# DEMOGRAPHIC DEVELOPMENT OF SOCIETY, THE PROCESS OF INTERGENERATIONAL EXCHANGE AND SOCIAL CHALLENGES

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**Abstract**

Human society is constantly evolving. This development brings many new things to which we are constantly adapting to maintain a state of equilibrium. At the same time, the topic of demographic development is increasingly coming to the fore, whether in connection with population growth or the need to increase public spending on pensions, health, and social care. While on one side of the world demographic development has a positive effect, on the other side it is the opposite. Developing countries are completing the process of a demographic revolution, and developed countries are experiencing a demographic rebirth. While developing countries with a high number of young people have the assumption that their future population development will be secured, in developed countries the number of residents of retirement age who will be dependent on care due to aging is growing. These countries must focus on promoting healthy and active ageing by increasing the resilience of health systems, modernizing social protection, or supporting legal migration. The contribution is devoted to the demographic development of the population in relation to the development of the population structure and the possibilities of supporting intergenerational solidarity and responsibility. At the same time, we use examples of good practice to show how some countries use modern technologies. These technologies will allow the elderly to remain autonomous, able to lead an independent active life for longer and feel safer. Understanding the causes and effects of demographic changes will allow us to better manage their consequences and take advantage of opportunities for future generations.

**Key words:** demographic development, innovations, new technologies, population growth, social challenges

**JEL Code:** I31, J16, J18

## Introduction

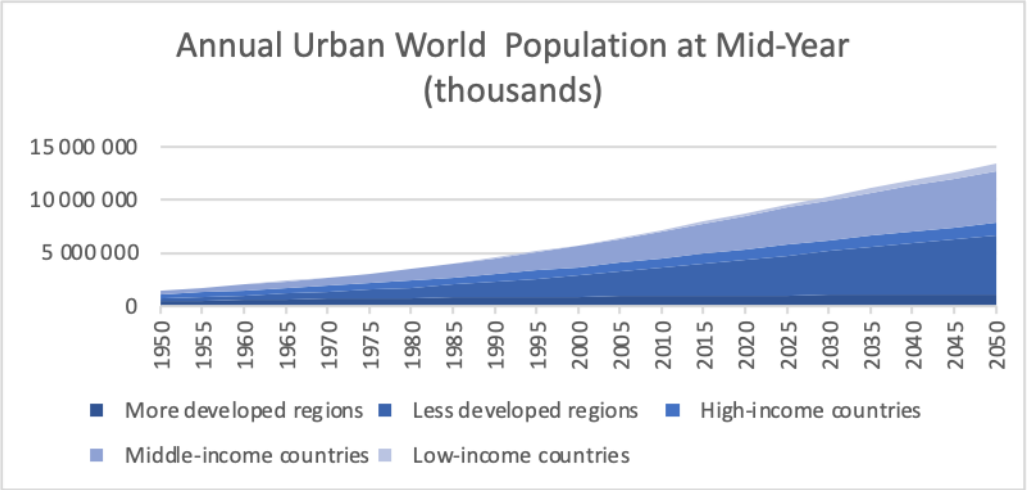
Since the 1960s, the world's population has more than doubled from 2.5 billion to 8 billion in 2023. A UN projection estimates the world's population in 2050 to be over 9 billion people. On one side of the world, this development is favorable, on the other side, the opposite. While developing countries are completing the process of demographic revolution, developed countries are experiencing a demographic transition. Developing countries with a high number of young people have the assumption that their future population development is secured, in developed countries the reduced birth rate and increased average life expectancy are the main reasons for the rapid aging of the population (Mustafa, 2022). Although advances in medical research and public health can be considered a success for the human race, the resulting aging population comes with its own challenges. For the past several years, researchers have debated the quality of the extra years of life added as a result of the increase in life expectancy. Advances in medicine that increase life expectancy without addressing aging-related problems lead to increased morbidity and poor quality of life (Srivastava, et. al., 2022, Joshanloo – Jovanović, 2020). For example, more than 90% of older adults in the United States (US) live with at least one chronic condition, and 73% have two or more conditions. Older residents face many problems in later life, such as poor mental health, poor functional health, financial insecurity, food insecurity, increased dependency, or social isolation and discrimination. Therefore, researchers are urging medical research and funding to focus more on their quality of life.

## 1 Demographic development

Economic growth has a positive effect on the birth rate, better work, the growth of the educational level, or the social status of women (Vaňo, et. al., 2003). While at the beginning of the 1970s, there were an average of 4.5 children per woman, nowadays it is only 2.5. Slower, or by moderating the development of population growth, the number of inhabitants in the most developed countries is decreasing. Extending life, reducing child mortality and high natural growth haves an impact on population growth in developing countries and third-world countries. Currently, around 60% of the world's population lives in Asia, 17% in Africa and 10% in Europe. Demographic processes are significantly reflected in the change in the structure of the population, as well as in the change of their place of residence. When we look at Figure 1 and Figure 2, we see changes in the development of population growth in urban and rural areas until 2050. While the population in rural areas increases until the year 2000, at

the same time, the population in urban areas increases from this year, especially in middle and low-income countries.

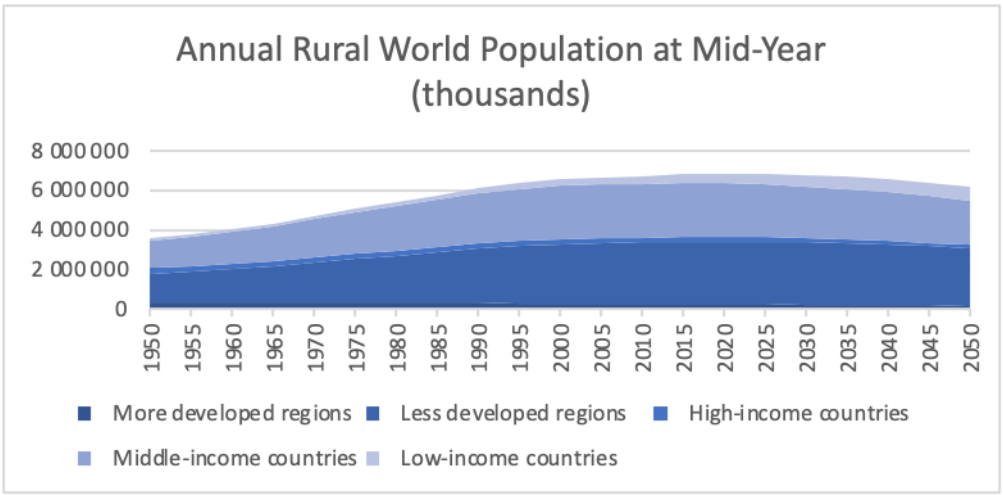
**Fig. 1: Annual Urban World Population at Mid-Year (thousands)**




Source: own processing based on data United Nations, Department of Economic and Social Affairs, Population Division (2018). World Urbanization Prospects: The 2018 Revision. https://population.un.org/wup/DataQuery/

As we stated above, in most countries, the majority of the population will live in several highly developed urban regions (the center) and a smaller part of the population will live in agricultural areas (the periphery), it will be necessary to deal with the possibility of transporting goods and services to these areas. Krugman's analysis makes it possible to understand why urbanization and the movement towards a center-periphery structure occur (Krugman, 1991).

**Fig. 2: Annual Rural World Population at Mid-Year (thousands)**

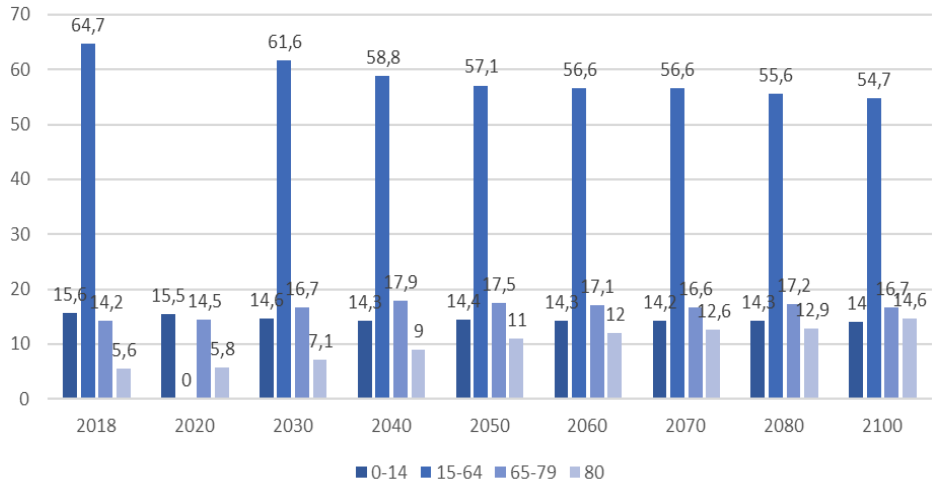



Source: own processing based on data United Nations, Department of Economic and Social Affairs, Population Division (2018). World Urbanization Prospects: The 2018 Revision. https://population.un.org/wup/DataQuery/

Demographic processes are also significantly reflected in the structure of the population, and we observe significant changes in the age structure of the population. Selected demographic indicators at the global level clearly show the direction in the development of aging. In 2017, the number of people aged 60 and over worldwide rose to 962 million, up from 382 million in 1980. By 2050, it is expected that there will be around 2.1 billion people over the age of 65, which is primarily due to better living conditions and healthcare. While the total population will grow by 41% between 2020 and 2030, the group of seniors (65+) will grow by 66% and the young population by 38%. The number of people over the age of 65 is already more than the number of people under the age of 20.

According to Sanderson and Scherbov (2008), Gjonca et. al. (2011) by the fact that the post-productive component of the population (age category 65+) is gradually increasing in the total volume of the population, a natural disproportion arises in relation to the pre-productive component (0-14 years) and the productive component (15-64 years) of the population. The high aging index (the number of citizens over 64 years of age per 100 children aged 0 to 14) indicates negative prospects in the region in terms of the labor force and evokes to a higher degree solutions ensuring the social conditions of the residents (retirement homes, social services). A higher proportion of the population in pre-productive age represents a potential component of the labor force. In the countries of the European Union, the population structure according to age groups (% of the total population) will gradually change, which is also documented in Figure 3.

**Fig. 3: Population structure of the inhabitants of the European Union by age groups (% of the total population)**




Source: own processing based on data cube statistics

The number of inhabitants between the ages of 65 and 79, as well as the number of inhabitants over 80, is increasing. The number of people over the age of 80 should be around 425 million in 2050, of which 8 out of 10 seniors should live in developing countries. The phenomenon of aging brings with it significant changes in needs and capacities with potentially significant consequences for the labor market, consumption, savings, economic growth, housing and fiscal balance. UN (2019, p. 3).

In the Slovak Republic in 2020, the number of children aged 0-14 was 868,294, which represented 15.9% of the population. The productive component of the Slovak population consisted of 3,659,463 persons, which represented 67%. The number of inhabitants of the Slovak Republic in the post-productive age (65+) exceeded the threshold of 932,024 persons. The share of the post-productive component was 17.1%. In the Slovak Republic, the number of inhabitants aged 65+ will increase to approximately 1,635,000 persons by 2060, which represents an increase of approximately 760,000 persons (by 87%). By 2070, the share of citizens older than 80 should also increase significantly.

## 2 Aging as a challenge for the young

The decline in the share of economically active people due to the low number of births and the aging of the population will still have a greater impact on the economic growth of the most developed countries. Although aging continues to be associated with pension spending, seniors are the fastest growing segment in society. Above all, in developed countries, where seniors have created a sufficient financial reserve during their active life, own real estate, receive social benefits at the time of retirement, have the highest potential to spend their income, or savings. At the same time, they are a group of residents whocould contribute up to 50% to the global growth of gross added value, approximately 30% to the growth of productivity and 13% to the overall growth of employment by 2025, primarily through investments in innovations, production of products for this age category of the population. An aging population also creates opportunities within the "silver economy". The silver economy thus presents a great opportunity for society to meet their needs.

Satisfaction with life in old age is very important (Baird, et. Al., 2010). It is reasonable to predict that the level of pleasure and satisfaction with life should decrease with increasing age because they are more prone to ill health, financial insecurity and reduced social capital (Dening, 1999). On the other hand, socio-emotional selectivity theory proposes that people become happier and more satisfied as they age. According to the theory, as people enter the

later years of life, they become increasingly aware of the amount of time left in their lives [23]. As a result of growing awareness of mortality, they are more aware of enjoying the present moment. Our findings support the second proposition by demonstrating that older adults aged 80+had significantly higher levels of life satisfaction than adults aged 60 to 69.

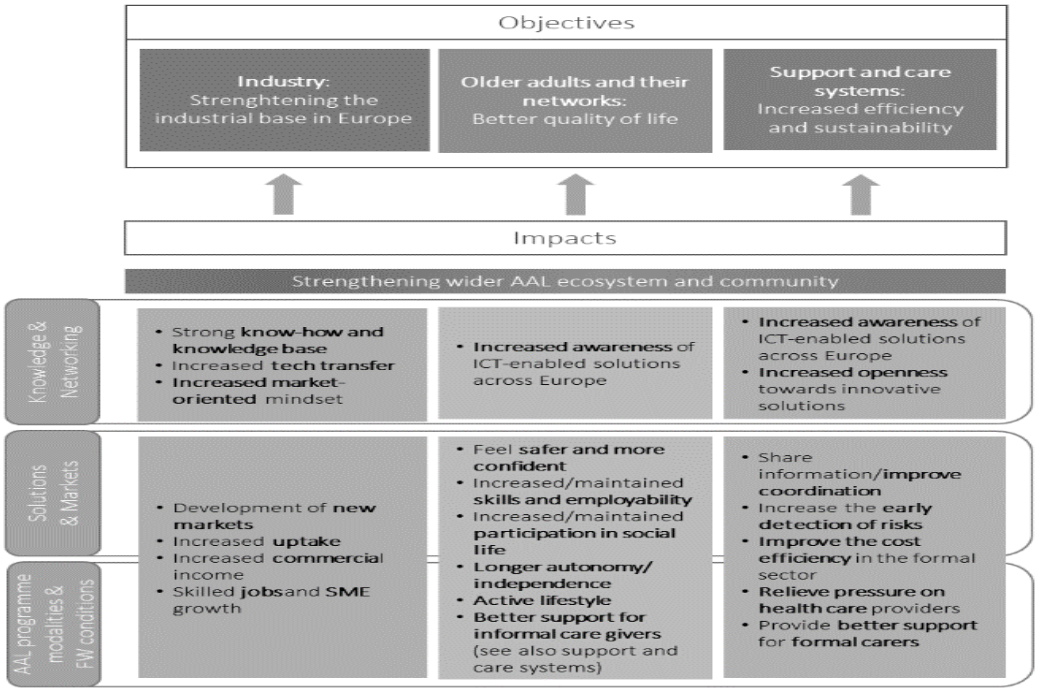
However, the comparison is within older age groups and not compared to younger age groups. It is their long-term experience and knowledge that they should share with younger colleagues. This connection generates innovations, especially in the digital age, because seniors do not know how to control ICT tools well, young people are identified with them. It is an impetus for intergenerational cooperation, which can keep seniors active because they can pass on their knowledge to the young, and this cooperation can be effective in terms of the product and satisfaction of all involved (Cizeli, 2022).

### 2.1 Examples of good practice

Each EU country has a different demographic structure and, based on this, also chooses measures to eliminate the effects of aging. It is possible to base it on documents and strategies approved at the EU level. The year 2012 was declared as the year of active aging and solidarity between generations. The goal was to point out that with the demographic change, it is necessary to think about the position of older people in society and the ability to use their knowledge, work, and human potential. In 2012, one of the few research on the life and attitudes of the older generation, "Older age and human rights: stronger participation, less discrimination", was carried out in Slovakia (Bútorová, et. al., 2013). This research, showed that the Slovak public evaluates the position of older people in our society quite critically compared to younger people: approximately three-quarters of adult citizens consider it to be worse. In a 2013 study by the Institute for Public Affairs, 45% of respondents considered the position of older people in our society as a little worse and 34% of respondents rated it as far worse. Such an assessment is universally widespread. It prevails in all generations, between women and men, people with different education and economic status, in villages of different sizes, and in all regions of Slovakia. The research showed that the strongest barrier is the negative perception of the public and that age is the strongest reason for discrimination in Slovakia. The assessment of the contribution of older people is lower than the EU average. In 2015, the results and impacts of the European Year of Active Aging and Intergenerational Solidarity were evaluated by the European Parliament. In some Member States, it has helped to adopt comprehensive strategies and plans, concept papers, charters, and legislation responding to specific problems. One of the positively evaluated results was the Slovak

National Program for Active Aging. Similar ones were adopted in Austria, Estonia, and the Czech Republic. In Slovenia, they adopted new legislation on pension insurance and new legislation on the labor market. Several joint initiatives of the EU and member states were also created, e. g. Ambient assisted living (AAL). The aim of the program was to financially support (ICT) innovations such as "smart homes" and applications for improving independent living (extending the life of elderly people in the home environment, improving social participation, creating new work and business opportunities, providing more personal health and social services for this population group) and raise awareness of the possibilities for the aging population in the EU. Since 2008, AAL has supported the development of products and services that make a real difference in the lives of people facing some of the challenges associated with aging and for those who care for the elderly if they need help. (Third edition of the AAL Programme impact assessment). AAL Programme has three main impact dimensions: 1. Better quality of life for older people and their networks. 2. Increased efficiency and sustainability of support and care system. 3. Strengthening the industrial base in Europe.

**Fig 4: AAL Programme - the three main impact dimensions**



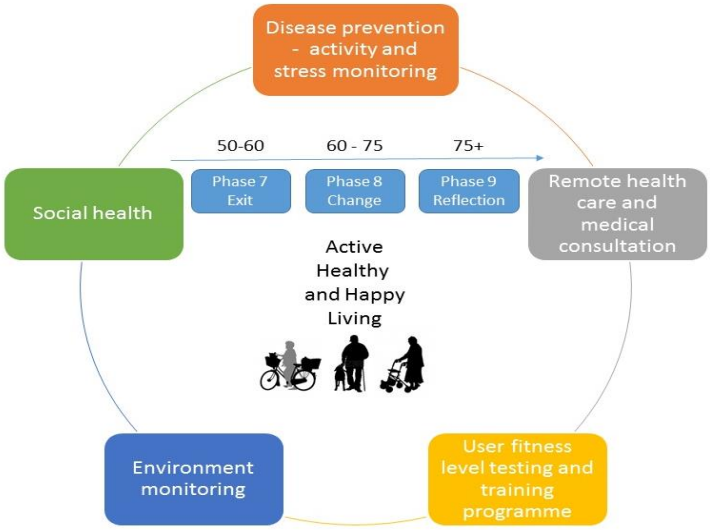

Source: Third edition of the AAL Programme impact assessment

The activities of the AAL Programme have an impact on the development of innovations, the connection of industry, the knowledge base, and the transfer of technologies.

The result can be future solutions that allow the elderly to feel safer, and increase their skills and employability so that they can remain autonomous and lead independent active lives for longer. At the same time, social care providers will also be supported. This program was co-financed by national and regional agencies and from the Horizon 2020 programme. Projects using ICT-based solutions for active and healthy aging are funded. An example can be one of the projects that can contribute to people's ability to lead an active and independent life in health. PELOSHA seeks to leverage advances in mobile and telehealth, artificial intelligence, and the Internet of Things to create a comprehensive ICT-based solution that will simplify healthcare.

The PELOSHA project will address this issue by developing a highly flexible set of services suitable for users in their fifties. The goal of the PELOSHA project is to create a solution that makes it easy to provide a personalized environment for seamless self-health management by different groups of older adults. They can be active people before retirement, active retired people, or people living in assisted living. As these groups differ in specific health-related needs due to their different ages and lifestyles. The services will provide comprehensive health and well-being management for older adults by utilizing various technological components into a coherent system capable of supporting users' needs in managing: mental health, physical and functional fitness, social health, or living with chronic diseases.

**Fig. 5: Project PELOSHA**




Source: https://www.pelosha.eu/project/

Existing applications will make it possible to integrate a personalized approach to the healthy life of the elderly. Various groups of end users from European countries participated in the PELOSHA project.

**Table 1: Partners involved in the PELOSHA project**

| Organization | Type | Country |
|---|---|---|
| Poznan Supercomputing and Networking Center | R&D | Poland |
| COMmeto bvba | SME | Belgium |
| ITTI Sp. Z o.o. | SME | Poland |
| RadiÖko Kft | SME | Hungary |
| Grinfinity | SME | Poland |
| University Hospitals of Geneva | R&D | Switzerland |
| terzStiftung | End User | Switzerland |
| Woonzorgcentrum Sint Jan Berchmans | End User | Belgium |
| ePoint bvba | SME | Belgium |

Source: https://www.pelosha.eu/project/

With the support of funds from the European Social Fund Plus, Member States can train workers with the necessary skills to provide the services that Europeans will need in the coming decades. This support can build a care sector that is better prepared, accessible, and flexible, qualified to provide long-term care to Europe's most vulnerable.

## Conclusion

Understanding the causes and effects of demographic change enables us to better manage its consequences and seize its opportunities, ultimately helping us to build a prosperous EU for future generations. The Green Paper on aging is devoted to the social problem of aging in the countries of the European Union. There are many ways to prevent or limit the negative consequences of aging on society. These include promoting healthy and active ageing, increasing the resilience of our health and care systems, improving the performance of the labor market, modernizing social protection, supporting legal migration and integration as part of a set of policies, striving for higher productivity and efficiency in all areas. The EU can counter the negative consequences of aging by engaging young and older people, promoting intergenerational solidarity and responsibility through supportive policies, and at the same time being a leader in developing a dynamic society that supports people.

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