 2021, nu erau impozabile, iar începând cu anul 2021 băncile vor reține tuturor persoanelor fizice un impozit în mărime de 3%. Codul Fiscal prevede o facilitate ce ține de veniturile sub formă de royalty ale persoanelor fizice în vârstă de 60 ani și mai mult din domeniul literaturii, artei și științei, dar ne dăm bine seama că numărul persoanelor care obțin astfel de venituri în numărul total de persoane în etate este mic.

Concluzionăm că, prevederile politicii fiscale influențează atât direct, cât și indirect politica socială realizată și prin prevederile acesteia am putea susține mult mai mult calitatea vieții oamenilor în etate.

### **3. Sustenabilitatea financiară a sistemului național de pensii**

Analiza efectuată a permis elucidarea problematicii privind asigurarea procesului de îmbătrânire a populației, în special, neajunsurile sistemului de pensii, ca parte integrantă a sistemului public de asigurări sociale.

Chiar dacă sistemul național de pensii a trecut printr-o reformă în anul 2017, susținută ulterior și de o reformă fiscală în anul 2018, totuși, actualmente, sustenabilitatea fiscală a sistemului de pensii și echitatea acestuia este subminată.

Adecvarea pensiilor se măsoară prin:

- 1) capacitatea acestora de a preveni sărăcia;
- 2) proporția în care ele înlocuiesc veniturile din activități profesionale;
- 3) durata perioadei în care se beneficiază de pensie.

Chiar dacă se constată o tendință continuă de creștere a cheltuielilor bugetului asigurărilor sociale de stat pentru asigurarea dreptului la pensie pentru limită de vârstă și totodată, ponderea semnificativă a cheltuielilor pentru pensii pentru limită de vârstă în totalul prestațiilor sociale (circa 51 %), totuși, după cum a fost menționat, conform figurii 3, pensia pentru limită de vârstă nu acoperă valoarea minimului de existență pentru pensionari și rata de

înlocuire a salariului prin pensie este destul de joasă (23,1% în anul 2019). Practica țărilor membre ale Uniunii Europene arată că, ceea ce ține de capacitatea pensiilor de a înlocui veniturile din muncă, obținute înaintea pensionării, venitul net din pensie, care se poate obține în diverse state membre ale UE, după 40 de ani în câmpul muncii, la un salariu mediu și până la vârsta standard de pensionare, se situează între 50 % și 114 % din câștigurile medii [9] (comparativ cu Republica Moldova – 23,1%). Urmare celor expuse, se constată că mărirea pensiei medii pentru limita de vârstă în Republica Moldova este inadecvată.

Durata perioadei de pensie este corelată cu sustenabilitatea, deoarece cu cât durata este mai mare, cu atât mai însemnate sunt costurile acesteia. În Uniunea Europeană, s-a estimat că această durată variază între 16,5 ani și 24,5 ani. În Republica Moldova, aceasta este destul de mică, întrucât, speranța de viață la naștere, în anul 2019, a constituit 75,1 ani pentru femei și 66,8 ani în cazul bărbaților. Corelarea vârstei legale de pensionare cu speranța de viață constituie o modalitate bună de reconciliere a sustenabilității și a adecvării sistemului de pensii în contextul îmbătrânirii populațiilor.

În societățile în proces de îmbătrânire, menținerea unei legături sustenabile între durata vieții profesionale și a perioadei de pensie, pe de o parte, și acumularea de drepturi pentru o pensie adecvată, pe de altă parte, va impune, în general, ca oamenii să lucreze mai mulți ani înainte de a se pensiona. Astfel, există o legătură strânsă între politicele de ocupare și sustenabilitatea și adecvarea sistemelor de pensii.

Sistemele de pensii pot contribui la optimizarea ofertei de forță de muncă pe parcursul vieții profesionale, îndeosebi pentru lucrătorii vârstnici, instituind stimulente puternice în favoarea activității profesionale în normele privind drepturile de pensie și restrângând accesul la pensionarea anticipată.

Sistemul actual de pensii atât în Republica Moldova, cât și în Uniunea Europeană se confruntă cu dubla provocare de a-și menține sustenabilitatea financiară și de a putea asigura vârstnicilor venituri adecvate la pensie. Principalul obiectiv al sistemelor de pensii este protejarea vârstnicilor împotriva sărăciei și asigurarea unor condiții care să le permită să se bucure de un nivel de trai decent

și de independență economică la bătrânețe. Sustenabilitatea financiară a sistemelor de pensii reprezintă un mijloc indispensabil pentru acest scop. Pensiile își pun amprenta în mod semnificativ asupra bugetelor publice și asupra ofertei de forță de muncă, iar aceste efecte trebuie luate în considerație în cadrul politicilor de pensii.

Prin urmare, principalele obiective ale unui sistem de pensii și a politicilor promovate prin acesta sunt: (i) asigurarea unor venituri adecvate la bătrânețe, asigurând totodată (ii) sustenabilitatea financiară și (iii) ocuparea forței de muncă pe o perioadă cât mai îndelungată (prin stimulente care să susțină stabilitatea parcursului profesional în cadrul muncii formale, precum și o viață profesională mai îndelungată pentru femei și bărbați).

#### 4. Concluzii

Republica Moldova se confruntă cu mari provocări legate de îmbătrânire. Vârsta medie a populației scade într-un ritm mult mairapid în Republica Moldova decât în țările din vecinătate, iar populația semicșorează din cauza scăderii fertilității, emigrației considerabile și speranței de viață mici. Emigrarea a contribuit la îmbătrânirea populației și a schimbat structura socială și dinamica familiilor. Ca grup social, persoanele în vârstă din Republica Moldova sunt printre cele mai marginalizate și discriminate. Astfel, aplicarea legilor și promovarea politicilor axate pe bătrâni este crucială pentru protecția persoanelor vârstnice.

În plus, actuala cohortă de persoane în vârstă din Republica Moldova se confruntă cu o calitate mai scăzută a vieții decât restul populației, cu nivel mediu mai mare al sărăciei, acces mai limitat la servicii și percepții mai rezervate față de propria bunăstare. Persoanele vârstnice depind într-o mare măsură de pensii, în particular, persoanele în etate ce locuiesc singure. Aceasta elucidează necesitatea asigurării unui sistem de pensii durabil și adecvat. Obiectivul general al sistemului de pensii pe care trebuie să-l asigure Republica Moldova este consolidarea unui sistem de pensii echitabil și sustenabil, care să garanteze un trai decent beneficiarilor de pensii. În pofida faptului că, au fost impemperate reforme ale sistemului public de pensii, nu s-a reușit în totalitate realizarea obiectivului primordial - asigurarea unui sistem de pensii sustenabil sub aspect fiscal.

În scopul asigurării sustenabilității fiscale a sistemului de pensii, reducerii inegalităților și garantării unui nivel adecvat de trai pentru actuala și viitoarele cohorte de persoane în etate se propun următoarele soluții:

- Corelarea vârstei legale de pensionare cu speranța de viață, care constituie o modalitate bună de reconciliere a sustenabilității și a adecvării sistemului de pensii în contextul îmbătrânirii populațiilor;

- Instituirea stimulentei puternice în favoarea activității profesionale a angajaților, restrângând accesul la pensionarea anticipată;

- Lărgirea surselor de venituri directe ale sistemului de pensii. Aceste surse pot fi de natură fiscală sau investițională. Diversificarea surselor de finanțare ar permite scăderea continuă a contribuției de natură fiscală a salariaților, care la rândul său ar stimula creșterea economică și legalizarea economiei tenebre;

- Instituirea unui regim de impozitare facilitat a veniturilor obținute de persoanele în etate (activitatea salarială, activitatea agricolă și non-agricolă);

- Armonizarea pensiilor privilegiate, precum cele din sistemul judecătoresc și sistemul militar, cu sistemul general solidar de pensii.

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## National And International Employment Tax Policy Aspects

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**Abstract:** Tax incidence and the payment of taxes is an intense topic of discussion for taxpayers. The employee wants the intensity of the tax burden on his income to be reduced, and at the same time feels a burden on the payment of the tax to which he has to submit. Thus, the payer's desire to secure his income before increasing the fiscal pressure, without additional effort, contributes to the development of the parallel economy which gradually replaces the activities of the real economy, giving way to the emergence of the parallel economy (underground economy). The consequences of this are the decrease in the number of taxpayers, the decrease of the tax base and the inefficiency of macroeconomic policies in the field. However, it should be noted that the state collects taxes and fees to insure public expenditures for society (including taxpayers), so taxpayers after a short period of time become the beneficiaries of the resources attracted. For the state, the increase in fiscal pressure means an improvement in the mechanism of financing public expenditures, while a decrease in fiscal pressure influences the level of the budget deficit. In order to determine the level of fiscal pressure, the state is guided by the objectives of fiscal policy, which establishes the main directions of economic and social influence.

**Keywords:** employment, labor force, employment rate, fiscal policy, fiscal income taxes, fiscal pressure.

### 1. Introducere

Un element ce stă la baza unei economii puternice, cu un rol fundamental la crearea unei societăţi echitabile, este fiscalitatea.

Prin politica fiscală aplicată, statul urmăreşte realizarea unor obiective macroeconomice precum: un nivel ridicat de ocupare a forţei de muncă; o rată ridicată de creştere economică; stabilitatea preţurilor; echilibrul balanţei de plăţi externe, utilizând instrumente specifice integrate în sistemele fiscale aplicate la un moment dat. Măsurile de politică fiscală sunt adoptate de către stat cu privire la stabilirea şi perceperea impozitelor, utilizate ca pârghie pentru consolidarea creşterii economice şi rezolvării problemelor sociale şi politice [1].

Politica fiscală poate avea o influenţă considerabilă asupra deciziilor în materie de ocupare a forţei de muncă, asupra nivelurilor investiţiilor şi asupra disponibilităţii întreprinzătorilor de a-şi extinde activităţile, toate aceste aspecte fiind însoţite de o creştere economică mai puternică. Astfel, eficienţa politicii fiscale aplicate într-un stat, după părerea autorilor, poate fi evaluată prin raportare la patru

priorităţi: stimularea investiţiilor; sprijin pentru ocuparea forţei de muncă; reducerea inegalităţilor în materie de impunere; asigurarea conformării fiscale.

### 2. Presiune fiscală în Republica Moldova

Obiectivele pe care se axează politica fiscală se referă la o legislaţie fiscală favorabilă dezvoltării economice, susţinerea mediului de afaceri, generarea unor venituri suficiente şi stabile pentru finanţarea cheltuielilor publice, contribuţia la o distribuţie corectă şi echitabilă a veniturilor, îmbunătăţirea şi simplificarea sistemului fiscal [2].

Fiscalitatea din domeniul muncii influenţează atât decizia fiecăruia de a se angaja şi cu ce normă (oferta de forţă de muncă), cât şi decizia angajatorului de a face angajări, întrucât acestea cresc costul forţei de muncă (cererea de forţă de muncă). Oferta de forţă de muncă din anumite categorii ale populaţiei (lucrători slab calificaţi, tineri, persoane în vârstă) este deosebit de sensibilă la impozitele şi contribuţiile la sistemul asigurărilor sociale şi medicale [3].

Politica fiscală este esenţială pentru stat,

întrucât, dacă nu ar avea venituri, guvernele nu ar putea să-și pună în aplicare politicile în anumite domenii, astfel, modalitatea de a acoperi nevoile publice depinde foarte mult de impozitele acumulate, implicit de componenta fiscală.

Eficiența sistemului fiscal poate fi măsurată prin intermediul indicatorului presiunii fiscale, care reflectă intensitatea cu care sunt prelevate venituri de la persoanele fizice și juridice ori la nivelul întregii societăți cu ajutorul impozitării [4].

**Tabelul 1.** Evoluția nivelului presiunii fiscale în Republica Moldova, în perioada 2016-2019, %

Indicatori	2016	2017	2018	2019	2019/ 2018
1.Presiune fiscală generală, %	26,43	27,95	28,47	27,79	-2,4
2.Presiune fiscală strictă, %	18,18	19,27	19,56	19,04	-2,7
3.Presiune fiscală a unui impozit și taxe					
3.1.Impozite directe (inclusiv contribuțiile)	12,57	13,30	14,05	13,46	-4,2
3.1.1.Impozit pe venitul persoanelor fizice	1,98	2,04	2,07	1,89	-8,8
3.1.2.Impozit pe venitul persoanelor juridice	2,09	2,28	2,78	2,55	-8,3
3.1.3.Impozite pe proprietate	0,25	0,31	0,29	0,28	-5,9
3.2.Impozite indirecte	13,86	14,65	14,42	14,33	-0,6
3.2.1.TVA	9,06	9,43	9,67	9,59	-0,8
3.2.2.Accize	2,83	3,33	2,95	2,96	0,2
3.2.3.Alte taxe pe mărfuri și servicii	1,07	1,00	0,93	0,92	-1,2
3.2.4Taxe asupra comerțului exterior	0,90	0,89	0,87	0,85	-1,2
4.Presiune fiscală a contribuțiilor și primelor de asigurări obligatorii	8,25	8,67	8,91	8,75	-1,8
4.1.Contribuții de asigurări sociale de stat obligatorii	6,24	6,63	6,77	6,48	-4,2
4.2.Prime de asigurare obligatorie de asistență medicală	2,01	2,04	2,14	2,27	6,0

Presiunea fiscală generală, este determinată prin ponderarea veniturilor fiscale inclusiv cu contribuțiile de asigurări sociale și medicale în PIB [5]. Pe parcursul perioadei 2016-2019, acest indicator în Republica Moldova a constituit în medie 27%, cu o tendință de creștere a presiuni

fiscale generale de la 26,43% în anul 2016 la 28,47% în anul 2018, și o scădere acestui indicator la 27,79% în anul 2019.

Evoluția presiunii fiscale a fost generată în mare parte de creșterea accentuată a veniturile fiscale și creșterea PIB-ului în prețuri curente. Astfel, pe

parcursul anului 2019, la bugetul public național au fost acumulate venituri din impozite și taxe în sumă totală de 40 054,2 milioane lei, în comparație cu anul 2016, cu 10 823,2 milioane lei sau cu 37,03 la sută mai mult. Ca pondere în PIB, veniturile fiscale în anul 2019, au atins nivelul de 27,79%.

Dacă să analizăm presiunea fiscală în statele membre ale UE, observăm că presiunea aferentă acestora tindese fie mai ridicată în țările, precum Danemarca (46,34%), Franța (45,40%), Belgia (42,92%), Suedia (42,91%), Italia (42,45%). Valoarea medie la nivelul Uniunii Europene a presiunii fiscale oscilează în jurul valorii de 41% în 2019.

Totuși, trebuie să ținem cont că, indicatorul presiunea fiscală, asupra economiei țării, caracterizează de sine stătător ponderea PIB-ului redistribuită prin intermediul impozitelor și taxelor. Dar numai în asociere cu alți indicatori importanți ai dezvoltării socio-economice a țării (PIB pe cap de locuitor, nivelul creșterii economice, ponderea cheltuielilor de stat în PIB, etc.) se poate de evaluat severitatea impozitării în țară și eficiența de funcționare a sistemului fiscal.

În acest scop, autorii recurg la unele concluzii teoretice valoroase, esența cărora constă în faptul că cea mai mare capacitate fiscală a unei țări este în aceea țară în care:

productivitatea muncii este în creștere rapidă;

PIB crește mai rapid decât crește numărul populației în țară;

PIB-ul este distribuit mai uniform;

cea mai mare parte din suma impozitelor este cheltuită astfel încât servește intereselor majorității, în special păturilor social vulnerabile;

la baza politicii statului este dorința de a echilibra nivelul de dezvoltare a sectoarelor, teritoriilor și nivelul de trai ale diferitor pături ale populației.

Reducerea presiunii fiscale în 2019, a fost precedată de modificarea cotelor de impozitare la finele anului 2018. Prin Legea nr. 178/2018 Parlamentul Republicii Moldova a operat mai multe modificări la sistemul fiscal, cunoscute în general sub sintagma de „reformă fiscală”. A fost introdusă cota unică de 12%. De asemenea a fost redusă cu 5% cota contribuției angajatorului la bugetul asigurărilor sociale de stat pentru angajatorii sectorului privat, instituțiilor de învățământ superior și ai instituțiilor medico-

sanitare. Această reformă a fost realizată în vederea „stimulării mediului de afaceri, creșterii veniturilor populației, „reducerii economiei tenebre, a salariilor în plic, a evaziunii fiscale și a veniturilor nedeclarate”.

Totuși, urmare a acestei reforme a fost observată mai degrabă o sporire a inegalităților în rândul angajaților, o creștere semnificativă, atât absolută, cât și relativă fiind caracteristică anume veniturilor lucrătorilor cu salarii mari comparativ celor cu salarii mici.

Presiunea fiscală asupra forței de muncă manifestă o creștere asupra salariaților cu venituri mici. Aceasta poate reduce cererea de forță de muncă, poate conduce la șomaj și capcane ale sărăciei pentru acești salariați și poate descuraja angajarea cu forme legale [6]. Ocuparea informală nu este benefică dezvoltării economice, fiind caracterizată de o productivitate scăzută, cu consecințe asupra atractivității investiționale și a competitivității sectoarelor economice.

De menționat, în ce privește situația actuală, potrivit modificărilor în Legea nr.489/1999 privind sistemul public de asigurări sociale, din 2021 contribuțiile de asigurări sociale de stat obligatorii, datorate de angajator s-au majorat de la 18% la 24% la suma salariilor și recompenselor calculate lunar pentru toți angajați sectorului privat, instituțiilor de învățământ superior și ai instituțiilor medico-sanitare. Totodată, s-au anulat contribuțiile individuale de asigurări sociale de stat obligatorii datorate de angajat în mărime de 6%. În același timp, o altă modificare ce a intrat în vigoare din 01.01.2021, se referă la primele de asigurare obligatorie de asistență medicală. **Angajatorii numai achită primele de asigurare obligatorie de asistență medicală, iar angajații achită 9% (4,5%+4,5%).** Vizavi de impactul propunerilor înaintate pentru persoanele angajate, în cazul comasării primelor de asistență medicală la nivel de angajat (cu excluderea simultană a contribuției de asigurări sociale – angajatorul achitând 29% la suma salariilor și recompenselor calculate lunar pentru toți angajați autorităților/instituțiilor bugetare și autorităților/ instituțiilor publice la autogestiune, cu excepția instituțiilor de învățământ superior și a instituțiilor medico-sanitare), suma plăților suportate se va diminua cu 1,5% puncte procentuale[7].

Relaxarea fiscală ar putea aduce în câmpul

muncii oficial o parte din persoanele fizice, care activează în baza salariilor în plic, ceea ce va asigura o bază mai largă pentru impozitare. De menționat că presiunea fiscală pe forța de muncă din Republica Moldova este una dintre cele mai mici din Europa, impozitul pe venitul persoanelor fizice fiind de 12%. Pentru comparație, cel mai mare impozit pe venitul persoanelor fizice este plătit în Slovenia, Belgia, Suedia, peste 60%. Astfel, prin reforma fiscală inițiată s-a încercat o relaxare fiscală a contribuabililor și o stimulare a economiei, prin lărgirea bazei impozabile și prin modificarea cotelor de impozitare în vederea sporirii veniturilor bugetare. Importanță este și stabilitatea presiunii fiscale, pentru ca agenții economici să se adapteze la nivelul acesteia.

Ocuparea forței de muncă în Republica Moldova și pe plan internațional

Politicile în domeniul promovării ocupării forței de muncă implică participarea statului la implementarea unor strategii menite a asigura creșterea nivelului de ocupare a forței de muncă și reducerea excluziunii sociale pe piața muncii.

Numărul mare de persoane participante în activitatea economică stimulează creșterea economică în cadrul unui stat. Forța de muncă, sau altfel spus, populația activă, cuprinde toate persoanele de 15 ani și peste, care furnizează forța de muncă disponibilă pentru producția de bunuri și servicii în timpul perioadei de referință, incluzând populația ocupată și șomerii[8].

Forța de muncă, precum și calitatea ei, constituie factorul determinant al creșterii economice a unei țări.

Totodată, perfecționarea din punct de vedere calitativ a factorului uman joacă un rol semnificativ pentru creșterea susținută și echitabilă a veniturilor, precum și pentru dezvoltarea afacerilor inovative și competitive. Piața muncii din Republica Moldova se ciocnește cu provocări atât din punct de vedere a cantității, cât și calității forței de muncă. Principalele de menționat sunt ratele joase de participare și ocupare a populației, care sunt cauzate de mai mulți factori, precum migrația externă, îmbătrânirea populației, structura economică și a ocupării nefavorabilă. De asemenea,

acumularea capitalului uman este influențată negativ de calitatea sistemului educațional, discrepanța dintre oferta și cererea forței de muncă calificată.

Numărul populației totale cu reședință obișnuită de 15 ani și peste, la începutul anilor 2016-2019, s-a redus cu 5,6%, de la 2 313,3 mii persoane la 2 184,2 mii persoane. Cât privește numărul populației active, acesta s-a redus cu 11,2% în perioada analizată, de la 1 035,3 mii persoane în 2016 la 919,9 mii persoane în 2019.

În principal, diminuarea numărului populației este cauzată atât de creșterea numărului persoanelor plecate peste hotare, cât și a unui spor natural negativ înregistrat în ultimii ani.

Rata de activitate calculată în baza populației cu reședință obișnuită a înregistrat o creștere de la 44,8% în 2016 la 45,9% în 2018, urmată de o diminuare la 42,3% în 2019, având loc atât o diminuare a forței de muncă active, cât și a populației totale în vârstă de 15 ani și peste. Activitatea economică a populației Republicii Moldova înregistrează o scădere, ca urmare a plecărilor masive a populației în străinătate cu scopul găsirii locurilor de muncă bine plătite, îmbătrânirea populației.

Cererea forței de muncă, estimată prin rata de ocupare a înregistrat o tendință oscilatorie. Conform datelor calculate în baza populației cu reședință obișnuită, rata s-a majorat până la 44,5% în 2018 față de 43,0% în 2016, fiind urmată de o scădere la 40,1% în 2019. Astfel, inclusiv evoluția cererii forței de muncă a servit ca motiv de diminuare a activității economice a populației pe parcursul ultimilor ani. Cât privește oferta forței de muncă, aceasta este analizată prin prisma ratei șomajului. Pe parcursul anilor 2016-2018, aceasta a scăzut de la 4,0 % la 2,9%, însă către anul 2019 aceasta aproape că s-a dublat, constituind 5,1%. Astfel, în ultima perioadă se conturează o situație de creștere a numărului persoanelor șomere în paralel cu o descreștere a numărului populației ce desfășoară activități în scopul obținerii veniturilor, ceea ce scoate în evidență incapacitatea pieței muncii de a genera locuri de muncă suficiente [9].

	2016	2017	2018	2019	2019/ 2018, %
Forța de muncă, mii persoane	1 035,30	999,7	1 018,10	919,3	-9,7
Populația ocupată, mii persoane	993,7	960,8	988,5	872,4	-11,7
Șomeri BIM, mii persoane	41,6	38,9	29,6	46,9	58,4
Populația totală cu vârsta de 15 ani și peste, mii persoane	2313,3	2267,2	2220,2	2184,2	-1,6
Rata de activitate, %	44,8	44,1	45,9	42,3	-7,8
Rata de ocupare, %	43,0	42,4	44,5	40,1	-9,9
Rata somajului, %	4,0	3,9	2,9	5,1	75,9

În perioada analizată poate fi observată o creștere a câștigului salarial mediu brut lunar cu cca 40%, de la 4 997,8 lei în 2016 la 7 233,7 lei în 2019. Totodată, o pondere semnificativă în rândul

salariaților ocupă cei cu remunera de peste 5 000,0 lei, ceea ce indică asupra faptului că creșterea salariului mediu în economia națională are loc din contul celor cu o remunerare înaltă.

**Tabelul 3.**Indicatorii privind forța de muncă pe plan internațional pentru anul 2019, %[11]

Țara	Rata de activitate	Rata de ocupare	Rata de șomaj
Elveția	84,3	80,5	4,4
Suedia	82,9	77,1	6,8
Olanda	80,9	78,2	3,4
Germania	79,2	76,7	3,2
Danemarca	79	75	5,1
Estonia	78,8	75,3	4,4
Finlanda	78,4	73	6,7
Norvegia	78,3	75,3	3,7
Lituania	78	73	6,3
Letonia	77,3	72,3	6,3
Austria	77,1	73,5	4,5
Cehia	76,7	75,1	2
Portugalia	75,5	70,5	6,5
Slovenia	75,2	71,9	4,5



Spania	75	63,3	14,1
Irlanda	73,1	69,5	5
Slovacia	72,7	68,4	5,8
Ungaria	72,6	70,1	3,3
Luxembourg	72	68	5,6
Franța	71,7	65,5	8,5
Polonia	70,6	68,2	3,3
Belgia	69	65,3	5,4
Grecia	68,4	56,5	17,3
Italia	65,7	59	10

Analizând principalii indicatori ai forței de muncă pe plan internațional pentru anul 2019, se observă că în rândul statelor europene analizate (membre OECD), cele mai înalte rate de ocupare a forței de muncă sunt atinse în Elveția, Olanda, Suedia, Germania, Estonia, Norvegia, fiind cuprinse între 75 și 80%, iar nivelul maxim de 80,5% fiind înregistrat în Elveția. La polul opus, ratele de ocupare a forței de muncă s-au situat sub 60% în două din statele analizate, cea mai scăzută valoare fiind înregistrată în Grecia (56,5%). Ratele de ocupare a forței de muncă sunt în general mai scăzute în rândul femeilor și al lucrătorilor în vârstă, în timp ce ratele de ocupare a bărbaților au fost în mod constant mai ridicate decât cele de ocupare a femeilor.

Cât privește rata șomajului în statele analizate, Grecia înregistrează cea mai înaltă cotă în mărime de 17,3%, urmată de Spania, cu 14,1% și Italia, cu 10,0%. De-a lungul anilor au fost înaintate diferite propuneri privind ocuparea forței de muncă, ce au vizat crearea de noi locuri de muncă din perspectiva cererii prin stabilirea unor modalități de încurajare a angajărilor, prin reducerea impozitării veniturilor salariale, printr-o mai bună sprijinire a întreprinderilor nou-înființate sau prin identificarea domeniilor economice cu un potențial important de creare a unui număr considerabil de locuri de muncă, cum ar fi economia ecologică, serviciile de sănătate și tehnologia informației și a comunicațiilor [12].

De menționat că un fenomen resimțit pe piața muncii este munca „la negru” și remunerarea

„în plic”. Ocuparea informală cu scop de evaziune fiscală implică costuri bugetare. Spre deosebire de alte forme de ocupare informală ca muncă din cont propriu sau în gospodăriile țărănești, în cazul angajării salarizate decizia de a intra în economia tenebră ține atât de angajator, cât și de angajat. Prin urmare, politicile publice orientate spre minimizarea angajării informale trebuie să ia în considerație factorii motivaționali care determină ambele părți să accepte asemenea forme de ocupare. Factorii care catalizează ocuparea informală cu scop de evaziune fiscală pot fi grupați în 2 categorii majore:

a) factori din partea cererii (din partea angajatorilor):

- disponibilitatea banilor în numerar;
- costul înalt al ocupării formale;
- costul scăzut al ocupării informale;
- impozitele aferente salariilor.

b) factori din partea ofertei (din partea angajaților):

- percepția negativă privind calitatea bunurilor și serviciilor publice;
- încredere redusă în sistemul de pensii;
- nivelul scăzut de încredere în instituțiile publice [13].

În vederea verificării respectării legislației în domeniul raporturilor de muncă și protecției drepturilor salariale, precum și întreprinderii măsurilor de prevenire și contracarare a fenomenului muncii „la negru” și a practicilor de achitare a salariilor „în plic”, de către organele de stat responsabile sunt aplicate diferite măsuri [14].

Astfel, prin măsurile de prevenire precum contactarea contribuabililor, organizarea ședințelor de conformare, efectuarea vizitelor fiscale se urmărește consultarea contribuabililor și explicarea aspectelor legislației fiscale, în vederea promovării conformării voluntare a contribuabililor. Urmare a aplicării măsurilor de prevenire, se efectuează monitorizarea obligațiilor fiscale calculate și achitate, iar asupra contribuabililor care nu sunt dispuși în continuare să se conformeze, sunt aplicate tratamente de conformare forțată, cum ar fi: efectuarea controalelor fiscale, aplicarea măsurilor de executare silită, instituirea posturilor fiscale. Toate aceste activități au drept scop majorarea nivelului de disciplină fiscală a contribuabililor, prin promovarea continuă a spiritului de conformare voluntară a contribuabililor la declararea și achitarea în termen a obligațiilor fiscale [15].

### 3. Concluzii.

Presiunea fiscală și plata impozitelor reprezintă un subiect important pentru economia țării. Astfel, plătitorul dorește ca intensitatea presiunii fiscale asupra veniturilor sale să fie redusă, și concomitent resimte o povară la plata impozitului la care este nevoit să se supună. Astfel, dorința plătitorului de a acumula veniturile câștigate înainte de creșterea presiunii fiscale, duce la dezvoltarea economiei paralele care, treptat, înlocuiește activitățile din economia reală. Consecințele acestui fapt sunt scăderea numărului de contribuabili, scăderea materiei și a bazei impozabile și ineficiența politicilor macroeconomice în domeniu. Totuși, putem menționa că statul colectează impozite și taxe pentru asigurarea cheltuielilor publice destinate societății (inclusiv contribuabililor), deci contribuabilii după o perioadă scurtă de timp devin beneficiarii resurselor atrase. Pentru stat, creșterea presiunii fiscale semnifică o îmbunătățire a mecanismului de finanțare a cheltuielilor publice, în timp ce o scădere a presiunii fiscale influențează nivelul deficitului bugetar.

Pentru determinarea nivelului presiunii fiscale, statul se conduce de obiectivele politicii fiscale, care stabilește principalele direcții de influență pe plan economic și social precum asigurarea echității, stabilității și transparenței fiscale; optimizarea presiunii fiscale; stabilizarea și simplificarea legislației fiscale.

De altfel, statul trebuie să urmărească implementarea unor practici cu scopul de a diminua evaziunea fiscală, fraudele fiscale, de a reduce corupția în sistemul organelor fiscale, de a spori eficiența utilizării banilor publici, ținându-se cont de ambii actori participanți la piața muncii, angajații și angajatorii.

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## Deploying Enterprise Root Certificate Authority

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**Abstract:** Corporate network security directly depends on the ability to analyze its traffic and, if necessary, block it. Taking into account the fact that almost all sites use a secure connection, monitoring such traffic becomes a cornerstone for information security process. To monitor such traffic, it is necessary to use a legal MITM attack (deep inspection). This creates additional risks, since such an operation requires the introduction of a third-party root certificate into users' machines, while guaranteeing the uniqueness and security of the private key for traffic decryption is nothing more than a formality. In this paper we examine the internal structure of a certification authority and security policies applying to such centers and analyze how OpenSSL protocol works in this context. Also, we show how to prepare all it is necessary for the issuance of “full” TLS / SSL certificates for use both in companies and for individuals. As a result, a process for the automated issuance of certificates for the needs of an enterprise will be proposed.

**Key-words:** Certificates, RootCA, OpenSSL, TLS, SSL, OpenSSL.

**UDC:**005.8

### Introduction

With the development of telecommunication technologies in general and the networks in particular, the task of providing users with secure access to information resources has become one of the most important, allowing them to avoid e.g., a man-in-the-middle attack. One of the ways to realize this task is the certification mechanism for participants of the information exchange. In order to ensure the interoperability of various software and hardware products (means of cryptographic information protection) used in such application services (WWW, e-mail, user authentication systems, etc.), cryptosystems based on encryption with a public key are used.

In a market economy, as in the concept “demand creates supply”, ensuring the safety of all of the above processes - has become a rather costly task. In the following, we will look at the method of deploying an enterprise certification authority that will allow a company to remove the financial burden, and we could summarize it in the form –“Security is free”.

### General objectives related to certificates implementation

When deploying a corporate certification center, one should take into account the fact that compromising the root certificate can lead to dire consequences and jeopardize the entire security of the organization. Based on this, attention should be paid to the security requirements for certification authorities:

- a. segment Certificate Systems into networks or zones based on their functional, logical, and physical (including location) relationship;
- b. apply the same security controls to all systems co-located in the same zone with a CertificateSystem;
- c. maintain Root CA Systems in a High Security Zone and in an offline state or air-gapped from all other networks;
- d. maintain and protect Issuing Systems, Certificate Management Systems, and Security Support Systems in at least a Secure Zone;
- e. implement and configure Security Support Systems that protect systems and communications between systems inside Secure Zones and High Security Zones, and

communications with non-Certificate Systems outside those zones (including those with organizational business units that do not provide PKI-related services) and those on public networks;

f. configure each network boundary control (firewall, switch, router, gateway, or other network control device or system) with rules that support only the services, protocols, ports, and communications that the CA has identified as necessary to its operations;

g. configure Issuing Systems, Certificate Management Systems, Security Support Systems, and Front-End / Internal-Support Systems by removing or disabling all accounts, applications, services, protocols, and ports that are not used in the CA's or Delegated Third Party's operations and allowing only those that are approved by the CA or Delegated Third Party;

h. review configurations of Issuing Systems, Certificate Management Systems, Security Support Systems, and Front-End / Internal-Support Systems on at least a weekly basis to determine whether any changes violated the CA's security policies;

i. grant administration access to Certificate Systems only to persons acting in Trusted Roles and require their accountability for the Certificate System's security.

It should be noted that failure to comply with one or more of the requirements is tantamount to complete disregard of safety requirements.

### Deploying a certification infrastructure

The deployment of an enterprise certification authority can be divided into three main phases, which are independent and can be performed on machines that are isolated from each other for security reasons in all cases except when a subordinate certificate is signing.

#### Root CA

Initially, we need to create a self-signed root CA certificate that you will use to sign intermediate CA certificates. At this stage, the most important thing is that the root certificate must be issued on a machine/virtual machine that is not connected to the network and/or has very strict firewall settings. Root certificate protection

is done by shutting down the machine (the best method):

```
#> mkdir rootCA
#> mkdir rootCA/{certs,db,private}
#> chmod 700 rootCA/private
#> touch rootCA/db/db.rootCA/db/db.attr
rootCA/rootCSR.conf
```

Now we need to enter the following configuration (edit with "nano", "vi" etc.) in the "rootCSR.conf":

```
[ req ]
    encrypt_key = no
    utf8 = yes
    string_mask = utf8only
    prompt = no
    distinguished_name = root_dn
    x509_extensions = extensions
[ root_dn ]
    countryName = MD
    localityName = Chisinau
    organizationName = National Root
    commonName = National Root CA
[ extensions ]
    keyUsage = critical, keyCertSign,
cRLSign
    basicConstraints = critical, CA:TRUE
    subjectKeyIdentifier = hash
```

It is worth noting that configuration parameters can be specified in a one-line version during generation, but using a configuration file is a much more convenient method.

Following the last instructions, we create and self-sign our root certificate:

```
#> openssl req -x509 -sha256 -days 3650 -
newkey rsa:4096 -config
rootCA/rootCSR.conf -keyout
rootCA/private/rootCA.key -out
rootCA/rootCA.crt
```

#### Intermediate CA

In the next step, we need to create an intermediate certificate signed by the root certificate to sign the certificate for the server that hosts the web portal and which can be used to generate certificates for other internal servers.

Like in case of the root certificate, we should

start by preparing the directories:

```
#> mkdir CA
#> mkdir CA/{certs,db,private}
#> chmod 700 CA/private
#> touch CA/db/db CA/db/db.attr CA/CA-
CSR.conf CA/rootCA.conf
```

A particular attention should be paid to the fact that all these operations can be performed on a different machine from the one that stores the root certificate (except for the signing stage).

Now we need to enter the following configuration (edit with “nano”, “vi” etc.) in the “CA-CSR.conf”:

```
[ req ]
    encrypt_key = no
    default_bits = 4096
    default_md = sha256
    utf8 = yes
    string_mask = utf8only
    prompt = no
    distinguished_name = ca_dn

[ ca_dn ]
    0.organizationName = National
    Cybersecurity Center
    organizationalUnitName =
    Cryptography Department
    commonName = National
    Cybersecurity Center
```

Next stage generates a new private key and create a certificate signing request:

```
#> openssl req -new -config CA/CA-CSR.conf
-out CA/CA.csr -keyout CA/private/CA.key
```

Now we need to configure (edit with “nano”, “vi” etc.) “rootCA.conf”:

```
[ ca ]
    default_ca = the_ca

[ the_ca ]
    dir = ./rootCA
    private_key =
    $dir/private/rootCA.key
    certificate = $dir/rootCA.crt
    new_certs_dir = $dir/certs
    serial = $dir/db/crt.srl
    database = $dir/db/db
    default_md = sha256
    policy = policy_any
    email_in_dn = no
```

```
[ policy_any ]
    domainComponent = optional
    countryName = optional
    stateOrProvinceName = optional
    localityName = optional
    organizationName = optional
    organizationalUnitName = optional
    commonName = optional
    emailAddress = optional

[ ca_ext ]
    keyUsage =
    critical,keyCertSign,cRLSign
    basicConstraints = critical,CA:true
    subjectKeyIdentifier = hash
    authorityKeyIdentifier = keyid:always
```

As a result of the following command will be generated and root-signed an intermediate certificate:

```
#> openssl ca -config CA/rootCA.conf -days
365 -create_serial -in CA/CA.csr -out
CA/CA.crt -extensions ca_ext -notext
```

### End-point certificate

The very last step is the issuance of the final certificate. To do this, we need to prepare a configuration file and directory:

```
#> mkdir certs
#> touch certs/serverCSR.conf
```

The following settings must be made in the configuration file:

```
[ req ]
    default_bits = 2048
    encrypt_key = no
    default_md = sha256
    utf8 = yes
    string_mask = utf8only
    prompt = no
    distinguished_name = server_dn
    req_extensions = server_reqext

[ server_dn ]
    commonName = Wildcard

[ server_reqext ]
    keyUsage =
    critical,digitalSignature,keyEncipherment
    extendedKeyUsage =
    serverAuth,clientAuth
    subjectKeyIdentifier = hash
    subjectAltName = @alt_names
```

```
[alt_names]
DNS.1 = *
DNS.2 = *.*
DNS.3 = *.*.*
DNS.4 = *.*.*.*
IP.1 = *.*.*.*
```

As we can see from the config file:

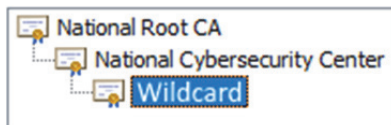
```
DNS = *, *.* , *.*.* , *.*.*.*;
and
IP = *.*.*.*
```

This suggests that the issued certificate can be used for absolutely any type of address and for absolutely any domains of 1, 2, 3 and 4 levels. If necessary, we can also add 5 or more levels.

The final step is to create and sign the final certificate.

```
#> openssl ca -config CA.conf -days 365 -
create_serial -in server.csr -out server.crt -
extensions leaf_ext -notext
```

The output will be a similar certificate (Figure 1), which can be used absolutely for any IDS/IPS system:



**Figure 1.** Certificates chain.

## Conclusion

Creating our own root certificate authority, root, intermediate and end-point certificate is a fairly easy process, but it allows analysis and protection of corporate network traffic as an integral part of

the corporate information security process. Possession of our own certification center has a beneficial effect on the convenience of network administration and as a whole on the security of the corporate network and can lead to a decrease in the financial burden on the enterprise, since the analysis and protection of the corporate network traffic is an integral part of the corporate information security process. And also, the ownership of such a center makes it easy to test encryption applications on the development stage using local certificates, which has a positive effect on the entire development process.

## Acknowledgment

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## Ensuring quality levels within frequent changed software product

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**Abstract:** Today, quality assurance is one of the most challenging areas of research and development. Being forced by technological trends and movements, the business is required to find out really fast solutions with the highest level of accuracy and efficiency. Therefore, the importance of delivering great and high-quality IT products becomes the number one purpose of each stakeholder. Considering the high severity delivery risks due to poor product quality and the complex architecture that needs frequent changes, the research is aimed to analyze the correlation between quality assurance management at each level of a product development and frequent changes it suffers being involved in Agile software development life cycle. Presenting the advantages and disadvantages of maintaining the quality standards for each application-level at any code change event allows to come up with a practical solution that helps to improve the final output, which would meet the business needs and provide a resolution for possible delivery risks. Thus, the research purpose an explicit view of the quality assurance processes within development activities by building a quality management system that provides high-quality for delivering frequent changed software products.

**Keywords:** Software quality assurance, Agile, quality management, quality standards, quality levels, integration, digital transformation, delivery.

**UDC:** 004.8

### Introduction

Our world runs on software, every business depends on it, every mobile phone uses it and even every new car relies on code. Good levels of quality are essential to achieve the business objectives. The quality standards are looking like a source of competitive advantages, which remains a hallmark of the Business's products and provided services. The article is not going to highlight the high quality as being a piece of added value as time as the quality is a basic and constant requirement. In the technology world there are defined variables and also constants, both are important, the particularity is that the constants are not changing in time. Looking at some project's life cycles we can assume that the quality is becoming a constant which has an expected output that should match with the actual one, meanwhile the financial, human and time resources are seen as a variable.

These are the trends of modern agile project

development. Having such constraints, it's clearly understood that the software products are frequently changed and maintaining the constant level of quality represent a big deal and enormous challenge. The management and development processes should be optimized in order to be as efficient as possible and continually improving.

The most important and difficult to handle resources are humans who are also directly responsible for the process and quality improvements. Each piece of work has an owner responsible for it. However, this approach is not applicable for large, scalable, and frequent changed software products, because:

- the product units are developed by a team;
- modern approach focuses on teamwork;
- human resources are permanently changed depend on the capabilities and necessities;
- each human being has a specific level of subjectivity regarding his work;
- each employee has a specific narrow specialization, where his/her expertise exceeded



the others colleagues.

The managers are providing pieces of training and an appropriate motivating environment to forecast teamwork both within and across organizational units for employees to improve processes and increase the quality of delivered capabilities. However, looking forward to the way frequently changed software products are built, there are no doubts that it is not sufficient to reduce the number of errors by motivating employees. There appeared a need for specialists who will be fully engaged in ensuring that the product or services meet the expected constant quality standards.

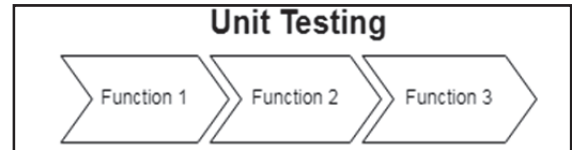
As result, the demand for quality assurance engineers increased dramatically. There is no business that would risk the quality of their products or provide services. The main role of the Quality Assurance engineer is to verify and validate the outputs and to provide feedback about the product or service quality at different levels and stages of development. In the context of frequently changed software products, even quality assurance engineers can admit errors regarding verification and validation due to the huge amount of work that is increased exponentially with each iteration.

The quality assurance procedures can be accelerated without losing good quality standards via automation quality systems. A company in the role of owner and sponsor of clinical trials can achieve its business objectives by managing and establishing a robust quality system with their integral quality demands, documentation including standard activities and patterns.

### Quality Assurance specifications

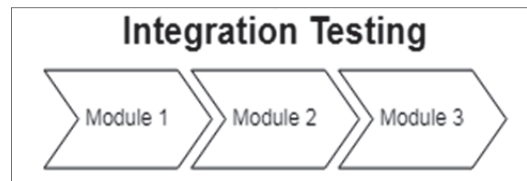
Before looking forward to a clear solution that would be applicable for ensuring quality standards of a frequently changed software product it is very important to understand the real specification against this. One of the first thing that has to be analyzed in details are the quality levels of the developed software products. There are several approaches and methodologies of developing software, and each one has its own particularities. However, going all the building processes and procedures there can be defined four main levels which would be identified in all software products. Each of the below-described levels has its own inputs, procedures, and outputs.

The first one is the *unit testing level* – also known as the lowest level of testing. The main goal is to test code units in order to make sure they are performing well their tasks. As is shown in Figure 1, the unit testing covers all the defined functions and methods in the code, such as *sum()* or *divide()*, and make sure that the function body logic is identical to the expected one.



**Figure 1.** Unit testing structure.

The second level is the *integration* one. Once all the units are built, the code should be integrated and make sure the components are correctly interacting. Without good testing at this stage, there is no sense to go ahead with testing the next levels, because there is not possible to get good KPIs from a system that contains one module with bad integration. In order to achieve objective reports related to integration, there should be defined integration testing tasks that will check the integrity of the relationship between the components. According to Figure 2, at this phase, the most important thing is to make sure that each module (consists of functions or units) is working perfectly in isolation.



**Figure 2.** Integration testing structure.

The third level is about to consume the most of the time resources. Its name is *system testing* and at this phase are tested all the interactions between the system modules. At some particular projects, there are involved even external dependencies which should be also counted. Having some complex tasks to do, there were developed couple of strategies of system testing like:

- Big Bang;
- Top Down;
- Bottom Up;

There are no mandatory strategies, and even the

ones from above can be adjusted, however the probability of achieving the best results in appropriate time will be facilitated by using one or even more of the above strategies.

The last level is a mandatory one because it represents the final validation and these processes are named - *acceptance testing procedures*. Without executing all the activities from this stage there are huge risks for going live with the software product. According to the Figure 3, the acceptance testing consists of 3 phases:

- Alpha – performed on development side;
- Beta – performed on client / delivery site;
- Gamma – performed on both sites.

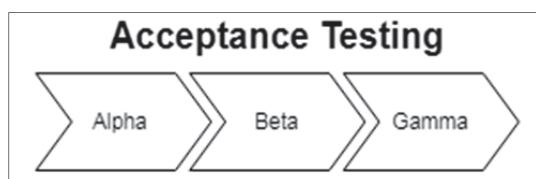


Figure 1. Acceptance testing structure.

Each level of testing is characterized by an environment, that is, a type of hardware, software, data, and interface. We also found that Unit and Integration testing are usually performed in a development environment. While for System and Acceptance testing, a production-like test environment is ideal. The cost of maintaining the software is much more than the cost of producing the software. To reduce this maintenance cost, the testing process across each of these levels should be efficient and well planned.

### Findings

To identify possible ways and opportunities to improve the quality assurance efficiency within a frequently changed software product was taken a specific example – a *parking area system*. The software goal is to process the captured events, analyze them automatically, and make correct decisions based on the car's check-in and check-out events. According to the business needs, there are highly demanded features that need to be ensured once the business becomes more competitive. The requirements which need to be implemented have different natures - functional or non-functional. Both of them are important from a testing perspective because changing a single little unit of

the existing software product can cause a huge impact on the other units. Therefore, once one feature is implemented the full testing is required at each of the specified above levels.

Having this constrain of frequent code change approached there was applied the Agile development lifecycle which provides a working and shippable product at the end of each development iteration. The research found out that the most time resources are spent on test activities, and the most fragile area of investments represents the system testing. Also, more than 80% of the found defects are identified in the first stages of the unit and integration testing, therefore only 20% of the defects are discovered as part of System and Acceptance testing. Considering that the unit and integration testing is fully covered with automated tests developed by software developer engineers, we can assume that most of the quality assurance resources are spent on the system testing. The current procedures for ensuring quality standards are executed manually.

### Opportunities and limitations

According to the researched business area which manages parking areas, there appears a fundamental need of ensuring the system stability during the working hours, which means that the system has to be fully functional 24/7. In the case of stability, the most important factor to take into consideration is the hardware resources. There is no good system that runs on poor hardware. The hardware represents a limitation that will always impact the system performance and outputs.

As a solution for this represents the integration with the most advanced technologies provided by the well-known company AWS – Amazon Web Services. The high level of expertise and advanced technologies transform this limitation into an opportunity for the business. Therefore, there appears a risk of testing the integration between the locally developed system and the provided services by AWS. This risk is considered a priority for the next practical implication of the research.

On another hand, there are a couple of opportunities that can help the business to deliver a good level of quality in short periods of time. The opportunity represents the automatization of the manual processes and integration of the quality management system within the continuous

integration and continuous delivery tools. Such approach is also named as automated test coverage via CICD. Therefore, the biggest part of the test team load which is allocated to test previously changed features and make sure there are no unexpected changes due to code intervention is going to be replaced by automatic tools. More than that, the responsibility for decision-making regarding release and delivery staff is also replaced by the CICD tools like Jenkins, AWS, Azure tools. All the above explained opportunities are also named as continuous testing.

The range of use cases for automated continuous testing is vast:

- **Consistency.** It allows us to apply quality and security requirements more consistently. If we record a manual security test and then automate it, as result it becomes a security requirement we can enforce on every build.

- **Speed.** With automated continuous testing powered by scalable tools, developers can find and fix issues in real time throughout the SDLC. Doing so speeds up application development and reduces errors common to manual testing.

- **Scale.** To scale manual testing, we need more manual testers. To scale automated testing, we only need more apps and builds to test.

According to Accelerate Building and Scaling High Performing Technology Organizations [1] the acceleration via continuous testing helped the complex software products to improve the following capabilities:

- identify twice more bugs in early stages;
- reduce with 70% the time to market;
- reduce with 50% the financial investments in the testing activities;
- increase the client confidence with 20% by providing a transparent feedback, etc.;

Complex technologies are the only way through which software product quality can be managed. However, it is not enough to consider technologies as priority, because at the same level of importance comes the quality evaluation, which is delivered and managed through the communication with stakeholders. An essential need into this direction is to ensure a communication channel between stakeholders and the quality management system. The above research findings and enumerated

confirmations were based on GHERKIN approach which allows to describe the business scenarios by using the common formula GIVEN-WHEN-THEN. Gherkin approach allows the continuous testing to understand the business scenarios written by stakeholders and run them against the recently changed system with no additional efforts, by using the CICD pipelines.

Overall, the practical implications represent an automated quality assurance system that is integrated into CICD pipelines and allows the team to rebalance the testing efforts so that the human load previously allocated for testing is replaced by automatic procedures. The automatic procedures allow to confirm the above findings by practical evidence.

## Conclusion

Continuous testing is the single way that allows optimizing the quality assurance activities within the development process of a frequently changed software product. The above-described capabilities and findings are confirmed by proven evidence which is the output of the research practical appliance.

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## Security features of information system that use microservice architecture

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**Abstract:** In this paper we investigate how can be provided security of an information system, which uses a microservice architecture. So, using of microservice architecture means that information system can be easily developed, deployed, and tested, but, on the other hand it means that it should be protected differently than the information system using monolith architecture. Firstly, a software architect should decide if each service should be protected separately or should be better to protect the system on the whole. Choosing the right way of protecting is very important, because, in some cases, protection of each service separately is not the best idea, as this could lead to code duplication. This means that, in case of necessity of changes a piece of code or fixing a bug it should be done everywhere this code appears. To avoid this, there are developed some services - so called gateways, which, also, very often have implemented the function of user/client authentication and authorization using protocol OAuth 2.0. Anyway, at each stage of development and implementation of a software product, it is necessary to solve many security related problems, and if it will not be done properly, then the company may incur enormous material losses or even may be closed.

**Keywords:** microservice, OAuth 2.0 protocol, cloud infrastructure, information system security, gateway, software architecture.

**UDC:** 004.41

### Introduction

Information is a product that can be bought, sold, or exchanged, and very often the cost of the data that is stored in the system exceeds the cost of the information system itself. In addition, information systems can store information with personal data of people, the leakage of which can negatively affect not only the company's image and its economic performance, but also ordinary people, data about which were obtained by unauthorized client. It is difficult to predict how such data might be used. In the best case, the data will not be used at all or will be used, for example, for targeted advertising. In the worst case, a person may be subject to blackmail or lose money from their accounts. Anyway, the data must be carefully protected.

Protecting information systems using a microservice architecture differs from protecting a monolithic architecture. A feature of the microservice architecture is that such systems are

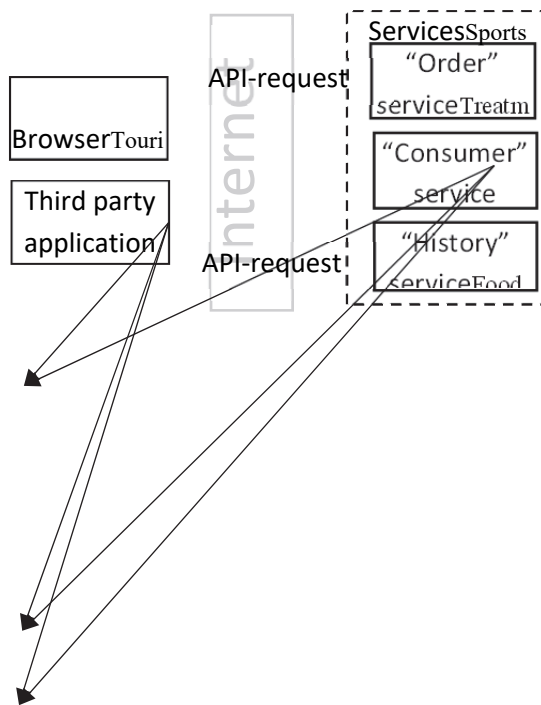
divided into tens or hundreds of small services, each of which must perform its function and, respectively, must be protected [1]. In addition, each of these services can be used by different clients: a browser application, mobile applications (with different operating systems), as well as applications written by third-party developers, etc. Often different clients need different data. Mobile app can reflect less data than desktop user application, and some functions may be hidden altogether.

Firstly, will be identified which issues exist on direct access to the service. After it will be described the characteristics of API gateways, its advantages and disadvantages, and an example of how to implement such edge functions as authentication and authorization using the OAuth 2.0 protocol.

### Issues of directly accessing services

As it was mentioned, each of the services can be used by different clients. One of the options for

designing an information system is that clients access services directly through the Internet (or, less commonly, through a local area network), as is shown in the Figure 1.



**Figure 1.** An example of a scheme of requests to services directly from different clients.

At first glance, this sounds pretty straightforward - after all, this is how clients call services in monolithic applications. However, this approach is rarely used in a microservice architecture because it has the following disadvantages:

1. To retrieve the desired data using finely divided services, clients will need to make several requests, which is not efficient and convenient. Too much communication between the application and services can adversely affect the responsiveness of the application, especially if it passes over the Internet. Perhaps, in some cases, requests can be executed in parallel and, in this case, the total time of all requests will not be more than in the case of one request. But sometimes the requests have to be executed sequentially, which reduces the usability of the client. Also, developers of client applications have to write rather complex code to combine

services, which, moreover, may not work well on weak devices, but also distracts the developer from their main task - from creating convenient user interfaces. If the user uses it from a mobile device, then for each of his network requests is consumed electricity, which drains the battery faster.

2. Large applications with many users can be deployed on several servers in order to reduce the waiting time for a service response. In this case, there will be several threads of execution that the client should know about, and moreover, the client could know which thread to send the request to.

3. Each non-public service must have a security filter that will check whether the user has the right to make a request and what information the user can receive in response to the request. Consequently, the need for any change in one of these filters often leads to the fact that such a change must be made in each service the number of which, for one information system, can reach tens of hundreds.

4. As the information system evolves, service developers sometimes change the API and their endpoints, disrupting the work of existing clients. This is due to what is known as insufficient encapsulation. Developers can add new services or split/merge existing ones, and if information about services or endpoints is embedded in the client application, changing them can be difficult. Unlike updating services, deploying a new version of a client application can take hours or even days. For example, an update for a mobile app must first be approved by a corporation such as Apple or Google, depending on the app store, and made available for download. At the same time, no one guarantees that users will download it immediately (or even ever).

5. A separate problem is the fact that many organizations provide their services to third-party developers to integrate third-party information systems or applications with the organization's information system. Based on this, third-party developers need a stable interface. When a new version of a service comes out, it is necessary to get third-party developers to use it, but very few organizations succeed. If an app's API becomes unstable, third-party customers may stop supporting it and move on to competitors. This means that the development of APIs that are used by other organizations must be carefully considered. This

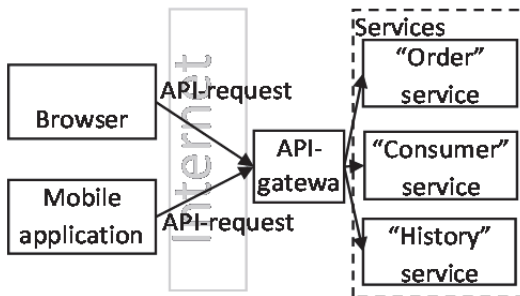
usually requires maintaining old versions for a long time, or even keeping them forever, which is a huge burden on the organization.

Instead of giving customers direct access to services, organizations often have a separate public API that a separate team develops. Further will be described the public architectural API component, better known as the API-gateway.

## API Gateway

### API Gateway characteristic

An API gateway is a service that serves as an entry point to an application from the outside world. This means that the integration of all APIs over the Internet is no longer at the client level, but at the service or back-end level. It is responsible for routing requests and for some third-party functionality such as authentication. Thanks to the API gateway, the client does not need to make many requests to services, but only needs to make one request to the service, which serves as a single-entry point for API requests in the application. An example of a scheme of requests through the API gateway is shown in the Figure 2.



**Figure 2.** An example of a scheme of requests to services through an API gateway from different clients.

So, all requests made by external clients first go to the API gateway, which routes them to the appropriate services. The API gateway uses API aggregation to process other requests, accessing different services and aggregating the results.

Perhaps a few words should be said about another key function of the API gateway - request routing. Some API calls are implemented by directing requests to appropriate services. When the API gateway receives a request, it checks the

routing map to determine which service to route the request to.

Of course, the main responsibilities of an API gateway are routing and API bundling, but it can also take over the implementation of edge functions. An edge function, as the name implies, is a request processing operation at the application boundary. Examples include:

- authorization - checking that the client is allowed to perform a certain operation;
- authentication - checking the authenticity of the client making the request;
- limiting the frequency of requests - control over how many requests per second a certain client and/or all clients together can execute;
- caching - responses to reduce the number of requests to services;
- query logging - writing queries to the log;
- metrics collection - collection of API usage metrics for analysis.

### Advantages and disadvantages of API gateways

The API gateway pattern has many positive aspects, but it is clear that there are no perfect technologies, and therefore the disadvantages of a gateway should also be known.

The big advantage of using an API gateway is that it encapsulates the internal structure of an application. Instead of calling certain services, clients only need to communicate with the gateway. Each client receives a separate API, which in turn communicates with the services, which reduces the number of requests between the front-end and back-end. It also greatly simplifies the client code.

On the downside, the API gateway will be another component that needs to be developed, deployed, and administered. In addition, there is a risk that the API gateway will slow down the development of the information system. It should be updated with every new service deployed.

### OAuth 2.0 protocol

As discussed above, an API gateway can implement edge functionality. One of the convenient means for implementing the client authentication and authorization function may be the implementation of the OAuth 2.0 protocol. In addition, it is excellent tool for protecting information system in a whole.



So, the OAuth 2.0 protocol is an open authorization protocol (scheme) that allows a third party to provide limited access to a user's protected resources without the need to transfer to it (a third party) a login and password [3].

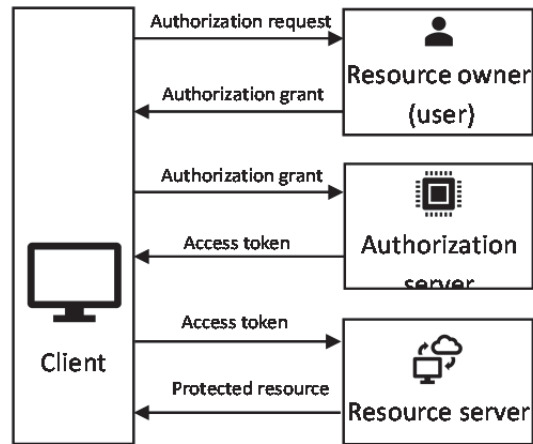
Protocol OAuth 2.0 defines four main roles:

- *Owner of the resource.* The owner of the resource is the user who authorizes the application to access his account. The application's access to the user account is limited to the “scope” of the authorization rights granted (for example, read or write access).
- *Resource server.* The resource server directly stores the protected data of user accounts and often also acts as an authorization server.
- *Authorization server.* The authorization server verifies the authenticity of the information provided by the user, and then creates authorization tokens for the application, through which the application will access the user data.
- *Client.* The client is the application that wants to access the user's account. Before being accessed, the application must be authorized by the user, and it must be approved by the API.

Below it is described step-by-step the process presented in the Figure 3:

1. The application asks the user for authorization to access the resource server.
2. If the user authorizes the request, the application receives an authorization grant.
3. The application requests an authorization token from the authorization server by providing information about itself and authorization from the user.
4. If the application is authenticated and the authorization permission is valid, the authorization server generates an access token for the application. The authorization process is complete.
5. The application requests a resource from the resource server, while providing an access token for authentication.
6. If the token is valid or, for example, it has not expired yet, the resource server provides the requested resource to the application.

The actual order of the steps in the described process may differ depending on the type of authorization you are using, but the overall process will look like this.



**Figure 3.** Client request scheme for granting access to a user to his protected resources.

So, the whole process described above means that every request sent to the API gateway must be accompanied by an access token. An example of an access token string is presented below:

“eyJpc3MiOiJodHRwOi8vZ2FsYXhpZXMuY29tliwiZXhwIjoxMzAwODE5MzgWLCJzY29wZXMiOiSiZXhwG9yZXIiLCJzb2xhci1oYXJ2ZXN0ZXIiXSwic3ViIjoic3RhbmRybmRyb21lZG EuY29tIn0”.

It would be difficult to counterfeit such a token. In addition to all these, the token is often subjected to symmetric encryption, and when it enters the API gateway, it is decrypted and checked to see if it is valid. If the token is valid, then the request is redirected to services.

## Conclusions

Nowadays, when the world is closely associated with information technology and, information is a key resource, data security is becoming one of the key aspects in the activity of each enterprise.

Today, microservices architecture is one of the most popular architecture on developing an informational system, and more and more often big organizations uses this type of architecture. However, as mentioned earlier, there are no ideal technologies, so information systems using a microservice architecture must also be protected, that can be done by implementing the OAuth 2.0 protocol or an API component such as an API gateway.

### **Acknowledgment**

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sharing them with their peers. This boosts their research, career and innovation. [www.cost.eu](http://www.cost.eu).

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# DEVELOPING INSTANT INTERACTIVE IN-CLASS FEEDBACK THROUGH THE USE OF ICT

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**Annotation.** This article covers various services for organizing fast feedback through mobile technologies. The author highlights the advantages and disadvantages of the services, describes the distinctive features of each service for organizing feedback.

**Keywords:** online, service, quiz, feedback, advantages, disadvantages, technologies, characteristics.

## 1. Introduction

Organizing feedback in the classroom is a key issue for educators. To provide feedback, the teacher must be skilled in the use of advanced technology.

Learning based on mobile technologies and tools makes a huge contribution to the development of the educational process. Most of the students have mobile devices. Schools are taking steps to combat the use of devices in the classroom, as students are distracted and skipped, but mobile technology can also be helpful in providing feedback during computer science lessons. In the Republic of Moldova, the method of using mobile devices has not gained much popularity and is not yet sufficiently implemented, and is used in the educational process, but nevertheless this method takes place in other countries and is very popular.

## 2. General Points

Mobile technologies have appeared relatively recently. The emergence of online services based on the Android, iOS, Windows system allows instant feedback to the teacher and timely adjustments to the methodology for studying the topic for more successful mastering of the material. This increases students' interest in the subject and helps the teacher to monitor quickly the assimilation of knowledge.

Nowadays, there are many online services and mobile applications that help a computer science teacher to organize the feedback during the lesson in an unusual form. The most popular online services are: Kahoot, Plickers, Class Responder, Socrative, Quizizz, Quizalize, Triventy. Let's take a brief look at the analysis of each of the services.

*Kahoot*- a free online service for creating quizzes, polls, didactic games with the choice of the correct answer on mobile devices. The service is quite easy for the teacher to use. This service allows us to upload video, audio materials, and images.

The work algorithm is as follows:

1. The teacher creates questions on a topic for getting the instant feedback on the assimilation of the material. All questions are saved on the teacher's account.

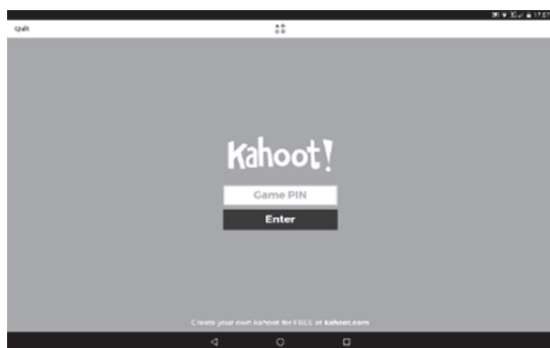
2. The student installs the Kahoot application on a mobile device with Internet access or goes to the website on a personal computer via a browser <https://kahoot.it/> [1].

3. The teacher announces to the students the pin - code for the quiz, the students enter the quiz code and their name. The application interface is shown in Fig. one:

4. After authorizing all students, the teacher starts the quiz. Questions and answer options appear on the screen, and students on a mobile device or personal computer select an answer option.

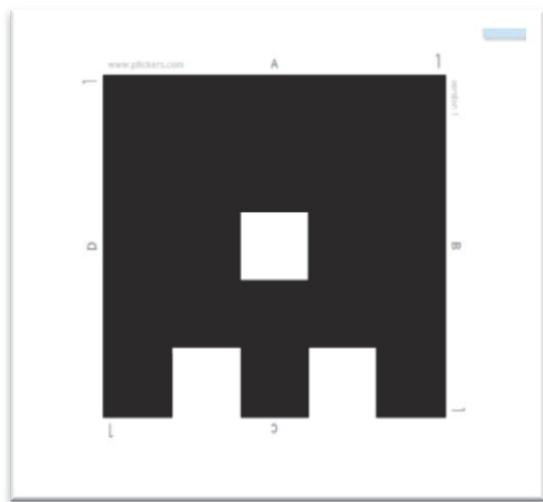
5. At the end of the quiz, the teacher receives the students' results and analyzes them

independently or together with the students.



**Figure 1.** Kahoot mobile app interface

*Plickers*- an online service that does not require each student to have mobile devices, it is enough to have one mobile device - a smartphone for the teacher and special cards for each student. These cards represent an image in the form of a QR code. Each side means one of the answer options (A, B, C or D). An example of a student card is shown in Fig. 2:



**Figure 2.** Student card

The teacher registers on the site <https://www.plickers.com/> and creates the class and the test needed. For each card, assigns the last name and first name of the student to obtain the data of the survey result. In the lesson, the teacher reads out the question and answer options or pre-creates a presentation with questions and answer options. Students hold the cards up with the side

they believe is the correct answer. The teacher scans the results using a mobile device and the data is recorded on the service. This service allows, with minimal technical equipment, to organize feedback at a computer science lesson.

*Class Responder* - a simple and free platform that allows us to answer different types of questions. This platform consists of two parts: Class Responder: Teacher (teacher application), Class Responder: Student (student application).

The process of organizing feedback, preparing and setting up quizzes, surveys is not difficult. To design a survey based on the material covered, the teacher must download the Class Responder: Teacher application and create an account. After authorization the teacher must assign a code to the class that will be used by students when taking the survey. After the teacher has created a survey, students open the Class Responder: Student application on their mobile smartphone, enter the class name and code, and answer the questions (Figure 3):



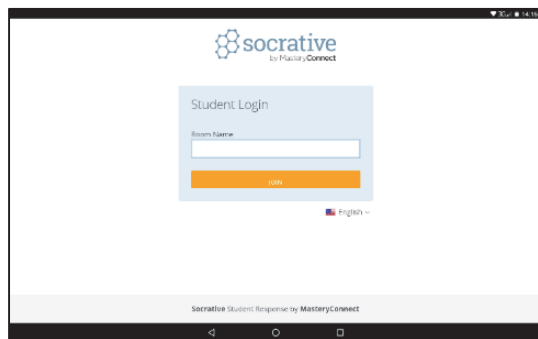
**Figure 3.** Class Responder Application

#### Interface: Student

Students do not need to create their own accounts, register, which saves time for preparation. The teacher can immediately see the results of the students on their devices, which allows teachers to understand the students' mastering of the material. Service interface of the service is English [2].

*Socrative* is a free application for creating a mobile survey, quizzes, etc. The application provides real-time feedback, students answer questions using their mobile devices. Socrative is one of the most popular mobile survey platforms, allowing teachers to create different types of

questions and download reports with student responses. With the help of the application, the student has the opportunity to see his result after answering a question. In terms of the form of organizing feedback, the application is identical to the Class Responder. There are also two modules (Teacher and Student), the teacher creates an account, class name and test and during the lesson opens access for the learners. Students on their devices in the application enter the name of the class, Surname, Name and answer the questions (Fig. 4):



**Figure 4.** Socrative: Student app interface

The teacher has the ability to create quizzes, polls, using questions of three types: multiple answer questions; to establish: true or false; input of the answer.

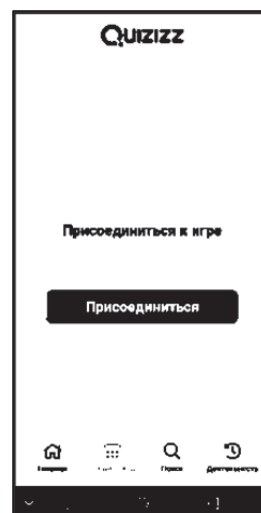
In the application Socrative, the teacher can add explanations to each question.

Students can get work done at their own pace. It is possible to skip the question, or even change the answer, before sending the quiz to the teacher. The interface is available in English.

*Quizizz* is an online service for creating quizzes, surveys, online tests, didactic games with the choice of the correct answer on a mobile device. Quizizz is a tool for instant feedback in the classroom and a great distance learning opportunity as the student has the ability to take a test or survey at home, either in parallel with the class or at any time. The service has a huge range of ready-made online tests, quizzes on various topics, as well as easy, understandable functionality for the teacher to create their own didactic games, quizzes, polls [3].

The results of the passed tests, quizzes, both in the classroom and at home, are displayed in the

teacher's personal account. One of the positive features of using the service is the ability of students to answer questions at an individual pace, since both the question and the answer options are displayed on the screen of the mobile device. The student can move on to the next question without waiting for answers from other participants. The application interface is shown in Fig. five:



**Figure 5.** Quizizz mobile app interface

Another service for creating polls and quizzes that a teacher should pay attention to is Quizalize. Students can answer quiz questions on their laptops, tablets, or smartphones by going to the Quizalize website by entering their names and class code. For the correct answers to questions, they receive points. A total score is presented to each participant, personally, at the end of the test. The service has the ability to organize both group work and individual work. The teacher can organize feedback using the service, using a large screen or an interactive whiteboard. Also, using the service, we can create tests and quizzes on various topics, organize intellectual games and express polls of students in the classroom, offer them a quiz as homework [4, p. 48].

Quizalize, like Quizizz, also offers quizzes created by other users. These educational resources are freely available, but there is also paid content. Creating and playing your own quizzes is completely free. Quizalize has a big advantage over other platforms.

On most other platforms, students must play

at the same time. In Quizalize, as in Quizizz, students are not tied to direct participation in a quiz or test. They can complete tasks at their own pace. The teacher is not tied to a computer. At a convenient time for him, he enters the program and sees the results of the students' performance of the test [5].

The Triventy platform is a game platform that allows us to create interesting quizzes, run and conduct them; the platform can be used in the classroom as well. Students use mobile technologies to participate in the quiz, survey, and do not pre-install any software. When organizing feedback in the lesson, the teacher starts the quiz on the big screen. This service allows the teacher to create various quizzes, polls on his computer, and students have the opportunity to answer

questions on their mobile devices. Points are awarded not only for the correct answer, but also for the speed, thereby creating an educational and game competition between the participants. Students, in order to complete the quiz, just follow the link given by the teacher and enter the quiz code.

Possibilities of using the Triventy service in educational activities:

- as a feedback tool;
- to conduct tests / questionnaires / quizzes on various topics of the school curriculum and the organization of mind games;
- as tasks for students - joint compilation of questions on a given topic and then the direct implementation of the test by the whole class.

Comparison criteria	Kahoot	Quizizz	Quizalize	Plickers	Class Responder	Socrative	Triventy
The need for the Internet	+	+	+	+	+	+	+
The need for a smartphone or computer for students	+	+	+	-	+	+	+
The teacher needs a computer and a projector when starting the quiz	+	+	+	+	-	-	+
The ability to collaborate group work	+	-	+	-	-	-	+
Inserting objects into a test	+	+	+	-	+	+	+
Testing time limit	+	+	-	-	+	+	+
Ability to set the grading scale	-	+	+	+	+	+	+
Free product distribution	+	+	+	+	+	+	+
Simplicity of the interface	+	+	+	+	+	+	+
Russian language interface	-	+	-	+	-	-	+
Ability to keep statistics	+	+	+	+	+	+	+

**Table 1.** Comparative analysis of feedback applications

The main difference between the Triventy service and other online services such as Kahoot, Quizizz and Quizalize is that it is possible to develop quizzes / surveys together with students.

The presence of this function also helps the teacher to receive feedback on the questions created by the students. Also in this service it is possible to select a hint during the "game",

remove the 50/50 answers and see how the majority of the quiz participants answered. The service has a Russian-language interface and is integrated with Google Classroom.

To connect to the quiz / survey, students just need to follow the link [triv.in] and enter the quiz code generated automatically by the system, or use their smartphone to read the QR code and enter their name, waiting for all participants to connect. After connecting all the participants, the teacher starts the quiz.

Features of the service:

- Russian-language interface;
- the ability to work together on the development of a test / quiz / survey on the Triventy platform;
- the ability to organize group work in the service.

The teacher can organize a joint work with a quiz in the classroom using a large screen or interactive whiteboard.

Mobile services provide a huge range of opportunities for providing feedback during computer science lessons. Table 1 presents a comparative analysis of online services for organizing feedback in the classroom using mobile technologies.

The result of a comparative analysis of mobile services shows that each of the considered resources has a wide range of opportunities for fast feedback. The use of mobile services at the computer science lessons while organizing the feedback relieves tension among students. The teacher receives the results of the students. The use of the proposed web services helps the teacher in organizing feedback at computer science lessons at different stages: learning new material, while repeating the material, and also as an element of individual or group work.

Modern web services provide instant feedback with minimal expenditure of finance, time and effort. They put students in the same conditions when completing assignments, while the assessment of the results and subsequent work do not depend on the subjective opinion of the teacher. Their use allows teachers to establish instant feedback with each student, makes it

possible to quickly track and correct the learning outcomes [6, p.148].

The use of information technology in organizing feedback in informatics lessons has been and will be an urgent problem in the educational process. Due to the rapid growth in the development of information technologies, their implementation is increasingly spreading in all spheres of human life, in particular in education. The choice of one or another tool helps the teacher to instantly organize feedback and get the result of his efforts, namely the level of mastering the material.

### Acknowledgment

In the course of the research, the literature and Internet resources devoted to the research topic were analyzed. An analysis of the theoretical aspects of organizing feedback in computer science lessons was made, as a result of which the following work was done:

- The theoretical aspects of organizing feedback in the educational process in computer science are analyzed.
- Software products and online services for feedback have been analyzed.
- To organize feedback during the informatics lesson, a quiz for grade 9 was developed on the online service Quizizz on the topic: "Input / output of alphanumeric information", on the online service Triventy a quiz for grade 7 on the topic: "Electronic presentations", for grade 8 a quiz on Quizalize on the topic: "Algorithms. Properties", as well as on the Plickers platform a computer science quiz for grade 7 on the topic: "Computer structure".

The paper describes the main types of feedback, methods, and also discloses the issue of the peculiarities of using IT in organizing feedback during informatics lessons. We have analyzed the technical capabilities of various online services and software for organizing instant feedback in the classroom, presented methodological aspects for creating and applying various quizzes / polls at different stages, and suggested the most optimal ones for the teacher. In addition, it offers basic recommendations for the application at different stages of training, the corresponding feedback tools.

The work will be useful not only for

students of the pedagogical direction, novice teachers, but also for experienced teachers allowing them to look at the feedback stage in the classroom from a different angle. This study is aimed at improving the educational process, at the practical application of new technologies in the teaching process and at organizing feedback during the lesson, based on the principles of learning differentiation and focused on the free development of the student's personality.

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# Consciousness through the scope of the 9-Layered Model of Giftedness

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**Abstract:** The 9-Layered Model of Giftedness is an innovative theory about intelligence and its relation to consciousness. Consciousness is a mental state, which involves a long effort to reach as it presupposes the acquisition of a set of cognitive and metacognitive skills in combination with other personal characteristics, such as volition, perseverance, wisdom and prudence. Thus, the key to reach consciousness lies both on cognitive science and the ancient greek philosophical concept of self-consciousness. Cognitive science can assist in training human cognition and emotion, while self-consciousness proclaims the role of knowing ourselves in order to understand other people and capture the meaning of things around us. In this journey, we may come to realize the true meaning of our existence, learn from each other, improve each other and believe that humanism is the ultimate value. That is to share our knowledge, skills and personal virtues with others in order to live better now and in the future. The originality of this model lies on the interdisciplinary analysis of self-transcendence as a critical element of human consciousness, through which people can learn, preserve their health as well as evolve and transform future societies.

**Keywords:** Neuroscience, Cognitive Science, Sustainability, Consciousness, Giftedness, Intelligence

## Introduction

Metacognition interferes both with attentional and emotional processes as well as it refers to a set of beliefs regarding how to regulate and control our thinking processes. However, metacognition can also point to maladaptive metacognitive knowledge [1]. According to the 9-Layered Model of Giftedness [2], consciousness represents both a person’s mental capacity and a person’s set of beliefs, which together can improve individuals’ cognitive flexibility, adaptability and resilience. Therefore, the 9-Layered Model of Giftedness argues that consciousness is a neuropsychological construct, encompassing cognitive skills, metacognitive skills and the beliefs set in a person’s mind about himself as well as the beliefs he or she owns about society and the world, in general.

Furthermore, consciousness can be built in a person’s lifetime through intriguing, cognitive experiences as well through training ourselves on how to develop our cognition. In other words, we can improve both our skills as well as our state of mind in order to handle stressors and avoid

ideations. In a way, we consider that consciousness can bring internal peace and can cover humans’ top-level need, self-actualization, according to Maslow. Moreover, we consider that an individual can reach self-actualization through sharing knowledge and skills to the benefit of all human beings.

According to our model, giftedness necessitates a person to believe in the significance of personal values, such as having persistence, patience and endurance in combination with societal values, such as compassion, humanity and self-transcendence. In this case, altruism designates a means to reach our personal peace and serenity, but also it can bring societal benefits, such as social prosperity and sustainability. In total, a person can certainly live better in a society with people sharing such values and skills.

## 2 Consciousness and Brain Sciences

There is compelling evidence for a role of the cerebral cortex in conscious experiences [3], encompassing our executive functions. Higher cognitive skills, such as creativity, problem solving,

decision making, social skills as well as self-regulation skills are severely influenced by our executive functions. Our executive functions control the information processing taking place in our memory and therefore, it can be parallelized to our personal torch, which can shed light on either top-down (internal) or bottom-up (external) stimuli [4].

Consciousness in a neuropsychological sense assists people to preserve their attention, while controlling bottom-up thoughts that distract them or confuse them. Attentional control is a major part of consciousness, involving the brain mechanisms calibrating the processes of internal and external stimuli [5]. However, stimuli can be created, not only through our senses. Stimuli can rise from an imaginative trigger and form simulations of the future [6].

Externally or internally originated stimuli can be actually captured and maintained subconsciously [7]. Often, there is an imbalance between stimuli that we process in real time and stimuli that our brain leaves in the background, for asynchronous interpretation. Moreover, individuals who are keen on emotional stimulation tend to accumulate unprocessed information due to the heavy workload [8, 9]. The processes in the amygdala can be driven unconsciously and do not necessarily reflect conscious emotions [10]. For example, mismatches between what one expects and what actually happens create a state of inner discordance or dissonance [11].

Today, “post decision rationalization” is an active research topic that examines how people retroactively justify their decisions and actions in life in order to avoid stress, depression and mood disorders [12]. Therefore, unconscious information/implicit memories can in fact be manipulated only through the prefrontal cortex and the reconstruction of our explicit memories.

### 3 Consciousness and Metacognitive Skills

Consciousness involves higher cognitive processes that depend, at least in part, on the prefrontal cortex. This conclusion is consistent with contemporary cognitive theories of consciousness, including the global workspace theory [13] and the higher-order theory [14].

Attention and consciousness are related. According to cognitive science, consciousness is

founded on metacognitive skills, such as self-reflection, self-monitoring and self-regulation.

As individuals grow, their metacognitive skills arise, and reflect on the information processing skills we possess. However, as we grow the information workload becomes even harder to manipulate and our brain is either too busy or too tired to deal with the pile of information stuck in our subconscious. The information that surpasses humans’ synchronous processing from their brain is an emotionally loaded content.

The difference between animals and humans lays on the latter’s ability to conceive and store information. Therefore, more information elevates the risk for overload of a backend pile of unprocessed information.

A basic distinction in the layers of human consciousness is sensory consciousness as opposed to higher-order consciousness. Primary or sensory consciousness consists in the creation of a neural multimodal scene, while higher-order consciousness involves the same aspects of primary consciousness, with the addition of a frame of reference that can “access” the past, present, and future, a sense of self and the ability to construct past and future representations [15].

### 4. Consciousness and Giftedness

We argue that conscious people balance their cognition and their emotion [4]. Moreover, our model suggests that conscious people combining humanitarian values, such as humanity, compassion, altruism are gifted. Gifted people share their abilities with other people and the society, in general. Gifted people consider that sharing is their reward and it is satisfactory. Just as neuroscience has shed light on the neuropsychological functions of the brain, our model emphasizes on the motivation behind the human reward system. Therefore, gifted people are strongly motivated through actions of sharing and caring. Furthermore, Plato through his emphasis on self-knowledge as well as Dalai Lama, Johann Wolfgang von Goethe, Mary Wollstonecraft and Andreas Kalvos spoke about self-awareness and its importance to realizing the ultimate purpose of our life, shaping a better world. A better world symbolizes an aspiring vision requiring knowledge, skills and certain personal virtues, such as courage, commitment and perseverance [16, 17].



The 9-Layered Model of Giftedness delineates a framework of knowledge around the meaning of consciousness in several scientific fields, such as education.

### **5 The Contribution of Consciousness to Education**

Consciousness in the field of Education is congruent with lifelong learning and self-improvement, thereby, enhancing educators' cognitive flexibility, resilience and adaptability [18]. A very effective intervention in schools should target teachers' and students' training in their metacognitive skills in order to deal with burnout as well as anxiety disorders and misconduct. The significance of such an intervention lies on the fact that mentally healthy teachers and students make education a personal and a community empowerment tool.

The 9-Layered Model of Giftedness considers that conscious teachers and students are aware of the physical and psychological processes taking place in their body as well as of the values that have a positive effect on their behavior, health and wellbeing. In addition, conscious teachers and conscious students have realized the eminent role of systems thinking in their everyday life. They are able to conceive the commonalities among the human incentives, human thinking and the human behavior, in general.

As a result, the stakeholders of education have respective gains, the school climate is substantially improved and the societal advantage is indisputable [19, 20]. Consciousness as part of the school ethos can alter the working climate, the relations among teachers, students and their parents as well as trigger teachers' professional development. Therefore, a school that is ready to work on students' consciousness shall create active citizens as the depositaries of a sustainable and prosperous society.

Nevertheless, the educational setting may vary, such as in an online environment. In this case, metacognitive skills regarding students' thinking processes and self-efficacy beliefs gain additional value [21].

Such knowledge, skills and values should be the base of the reconstruction of any school curricula and thus, human societies.

### **6 The Contribution of Consciousness to Food Science & Consumer Education**

Our model is grounded on the basic principle of consciousness: making a viable future for humans, societies and the environment. A sustainable future in food and nutrition means sharing the following common goals: healthy eating and cost-effective consuming patterns as well as eco-friendly farming, processing, packaging, refrigeration and delivering of foods. For the deployment of such aspiring concepts, we need to produce sound knowledge and infuse cooperative practices that can promote trust among consumers, industries and states, globally.

The future of food lays on conscious consumers, conscious industries and conscious states. Conscious states worldwide should enhance citizens' best practices on diets and consumer habits in order to improve their quality of life. Moreover, knowledge and qualitative communication are indispensable characteristics for infusing trust in complicated circuits, such as the circuit among consumers, industries and the state.

Industries can design and produce new food products with emphasis on human and environmental health. Moreover, by designing and producing eco-friendly food products, the conditions under which natural products evolve and proliferate, are safeguarded.

In addition, healthy eating is connected to conscious eating and conscious consumers make prudent choices of what and how much they eat. Healthy living is a mutually beneficial goal among citizens themselves as well as the state.

The state is benefited by conscious industries and consumers as it can save the expenses towards health and environmental safety. Thus, it can reserve funding for social welfare. This equilibrium of choices among the interested parties can assist in the combat against climate change, shortage of natural resources, water shortage, poverty, even neurodegenerative decline in humans [22, 23].

### **7 Consciousness Contribution to Professional Development**

Professional development is inherently related to self-leadership and employee engagement. Employees realizing the importance of promoting their competencies as well as their knowledge background are especially appreciated in

demanding and complicated professional environments. Furthermore, conscious employees achieving their personal goals feel valued and motivated to continue showing signs of self-leadership. We argue that conscious employees can keep themselves motivated through inspiring, leading and motivating other employees.

Self-transcendent employees have reached their full potential as individuals and have the desire to share their knowledge and capabilities with their fellow employees [24, 25].

In short, the 9-Layered Model of Giftedness aims at changing the working climate and emphasizes on the dynamics of sharing one's professional competencies eg. knowledge, skills or attitudes with his/her colleagues. Besides, individuals that become successful professionals, while having self-leadership skills can play an eminent role in the economic development of their country and their community.

### **8 The meaning of Self-Consciousness**

The "struggle" for getting to know ourselves is equivalent to the "struggle" for survival. We use "struggle" because it is a perpetual, internal conflict of interests. Our needs, desires, beliefs and values come up against each other as well as against other people's mindsets. Moreover, many emotional instabilities originate in compressed emotional expressions, which people may need external assistance to track down and accept. Therefore, our internal peace is at stake on numerous occasions. The main question is how to get along with ourselves. The answer is that there is no easy way, but to get involved in discussions with ourselves and pose intriguing questions. Notwithstanding, new experiences oblige us to learn something different each time. The key to self-awareness and self-knowledge is related to our capacity to pay attention to what is happening to ourselves, other people and the society, in general. Then, conscious people analyse their experiences and produce new feedback: they transfer their knowledge and skills to new experiences. In other words, self-conscious people cope with their defects and mistakes, rearrange their minds and concomitantly, their behavior. This is also called emotional maturation. However, self-consciousness may be unreachable as it goes even deeper inside our minds as well as it transcends our lifespan. It relates to the subliminal

mind and the collective unconscious addressed by Jung [26, 27, 28].

On the contrary, Plato, Socrates and Hippocrates referred to self-knowledge as an innate process in every human being that can be enhanced through paying attention to ourselves and recollecting ourselves. They also talked about discovering our innate ethical values, such as overcoming our ego and showing compassion, humanity and kindness as well as distinguishing good and true from evil or false.

To sum up, consciousness is continuous. internal process during which human beings learn how to observe themselves, improve themselves, construct their personal identity as well as realize they are different from other human beings. Self-consciousness is about realizing that self-transcendence is innate with our existence and it can offer us internal peace and self-realization.

By self-transcendence, it is insinuated that if everyone works together, with less ego-centered decisions, there will be a better outcome for ourselves and the society as a whole.

### **9 A Conscious Society**

A conscious society embraces a set of abilities and values, fundamental for social equity, social justice and social prosperity. A society in which citizens have realized the importance of sharing acceptance, respect, empathy is a society with less possibility for racism, discrimination and violence. A conscious society is comprised of active citizens, characterized by their capacity to be clear-sighted and have the volition to distinguish the right from wrong. Of course, a conscious citizen needs to have a whole set of cognitive and metacognitive skills to decide upon his or her actions, such as critical thinking, cognitive flexibility, creativity, entrepreneurship and adaptability. Therefore, a society that has decided to work on citizens' courage, humanity and compassion, shall create citizens that believe and act on the basis of a democratic society [29, 30, 31].

In addition, it is currently more than obvious that critical global issues, such as pandemics, social riots etc., have an impact on individuals' lives. However, the do's and don'ts in a person's mind affect the lives of other people as well. As a result, shared responsibility creates cooperative and solidarity dynamics among humans [32].

Moreover, consciousness embraces humans' higher cognitive skills in order to build equitable, adaptive and resilient societies [33]:

- Democratic values literacy (Social Justice, Equity, Respect).

- Building active citizenship (protecting civil rights, human rights, personal rights, supporting volunteerism, media literacy).

- Developing leadership skills.

- Promoting social skills (communication/cooperation).

- Enhancing lifelong learning skills in relation to brain health.

- Mastering critical/creative thinking.

- Growing on our problem solving skills.

- Understanding the significance of adaptability/cognitive flexibility/resilience.

- Having empathy and humanity and

- Realizing the significance of self-improvement.

As it is already stated, a conscious society is a well defined goal and it is grounded on individuals' effort to reach self-consciousness. Thus, a conscious society is conceived as the successful journey towards self-consciousness and consequently, each one of us has a unique and personalized mission.

## 10 Conclusions and Suggestions

The 9-Layered Model of Giftedness poses an innovative theory of human intelligence and giftedness as it integrates Neuroscience with Philosophy, Information Processing Theories as well as ICTs. We suggest that a win win strategy in our decision making and problem solving cases can bring about healthy individuals in addition to healthy and sustainable societies. Therefore, this theory integrates knowledge, skills and values to reach an equilibrium in our relation to other people [34, 35]. In other words, we "struggle" to fulfil a personal and a societal purpose: to be self-conscious. All these issues should be decoded in our attempt to crystallize higher forms of artificial intelligence as well as to apply intelligent machine programming.

As far as human intelligence is concerned, mindfulness skills are inherently related to top-down processes, such as awareness and reflection as well as bottom-up processes, such as emotional reappraisal. Top-down as well as bottom-up control

of attention allow for a more elaborate consideration of the context, while re-interpreting an emotion-eliciting situation [36]. Thus, mindfulness training can improve one's cognitive and emotional regulation, involving stepping away from self-identity to observe oneself objectively [37].

Regular engagement in mindfulness practice develops and masters mental core processes, primarily based on the refinement of attentional functions that interact with and facilitate regulatory processes of emotions and cognitions. Improvements in these core processes result in a more balanced mental stance or attitude that will result in physical and mental well-being and quality of behavior [38].

Mindfulness is both a metacognitive ability and a training technique for enhancing self-consciousness, which entails coming to realize our deepest thoughts, feelings, needs and sincerely connect with our physical and social surroundings. Furthermore, self-consciousness can have an actual effect on the transformation of individuals and the society by connecting our personal prosperity to societal prosperity [39].

In addition, this article poses a whole new meaning in giftedness and initiates a theory, which relates intelligence to consciousness. According to our theory, a conscious person makes the right choices to reach personal excellence, but also caters for other humans. Conscious people have the capacity to look at things in a way that makes sense to other people as well. Therefore, consciousness is about humans' being fully responsible for their thoughts, speech, feelings and actions in full serenity and peace with themselves, other people and the natural environment around them [15].

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# ASPECTE CONTRIBUTIVE ALE SISTEMELOR INFORMATICE ECONOMICE INTEGRATE LA PROSPERAREA SOCIETĂȚII UMANE

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**Abstract:** The paper is based on the concept of prospect informatics systems, which will achievement in informatics way all varieties of economic activities, both informational and material. Virtually these systems can be considered as a material-informational nucleus, the operation of which is uninterrupted and automatically performed. Such working is ensured by the accomplishment of the stringent interconnection and direct interaction between all the constituent elements of the integrity, i.e., of the system as a whole.

Starting from the formulated raison, the fields of elaboration and application of the systems in question are highlighted and elucidated. Respectively, in each field the decisive contributing factors to the progress of human material and spiritual activities are revealed and analyzed. From this viewpoint, the concept of transforming the existing economic management system into an instrument of analogous function, which fully evolves expressly according to the nature of a scientific law, is confirmed.

The importance and necessity of such a category of systems are emphasized and elucidated, justified their contribution to notorious performances, which will release the subject of purely technical and voluminous works in dimensions that require daily and throughout the day with some and the same actions, depriving on the decision maker of formulating and making optimal decisions.

In the environment of these systems, the subjective influence on the process will be diminished to a minimum, and the management of the national economy will no longer be fragmented on various and numerous levels, bodies and time limits for its functioning. In the end - the economic units will no longer be separated spatially and function in various time regimes, this leading to the becoming of the national economy in an integrated unitary virtual enterprise.

According of more general classification of the highest level, the objective and subjective factors of decisive influence are systematized in those that refer to the material sphere and those that refer to the spiritual sphere of society.

**Keywords:** contributing aspects (Computer Science), integrated economic informatics systems, contributing factors, prosperity, human society

## Introducere:

Sistemul existent de gestiune economică se caracterizează prin izolare spațială și evoluția discretă a proceselor materiale și informaționale, care virtual și în interpretare analoagă formează un tot întreg. De aici - multiplele discordanțe dintre activitățile acestor două categorii de procese, fărâmițarea sistemului managerial pe nivele (organisme) de gestiune (primare, intermediare, superioare), perioade de funcționare (operative, curente, de pronostic) și a sistemului informațional

pe subsisteme, complexe de probleme și probleme particulare.

Astfel de situație a condus la influența cât mai expresivă, mai cu seamă, la nivelele intermediare și superioare de gestiune, a rolului influențabil al subiectului asupra evenimentelor materiale și spirituale atât a societății umane în ansamblu, cât și a fiecărei subdiviziuni, individ al ei. S-au creat condiții de favorizare a înrâuririi precumpănitor negative tendențioase a sistemului managerial asupra obiectului (procesului) gestionat, precum și la predominarea metodelor și mijloacelor

administrative aplicabile practic în orice spațiu și moment de gestiune. De pe poziții unitare, toate aceste momente, cu prevalență, sunt provocate de necorespunderea nivelului de performanță a subsistemului managerial comparativ cu subsistemul gestionat de el. Formarea rupturii menționate s-a produs odată cu instituirea caracterului social al activităților materiale umane, ea fiind consecința penuriei accentuate de informații calitative.

Analiza desfășurării cursului acestor două componente ale procesului unitar de gestiune economică scoate în transparență mersul obiectiv spre lichidarea izolării teritoriale și funcționării discrete a lor. În prezent și de la începutul socializării activităților subiectului așa înaintare se observă și este realizată prin inventarea, elaborarea și aplicarea diverselor mijloace tehnice, programate, metode tehnologice, etc., considerate drept resurse informatice. Trăsând o paralelă între progresul dezvoltării resurselor elucidate, devine sesizabil faptul că cele enumerate anterior au avansat esențial, pe când, din punct de vedere a cuprinderii totale a fenomenului informațional ca unitate integrală, aplicarea lor în domeniile informativ și decizional economice este insuficientă. În sensul dat, se atestă o acoperire satisfăcătoare de către mijloacele și metodele informatice numai a unei etape transformativă a informațiilor – a etapei de prelucrare (informațională, structurală, de calcul), celelalte două etape – inițială și de utilizare rămânând efectuate preponderent în mod manual de subiect. În rezultat, s-a format o discordanță substanțială dintre nivelele performanței metodelor și mijloacelor informatice și domeniul aplicării lor. Așa situație poate fi calificată drept nepregătire a resurselor informaționale pentru implicarea resurselor nominalizate în procesarea lor.

Circumstanțele create sunt provocate de extinderea spațială și vitezele inimaginabile de realizare a preocupărilor materiale umane. Despre aceasta mărturisește formularea evolutivă a concepției globalizării activităților în cauză, obiectiv fiind împinși de imperativul integrării material – informaționale. Altfel afirmând, globalizarea materială a provocat nu poate fi realizată și funcționa fără globalizarea informațională.

De menționat că la moment și permanent, în

procesarea datelor pe bună dreptate și justificat se consideră decisive resursele informatice, enumerate mai sus. Însă, nu mai puțin valoroasă pentru această modalitate este și adecvarea structurării și organizării resurselor informaționale, interconexiunilor procesuale și funcționale ale lor. Prin realizarea consecutivă a acestor două categorii de interconexiuni se asigură continuitatea tuturor proceselor informaționale. În cazul, în care continuitatea este susținută de mijloace și metode tehnice, ea este automată. Prin urmare, nu numai factorii informatici, dar și însăși domeniul – resursele informaționale, prin interconexiunile sale structurale raționale, de organizare și prelucrare eficientă, contribuie direct la procesarea mașinală a lor. De aceea, de importanță decisivă în sprijinirea funcționării automate a sistemului integrat de management economic dispun identificarea, respectarea, punerea în funcțiune și garantarea funcționării tehnice a interconectărilor de orice varietate în cadrul sistemului.

## Conținut

### Concepția sistemului informatic integrat

Conceptul sistemului informatic integrat (S.Ic.It.) rezidă în cuprinderea cu procese informatice a activităților informaționale și materiale în interconexiune și interacțiune nemijlocită. Unitatea sistemului se referă la organizarea, structurarea și funcționarea tuturor elementelor constitutive ale lui de pe poziții unitare. Astfel de abordare impune efectuarea elaborării, implementării și asigurarea evoluției lui cotidiene prin stabilirea și realizarea tuturor constituantelor, interconexiunilor și interacțiunilor dintre ele, indiferent de razele spațiale și temporale în baza principiului motivației, conform căruia materia cauzează informația, ultima fiind de predestinație informativă și decizională.

Pe lângă cele menționate mai sus, odată cu determinarea exactă și deplină a caracteristicilor menționate, respectarea întocmai și realizarea lor prin intermediul factorului informatic, se creează condiții de constituire a unui sistem de gestiune economică de acțiune analoagă, adică, automata și nu automatizată, ceea ce este propriu pentru asemenea sisteme în prezent. În așa situație sistemul va funcționa conform schemei din fig. 1.

Structurarea prezentată în această figură este provocată de următorii factori esențiali:

- nivelul diminuat de performanță al mijloacelor și metodelor, care sunt inventate și aplicate în procesele de îndeplinire a acestor activități;
- dispersarea excesivă în spațiu și funcționarea expresiv discretă în timp, aceasta din urmă fiind cauzată în primul rând de gradul insuficient și primitivismul efectuării activităților materiale și informaționale umane;

• extinderea semnificativă a dimensiunilor teritoriale și scurtarea termenelor temporale ale preocupărilor materiale umane;

• respectiv, și ocupațiile informaționale, care sunt obiectiv impuse, deci, nedetașabile de cele materiale, în evoluția sa s-au transformat din domeniu de preocupări a unui subiect (grup de subiecte) în domeniu de interes al societății în ansamblu.

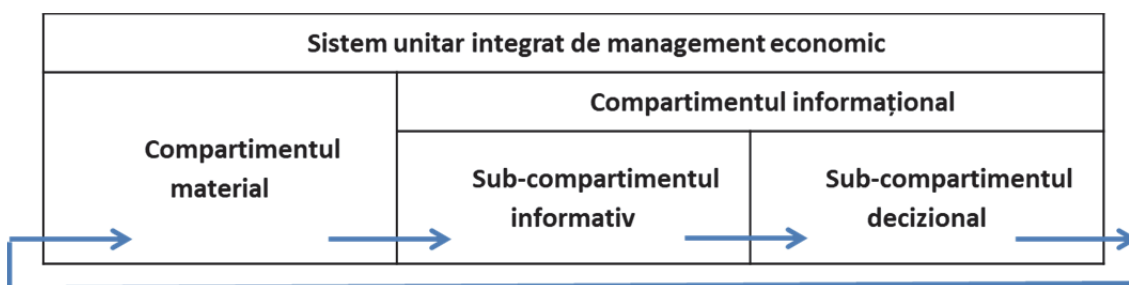


Fig.1. Schema conceptuală de funcționare a sistemului unitar integrat de gestiune economică.

### **Necesitatea, importanța și factorii contribuabili ai S.Ic.It. asupra performanțelor activităților umane**

Importanța și necesitatea sistemelor în cauză sunt fondate de următoarele circumstanțe și factori principali:

- creșterea extrem de considerabilă a volumului și complicarea continuă a componenței informațiilor economice, condiționate de:
- extinderea spațiului și majorarea cantitativă a activităților materiale economice, a complexității structurii lor, a varietății resurselor, interconexiunilor și interacțiunilor dintre ele;

Acest fenomen poate fi confirmat de multe exemple, însă, ne vom referi la cele mai semnificative. Așa, de exemplu, conform estimărilor de experiență s-a constatat că în ultimele decenii nomenclatura produselor finite fabricate s-a mărit de zeci de ori. Dacă descrierea resurselor tehnice, matematice și programate a mașinilor electronice de calcul (M.E.C.) de prima generație a necesitat pentru a fi perfectată doar un singur volum, atunci în aceleași scopuri pentru M.E.C. de generația a doua se perfectau zece volume, iar pentru M.E.C. de generația a treia – o

sută de volume. Documentația tehnică a avionului modern cu reacție depășește greutatea lui.

Mai există și pericolul așa zis-ului “deces birocratic” al societății, prezis de unii savanți. Esențului constă în aceea că nedispunând de informație deplină, oportună și autentică, în anturajul economiei moderne cu volume și complexități exagerate nu e exclus să fie scăpată din mâni gestiunea ei. În așa caz va deveni imposibilă cunoașterea reală a situației proceselor economice, iar rezultatele lor – imprevizibile.

E cunoscută și o așa afirmație, conform căreia creșterea volumului producției materiale are loc în progresie aritmetică, iar a volumului informațional – în progresie geometrică.

Economia de piață contribuie nu numai la sporirea continuă a volumului și complicării componenței informației economice, dar și înaintază noi exigențe și restricții privind calitatea ei condiționată de un anumit grad de autenticitate, oportunitate, deplinătate, flexibilitate a ei ș.a. Aceasta se explică prin intensificarea conexiunilor nemijlocite dintre agenții economici, practic nelimitate în spațiu și timp, prin rolul decisiv al relațiilor externe și necesitatea acută în informare permanentă privind situația materială și financiară a



furnizorilor și beneficiarilor;

**a) accelerarea proceselor economice, de asemenea confirmată prin diverse exemple și experiență.** Dacă în sec. XIX perioada dintre momentul invenției (descoperirii) și momentul realizării (implementării) ei constituia 25 ani, în anii 20 ai sec. XX – 15 – 20 ani, apoi în prezent ea constituie 2 – 3 ani.

În ultimele câteva decenii viteza efectuării multor procese, inclusiv și a topirii metalului, prelucrării lui, s-a majorat de 2 – 3 ori.

Toate aceste circumstanțe au condus la necesitatea efectuării evidenței, previziunii și analizei economice cât mai frecvente, mai aprofundate și detaliate a stării și evoluției proceselor economice.

În consecința celor menționate anterior e evident că s-a creat o așașiuație, când, pe de o parte, volumul informației s-a majorat excesiv, componența ei permanent devenind tot mai compusă, iar, pe de altă parte, e necesar ca această informație să fie obținută cât mai operativ. Ieșirea din asemenea impas, ca și în alte domenii, s-a găsit prin invenția, producerea și implementarea în masă a mijloacelor tehnice în activitățile informaționale economice;

**b) inventarea intensivă și implementarea în masă a tehnicii informatice respective pentru automatizarea proceselor informaționale.** E necesar de accentuat că în țările economic dezvoltate “industria informaticii” a depășit cu mult indicii altor ramuri ale economiei naționale. De exemplu, în SUA și alte țări înaintate în acest domeniu anual se comercializează calculatoare și alte utilaje de tehnică de calcul în sume de zeci de miliarde de dolari, ceea ce constituie 15% din investițiile capitale pentru dezvoltarea tehnicii și tehnologiilor noi.

Cu scopul de a perfectă și a mări numărul de sisteme informatice implementate, în SUA se alocă sute de miliarde de dolari. Cota mijloacelor alocate anual în aceste scopuri în produsul global al SUA s-a majorat de la 2% în 1970 până la 5% în 1980, iar mai târziu ea s-a majorat și mai considerabil. Pentru a compara vom constata că în aceeași ani cota consumurilor în produsul global al SUA în agricultură constituia 3%, iar în industria extractivă – 2,7%. Conform estimărilor experților americani această tendință s-a păstrat și

în anii următori, iar consumurile industriei informatice a atins cifra de 13% din produsul global național.

**c) majorarea productivității muncii lucrătorilor din sfera de gestiune economică.** Ea se referă, mai cu seamă, la productivitatea efectuării proceselor de prelucrare structurală și de calcul a informației, deoarece celelalte lucrări (de “dobândire” a datelor inițiale și de utilizare a indicatorilor rezultativi) sunt slab automatizate. De aceea ar fi mai obiectivă compararea productivității muncii numai în procesele de prelucrare (structurală și de calcul) a datelor. În acest caz e suficient de accentuat că dacă manual se îndeplinesc numai câteva sute de operațiuni de calcul (180 înmulțiri, 600 adunări pe oră), apoi calculatoarele moderne realizează milioane și miliarde de asemenea operațiuni pe secundă. După cum se vede, la acest capitol capacitățile umane și tehnice sunt incomparabile. Același lucru poate fi observat și la alți parametri (de exemplu, manual se pot înregistra 6000 caractere pe oră, pe când imprimanta calculatorului înregistrează sute de simboluri pe secundă).

În continuare ar fi util de meditat asupra faptului că inițial și chiar actualmente atenție deosebită se acordă productivității muncii preponderent în producția materială, lăsând pe plan secund sfera de gestiune a ei. Însă, experiențarilor avansate ne mărturisește că automatizarea numai a proceselor materiale, fie și cea mai deplină și performantă, la un moment dat nu mai asigură avansarea productivității muncii. Motivul principal al așașiuației se reduce la aceea, că sistemul de gestiune trebuie să fie egalat cu nivelul organizării și realizării producției, ori să-l depășească. Deci, rezultatele activităților de producție în mare măsură depind nu numai de nivelul automatizării lor, dar decisiv și de nivelul progresist al sistemului de gestiune. Cultura producției materiale este condiționată de cultura gestiunii ei. Însă, în economie astfel de corelare nu se observă.

**d) economia resurselor umane.** Acest factor se găsește în raport direct cu factorul precedent, deoarece dimensiunile lui sunt condiționate de nivelul productivității muncii în sfera de gestiune. El se caracterizează prin numărul lucrătorilor din sfera dată și ponderitatea lor în numărul general al populației apte de muncă. În acest sens, mai multe

date confirmă faptul că odată cu avansarea culturii și productivității muncii în sfera de producție materială se majorează și numărul lucrătorilor sferei de gestiune al ei, ceea ce se consideră o consecință negativă. Cu atât mai mult, că la început automatizarea lucrărilor de gestiune, mai ales a celor de caracter informațional se justifică prin reducerea numărului de lucrători. În legătură cu aceasta e necesar de menționat existența tendinței obiective de majorare a numărului absolut al lucrătorilor sferei de gestiune. Deoarece poartă caracter obiectiv, ea nu poate fi stopată și se consideră un criteriu de bază al eficienței informatizării societății, dar nu principal. Predestinarea de fond a informatizării activității economice constă în îmbunătățirea calitativă și majorarea cantitativă a rezultatelor activităților materiale. De aceea legitatea creșterii numărului absolut de lucrători din acest domeniu va acționa permanent, esențialul însă se reduce la determinarea raportului optim dintre numărul lucrătorilor din sfera productivă și cea neproductivă pentru nivelul existent al producției materiale și respectarea (menținerea) acestui raport.

Despre sporirea numărului de lucrători ai sferei de gestiune obiectiv mărturisește și faptul că odată cu atingerea anumitului nivel de dezvoltare a fabricației materiale, care necesită un grad sporit de pregătire, devine dificil de a depista frontiera dintre munca fizică și cea intelectuală. Are loc așa zisă “ștergere” a conținutului fizic și stabilirea caracterului inteligent al muncii. Ceea ce mai adineaori se considera muncă fizică nu e exclus ca mai apoi să solicite anumite eforturi intelectuale;

**e) îmbunătățirea calității informațiilor economice.** Orice informație, inclusiv și cea economică, se consideră calitativă dacă ea corespunde anumitor exigențe, prin respectarea cărora ea poate fi utilizată în procesul de gestiune.

Calitatea informației se determină de așa criterii principali, cum sunt, autenticitatea, analiticitatea, oportunitatea și plenitudinea.

Sensul autenticității se reduce la aceea că informația trebuie să conțină date obiective, care ar descrie situația proceselor economice și a resurselor lor așa, cum ele sunt în realitate. Deoarece până în prezent procesul de gestiune economică și, în mare parte conținutul lui informațional, este realizat de subiect, nemijlocit interesat în rezultatele materiale și spirituale, nu e exclus pericolul mistificării

valorilor unităților informaționale.

La baza acestei mistificări stau motive atât subiective, cât și obiective. Primele au consecințe negative și sunt explicate de interesele nejustificate ale subiectului de a obține anumite bunuri materiale, financiare și de alte categorii prin majorarea sau diminuarea valorilor indicatorilor economici. Motivele obiective sunt explicate de volumul considerabil al informațiilor și de lucrări efectuate asupra lor, precum și de caracterul mecanic al celor de pe urmă, care conduc la obosirea utilizatorului și în consecință - la comiterea anumitor erori.

În cadrul S.Ic.It. influența negativă a motivelor nominalizate asupra autenticității informației poate fi redusă la minimum, deoarece prelucrarea ei se efectuează nu de subiect, ci de mijloacele tehnice, care nefiind însuflețite nu manifestă interes față de valorile obținute ale indicatorilor rezultativi. Viteza excesivă și capacitățile extinse ale memoriei calculatoarelor electronice moderne de asemenea exclud în mare parte comiterea erorilor cauzate de volumul și de lucrările informaționale, structurale și de calcul exagerate. Prin urmare, ponderitatea erorilor scade esențial, iar calitatea prezentării, prelucrării și perfectării informațiilor în mediul sistemelor informatice economice (S.Ic.E.) devine incomparabilă cu cea manuală.

Analiticitatea informației se caracterizează prin nivelul ei de detaliere (concretizare). Cu cât ea este mai detaliată, cu atât baza prezentării valorilor ei e mai voluminoasă și constă din mai multe semne. Din acest motiv productivitatea prelucrării informațiilor se găsește în raport direct cu dimensiunile prezentării ei. Deci, analiticitatea condiționează sporirea volumului prezentării și transformării informației. În mediul manual de prelucrare a datelor productivitatea muncii scade în cazul creșterii analiticității informației și invers. De aceea tot mai dificilă devine asigurarea gradului necesar de detaliere a informației economice în anturajul activităților economice materiale moderne. Deseori se recurge la diverse rotunjiri și majorări (diminuări) a valorilor diversilor indicatori economici.

În același timp, în mediul S.Ic.It. creșterea volumului de prezentare a datelor practic nu influențează productivitatea procesării lor. Aici se are în vedere aspectul funcțional de asigurare cu date a deciziilor și nu cel fizic realizat în interiorul

calculatorului. E evident că în ultimul caz această influență are loc, însă vitezele exagerate ale mijloacelor tehnice fac ca ea practic să nu fie sesizată comparativ cu prelucrarea manuală.

Un al treilea criteriu calitativ principal al informației economice este oportunitatea. Pentru sistemul existent de gestiune economică e caracteristică întârzierea cronică a oferirii informațiilor la momentul necesității în ele pentru a fonda deciziile respective.

Și aici aplicarea mijloacelor tehnice și tehnologiilor avansate realizate în cadrul S.Ic.It. contribuie la accelerarea pronunțată a lucrărilor informaționale, deci, și la reducerea termenelor de obținere și oferire a informației necesare. Grație acestui fapt ea devine mai operativă și de aceea momentul obținerii ei poate fi optimal coordonat și apropiat de momentul necesității în ea.

Deplinătatea informației constă în aceea că atât după componență, cât și după conținut e necesar ca ea să corespundă cerințelor anumitor fondări a deciziilor de gestiune. Această exigență calitativă primordială a informațiilor economice de asemenea devine tot mai dificil de a fi respectată în condițiile sporirii permanente a volumului informațional și de prelucrare a datelor.

Depășirea acestei dificultăți de asemenea poate avea loc prin implementarea a așa mijloace și metode, care ar majora productivitatea muncii în acest domeniu. Până când cele mai eficiente din acest punct de vedere se consideră mijloacele tehnice informatice exploatate sub forma de S.Ic.It;

f) aspectul social al S.Ic.It. se realizează în următoarele trei direcții principale:

- implementarea S.Ic.It. la orice nivel și în orice domeniu de activitate umană permite fiecărui individ să participe nu formal, dar real în procesul general de gestiune a țării și economiei naționale în ansamblu.

Aceasta se asigură prin faptul, că în mediul S.Ic.It. fiecare persoană poate avea acces la orice informații în orice moment, ceea ce contribuie la majorarea nivelului de competență și, în consecință, la opinia tot mai fondată a ei privind procesele economice, ce se efectuează nu numai în raza locului de muncă, secțiunii, sectorului, ori unității economice, în cadrul căroră activează, dar și la nivel de ramură și economie națională. Așadar, în ideal S.Ic.E. va transforma orice lucrător al sferei de producție materială și, cu atât mai mult, al sferei

de gestiune dintr-un participant formal în unul real al procesului unitar de gestiune economică;

- treptat S.Ic.It. va elibera lucrătorii sferei de gestiune de la o muncă excesiv de voluminoasă și de caracter pur mecanică, legată de perfectarea și prelucrarea cotidiană a unei și aceeași informații. În rezultat – mai mult timp va fi utilizat pentru analiza conținutului acestei informații și în această bază pentru a forma anumite decizii și a urmări realizarea lor. În așa mod se va intensifica creativitatea activităților lucrătorilor domeniului de dirijare. De pe aceste poziții se constată că la etapa actuală lucrătorii nominalizați îndeplinesc, mai cu seamă, funcția de informatori, deoarece aproape tot timpul lor de activitate este consumat pentru obținerea informațiilor necesare conducerii obiectului. În cazul eliberării acestor lucrători de la aceste lucrări, despre posibilitatea căreia și ne dovedește S.Ic.It., specialistul obiectiv este pus în situație necesităților perfecționării propriei activități, ce constă în intensificarea proceselor de gândire mintală și nu de executare mecanică a unor și acelorași lucrări în fiecare zi. Deci, are loc transformarea muncii din activitate mecanică în activitate creatoare. Eventual se va determina de asemenea cine din lucrătorii actuali ai sferei de gestiune sunt capabili de a-și continua activitatea în acest domeniu sau nu. În consecință - noțiunea de activitate de gestiune va fi adusă la un anumit grad de corespundere nu numai după formă, dar și după conținut;

- implementarea S.Ic.It. în activitatea cotidiană umană va contribui și la perfecționarea și dezvoltarea continuă a subiectului ca personalitate. Aceasta se asigură prin eliberarea lui de la o muncă asiduă și mecanică. Deci, S.Ic.It. are consecințe nu numai de perfecționare a lui ca specialist în domeniu, dar și ca personalitate a societății. Timpul liber poate fi utilizat nu numai la locul de muncă, dar și pentru a obține o sumă de cunoștințe și deprinderi în domeniul de caracter social – cultural, sport, muzică, artă etc. Din acest motiv S.Ic.E. vor contribui și la evoluția multilaterală a personalității.

Importanța aspectului social al S.Ic.It. în fond se reduce la următoarele. Așa cum aceste sisteme în ideal vor conduce la informatizarea totală a societății, aceasta de pe urmă va avea următoarele consecințe principale.

Gestiunea economică nu va fi atât de evident arhitecturată, ca în prezent. Ea va fi realizată, ori,

mai bine zis, va avea posibilități de realizare la orice nivel, începând cu locul de muncă al fiecărui lucrător și terminând cu organismele superioare de conducere (de exemplu, guvern). Aceasta, însă, nu înseamnă că vor dispărea anumite nivele și organisme de conducere, responsabile de rezultatele activității economice a anumitor obiecte. Sub formă de oarecare sistem de conducere ele vor exista, însă, conținutul și caracterul activității lor se va deosebi cu mult de cel actual. Deosebirea va fi condiționată în primul rând de faptul, că la orice nivel orice decizii vor fi fondate și luate cu participarea unui număr considerabil de persoane, ori chiar și a societății în ansamblu.

Grație informatizării totale și nivelul de competență a societății și a fiecărei persoane în parte de asemenea va deveni tot mai atotcuprinzător. De aceea în perspectivă informatizarea va majora până la ideal și nivelul social de dezvoltare a fiecărei personalități și a societății în ansamblu. Ca urmare, prin intermediul sistemelor informatice se va realiza un salt calitativ nou în evoluția societății umane. Dacă anterior așa activități ca cititul, scrisul și calculul se considerau principalele semne de muncă intelectuală, apoi în situația prezentă și ulterior pe prim plan se evidențiază capabilitatea de a analiza, judeca, suprapune etc., deci, de a gândi logic și adecvat realității. Pentru a asigura o astfel de gândire amplă, aprofundată și obiectivă e necesar de un volum de cunoștințe considerabile din diverse domenii, la ce și contribuie informatizarea totală.

În prezent S.Ic.It. până când asigură creșterea capacității de calcul a sistemului de gestiune, contribuind la majorarea volumului de informații prelucrate și a operațiunilor efectuate, la creșterea exactității valorilor indicilor calculați, sporirea operativității și complexității situațiilor de informare, de luare a deciziilor etc. Toate acestea luate în ansamblu și interconexiune apropiate tot mai mult decidentul de procesele materiale conduse cu multitudinea aspectelor lor economice și sociale pozitive, ce derivă din aceste procese

### Concluzii

Evoluția evenimentelor materiale (fabricarea, distribuirea (comercializarea), consumul) și informaționale (obținere, procesare, utilizare) ce le însoțesc pe cele materiale, în mod obiectiv impun factorul uman de a trata și realiza astfel de sisteme

informatice, care asigură ainterconectarea și interacțiunea lor nemijlocită, indiferent de dimensiunile razelor spațiale și temporale, în mediul cărora ele se desfășoară.

Pe lângă cele menționate mai sus, în aceleași condiții, sistemele în cauză trebuie să cuprindă toate nivelele de gestiune, cu referință la orice activitate și resursă ale ei, ceea ce în final va transforma economia națională într-o întreprindere unitară, bazată pe conceptul integrării tuturor ingredientelor ei.

În dependență de domeniul realizării, factorii contributivi la prosperarea societății umane au atribuire față de activitățile materiale și spirituale, la ultimele referindu-se și cele informaționale.

Procesele informaționale economice sunt motivate direct de activitățile materiale, iar indirect - de latura materială a activităților spirituale.

Printre factorii contributivi la prosperarea materială a societății umane de sistemele informatice integrate se evidențiază majorarea productivității muncii, economia resurselor economice, primordială - a resurselor umane, creșterea calității și reducerea esențială a volumului de timp pentru îndeplinirea oricăror lucrări, etc.

Factorii ce contribuie la prosperarea spirituală a societății se referă la asigurarea oricărui nivel de gestiune, începând cu locul de muncă și finalizând cu economia națională, cu resurse informaționale calitative și la timpul necesare.

Realizarea conceptului a astfel de sistem va conduce la libertatea deplină a subiectului, atât din punct de vedere material, cât și spiritual.

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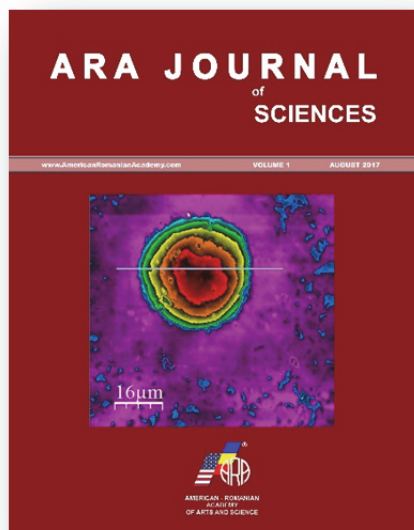
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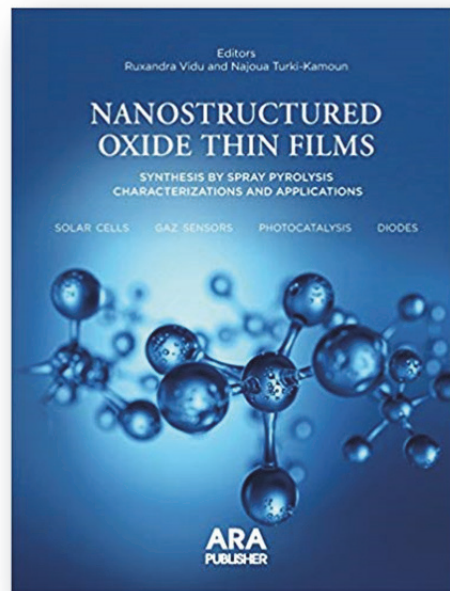
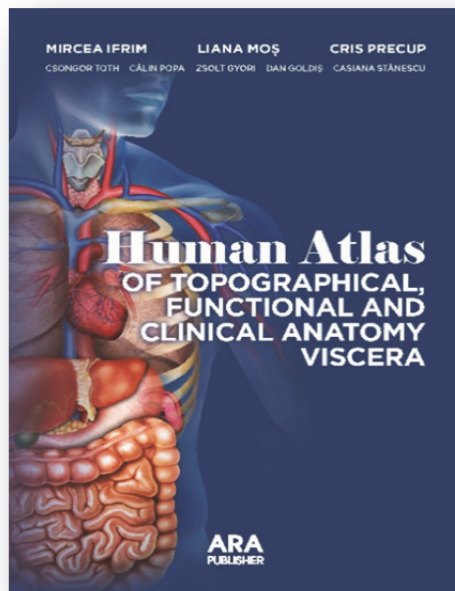
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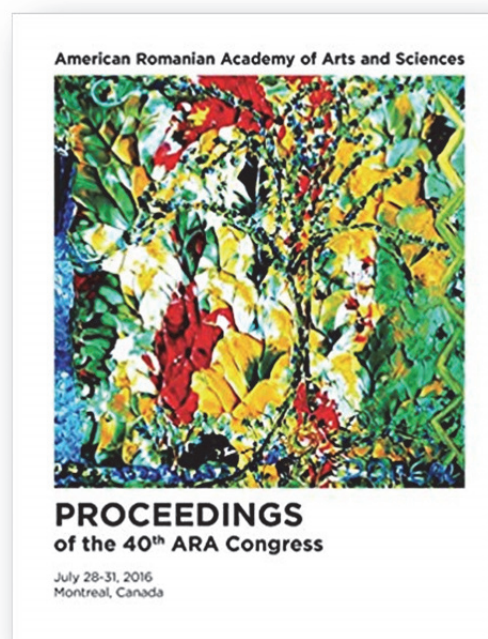
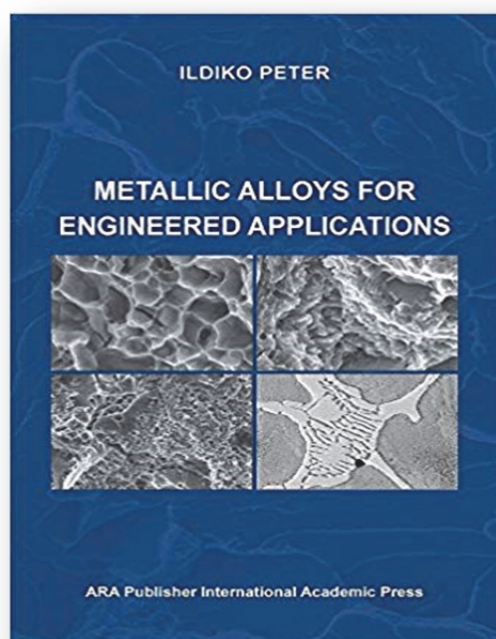
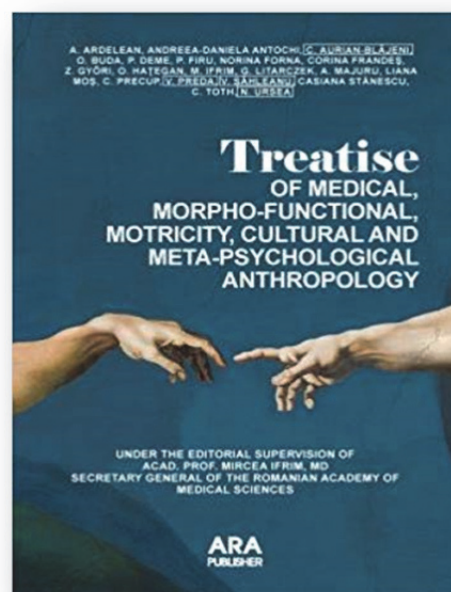
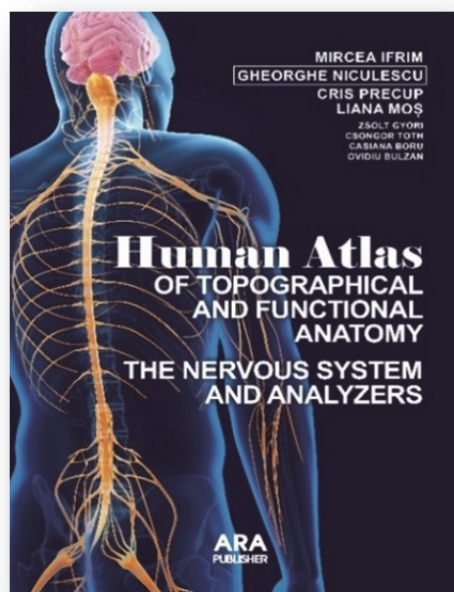
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