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SILHOUETTE

USING NOVEL INFORMATION
AND COMMUNICATION TECHNOLOGIES
FOR THE SUPPORT OF ELDERLY'S ACTIVE
PARTICIPATION IN THE INFORMATION SOCIETY



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ICT-based Support for the Elderly in North Hungary: Stakeholders' view

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1. Introduction

Észak-Magyarország is the fourth largest region with one of the highest population densities in the country. Out of 605 settlements 39 are towns comprising approximately half of the regional residents. The population potential of the region is satisfied, but the economic potential has proved to be inadequate.

Northern Hungary has faced severe economic and social challenges since the transition to market economy. In spite of its natural and environmental potentials, the performance of the region is very poor both in terms of economic and social progresses. Currently real struggle has been fought for economic competitiveness and for a better quality of life.

According to the Hungarian statistical office by 2010 the region's number of inhabitants is 1109142. Compared to 1990 the region's population has decreased by 9% which is the largest population decline in the country. The Northern Hungarian region had the largest population decrease to 86.5 % of the 1990 value among 15-39 year old women, compared to the other parts of the country. Despite the nationwide decrease in the demographic index, Central Hungary shows a 5% increase in the number of women of childbearing age, which is likely due to the internal migration trends; the central region has a more attractive economy and labour market ability.

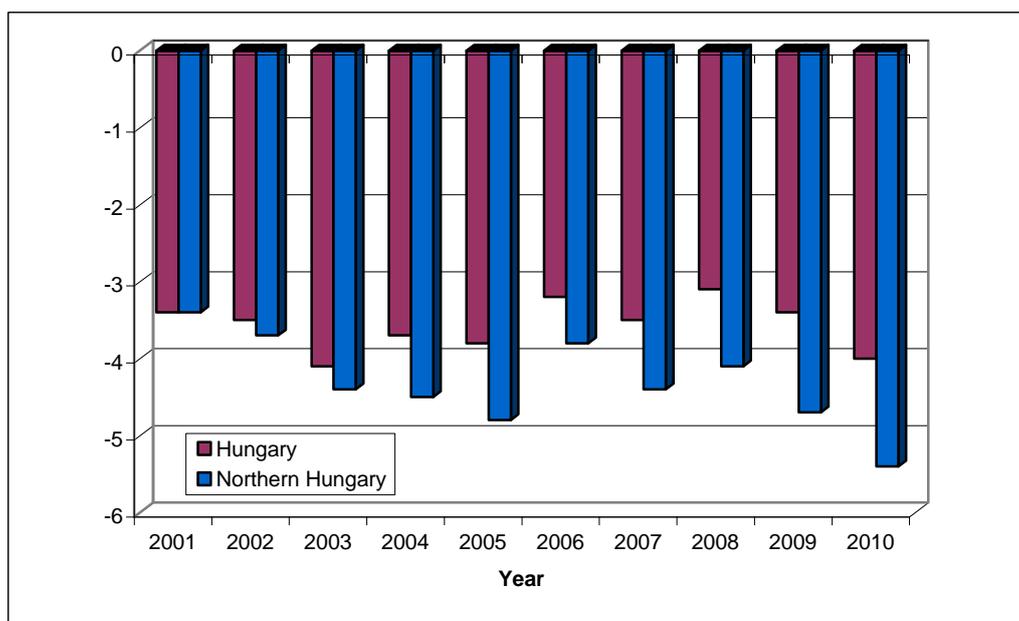
Demographic development can be characterised by the number of population. The decline in the number of population was only interrupted twice in the past twenty years. Firstly it happened in 1995, when the number of population slightly increased by 0.8 percent. The second increase was in 2001, which is due to methodological changes taken into account that the 2001 census corrected the data derived from calculations.



Population of Northern Hungary (1990 – 2011)

Source: own compilation based on data from www.ksh.hu and www.registar.hu

Besides looking at the total number and the changes of the population, its composition is also worth examining. Population changes can have two sources: vital events and migration. Vital events include birth and death and natural increase or decrease expresses the sum of these two factors. The next figure shows the natural increase and decrease per thousand inhabitants for Hungary and Northern Hungary.



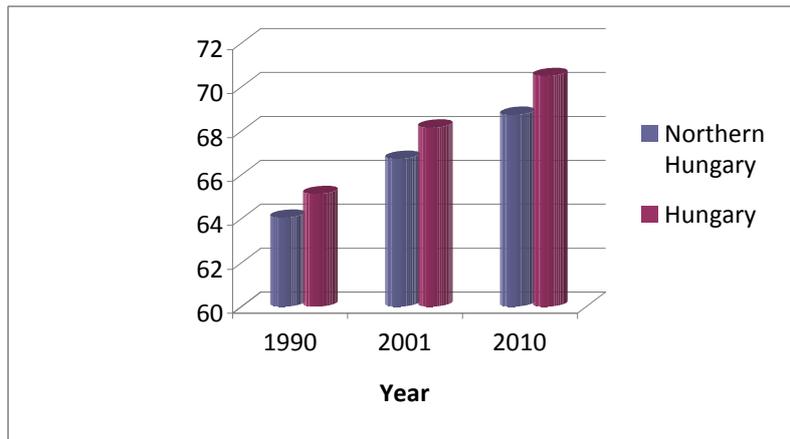
Natural increase (+) and decrease (-) per thousand inhabitants (2001-2008)

Source: own compilation based on data from www.ksh.hu

In the examined period the balance was always negative for both of them, and in Northern Hungary, the natural decrease is always higher. Even if the live birth for thousand inhabitants is higher in the region than the national average, deaths per thousand inhabitants is also higher.

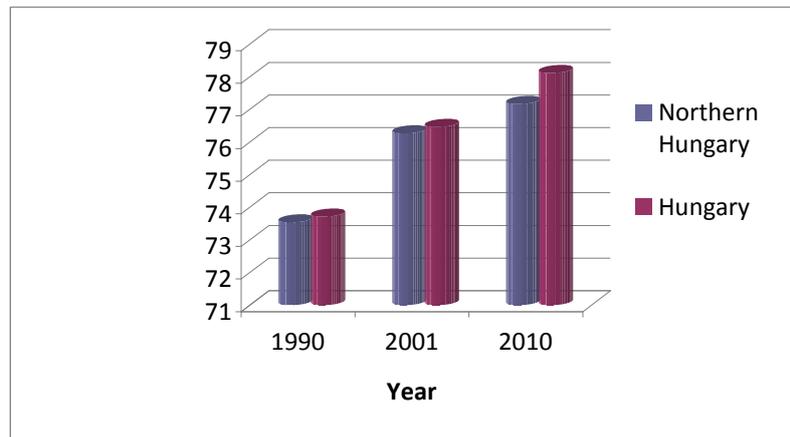
Note that one of the highest fertility rate indicator can be found in Northern Hungary. This is due to the fact that fertility rate is extremely high among women younger than 14 (which is three times higher than the national average) and women between 15 and 19 years (twice as high as the national average), while the fertility rate of those above 25 is lower than in Hungary. This leads to the unfavourable fact that young mother get out of the education system, do not get any qualification and thus cannot reach the living standard necessary to satisfy the minimum needs. Early founding of family can be a reason for poverty and deprivation.

Not only population data, but also average life expectancy is an important social indicator of regional performance, that is also below the European and national average. The average life expectancy is shown for men and women in the next two figures. This value is much lower for men then for women, which is a problem throughout the country. In case of Northern Hungary, however, all values are lower than the national average. The difference between regional data (77 years for women and 68 years for men) and national (78 years for women and 71 years for men) is significant, representing inadequate positions for us.



Average life expectancy for men (1990, 2001, 2010)

Source: own compilation based on data from www.ksh.hu



Average life expectancy for women (1990, 2001, 2010)

Source: own compilation based on data from www.ksh.hu

Besides demographic data, labour market position of the region also worth assessing. The unemployment rate can be a measure of regional performance. The trend of the rate is the same in the region as at national level, but it is always higher than the national average for Northern Hungary. It has been increasing since 2001 and for four years it has been over 10 percent, while the national average has been below 8 percent.

The average activity rate increased by just 2% in the examined period. The activity rate was the highest in Central and Western Hungary, and the lowest in Northern Hungary and the Great Plain. In the latter regions the average rate was 50%. The trend of this indicator was decreasing in the most developed regions, but in the others it was increasing. After the recession the activity rate stagnates or slightly decreases everywhere. The activity rate of Northern Hungary region is 3 percentage points below the country's average. The activity rate of the Northern Region improved by 4% percent, which is mainly caused by Borsod-Abaúj-Zemplén county's development.

Number of population per gender and changes in the rate of the elderly

County, region	Rate of people aged 60 and over of the permanent population, 31 Dec., %	
	2000	2009
Borsod-Abaúj-Zemplén	19.1	19.9
Heves	21.6	22.4
Nógrád	21.0	21.9
North Hungary	20.0	20.9

Source: CSO

Because of the increasingly growing share of the elderly population, the social directions of the country and the region have to be re-structured. At present, there is lack of possibilities for the elderly that would improve their quality of life and make their home area more attractive. In this research we are planning to map the claims and futural possibilities of the elderly population.

2. Senior-oriented activities

2.1. Supporting the elderly communities in the region

Concerning the Hungarian situation we took a survey of the Hungarian strategic plans from 2007. In these documents the connection between ICT-sector and elderly people appear just as a soft factor. We have examined most of the regional documents (more than 60), but this topic arose just in three papers and it shows perfectly the hard situation of the elderly

The policy for elderly (and ICT-sector) does not appear as a core factor, just a complementary. The instruments of ICT-sector are not use in a wide range of elderly. The main target of the reviewed national policies is to incentive using of that by elderly to improve the quality of life, to reach the public health service or stay in the labor market. The connection between ICT and elderly people is not a separate policies, it is just one part of infrastructure or public health care development.

2.2. Usage of ICT-based solutions in supporting the elderly

During the evaluation of the stakeholders' view, we have asked representatives from the following organizations who are regional experts or advisors in the region:

- Bay Zoltán Foundation for Applied Research (BAY-LOGI) – Miskolc
- North Hungarian Regional Development Agency (NORDA) – Miskolc
- Hungarian Maltese Charity Service – Miskolc
- Locomotor Rehabilitation Centre – Mezőkövesd
- National Health Insurance Fund – Miskolc
- “Őszi Napsugár” Home for the Elderly – Miskolc
- Quaestor Occupational Pension Service – Miskolc
- Silver Academy (University of Miskolc, MINŐIES Foundation) – Miskolc

The Hungarian Maltese Charity Service Center in Miskolc as a nursing home care provides full-time 25 elderly people, which includes nursing, care, medical care, and the provision of medicines. The institution budget operates from the state budget and the tuition fees of elderly people. 25 people are living in nursing homes, the average age of over 80 years. ICT are not used in the provision of services (the most useful equipments are TV-s, radios, mobile phones, but even a 98 years old inmate has a laptop and internet connection.)

The “Őszi Napsugár” Home for the Elderly has opened since 1971. The institution provides long-term residential home and special care for the elderly. 437 elderly people live In the Home permanently. They had a successful project in 2010 which was financed by the European Social Fund. They could developed

their IT system and build a nurse call system. The elderly people use the following ITC equipments in the Home:

Equipments	Pieces
Hearing aid	15
Mobil phone	77
PC	4
Internet	3
E-mail	3
TV	127
DVD player	9
Cassette player	13
Radio	95
Total	346

The Locomotor Rehabilitation Center does not provide special benefits for 65+ years elderly people neither in general, nor in ICT sector. There are no plans to introduce this ICT services in the future, the main reason is the financial difficulties.

The National Health Insurance carries out the procedures about pharmaceuticals, medical devices, supported by social security, health technology. Through the administration of health services provided use of a high proportion of elderly people. The National Health Insurance Fund operation ensures a high level of IT support, as appropriate to the services it funds require the use of ICT.

The QUAESTOR Group initiated in October 2010 the creation of the first national provider of occupational pension, which was established with a view to its members and their employers provide flexibility for pension saving form.

Senior or Silver Academies can be found in several places that ensure the development of skills and provide access to new information for elderly people. These academies were financed from international projects or from different foundations offering or from volunteers offering. In Hungary the first Silver Academy was established in 2009 in Northern Hungarian region (in Miskolc). The University of Miskolc and the MINŐIES Foundation launch a 128 hours course financed by the Ministry of Social Affairs and Labour. The course consists 2 semesters and issues a certificate of participation. In the last three years more than 320 participants were take part in this education. The lectures are held every weekend in the lecture halls of the University of Miskolc by university professors. The presentations in all areas of science give new information, providing multidisciplinary, the IT lectures and exercises are popular. More and more elderly open to the use of these IT devices as well. Several people told us to buy a computer for their own use at home, because they have learned during the lectures in basic IT skills. This academy is more and more successful year after year and received a lot of positive feedback. The main objective was to introduce to the elderly the new technologies and the new results of social and engineering sciences. The elderly could refresh their knowledge, they listened lectures in the theme of demography, economy, civil rights,

engineering, geography. In every year there are about 100-150 participants from the Northern Hungarian region.

The North Hungarian Regional Development Agency is responsible for regional development; economic restructuring of the region to accelerate the capital investment and job creation, improving the conditions of this framework are basically care programs. The Agency carries out organizational tasks involved in the programs supported by the Structural Funds implementation, such as social issues through the elderly, this is a high priority. In the rural development activities the growing proportion of elderly appears more frequently as a social challenge. The objective is to increase the living standard of elderly, which appears in the regional development programs.

The Bay-Logi makes a lot of applied research in market conditions in corporation with universities and research centres, for-profit and non-profit organizations. They makes research in the field of nanotechnology and nanomedicine, biotechnology and medical technology and their results could be useful for the elderly.

3. National, regional and local programs and strategies of supporting the elderly

Nowadays there are two main objectives of the national economic policy. The first one is to increase the employment rate (in parallel with the activity rate) and the other is to maintain the social welfare system and to increase the quality of life. It is paramount importance to integrate the social groups struggling with particular employment difficulties (young people starting out on a career, elder people, women, Roma people, persons living with a disability and people whose ability to work has changed). The policy makers would like to reach this goal with the improvement of the targeted support and allowances and with the harmonization of the employment and social service system. One of the most important tools is the development of skills needed for employment acquired within and outside schooling is placed in the centre of training services. The ICT-based solutions and tools appear here, because the applications can support the elderly to return to the labor market again.

The core element of the development of the social welfare system is the improvement of services offered at home for the care of disabled, elderly people, or people depending otherwise on the care of family members. These interventions shall be implemented in line with the development of the infrastructure of social. There should be services provided for the elderly and for groups of disadvantaged people close to home and close to families, in areas of small villages and homesteads suffering from accessibility problems. One of these services can be offered by the improvement of the information-IT and the transport accessibility with special regard to the areas of small villages and homesteads suffering from accessibility problems and in peripheries far from main railway lines, speedways and in the most disadvantaged regions. Development of innovation based infocommunications solutions in public health increases the quality of life, make easier the life of elderly and handicapped, rising of comfort sensation, keep the elderly in the active part of the society.

According to the stakeholders, the “Őszi Napsugár” Home is not able to ensure more budget in the future for the ICT because of the narrowing social spending and financial resources on national and regional level. Unfortunately, over the next few years is also unlikely that the overall benefit will be more money for renovation or purchase of equipment. According to Hungarian Maltese Charity Service could the new ICT making use of the elderly in good physical condition under 75 years old. Their opinion is that the elderly above 75 years old are not a good physical condition. According to the Locomotor Rehabilitation Centre is the elderly policy a priority area because of the increasing proportion of older people in the population. People are living longer, but their health is not improving at the same time, unfortunately. It is priority and important to support the elderly at all time. The National Health Insurance Fund is confident that the development will increasingly take into account the needs of older people. The North Hungarian Regional Development Agency thinks that the aging of society, such as the region's population decline is a challenge, which makes it inevitable for elderly care, supports quality of life.

4. Benefits and barriers in implementing ICT-based solutions for supporting the elderly

In our workshop and during the stakeholder interview, not only the results but all of the best practices were introduced from the partner regions. We took a short introduction about the Menumat system, the GEOlocation watch, the OKE tool developed by the Hungarian Bay-Logi Institute and many other service systems which can support the living standard of these elderly generations. The opinions were the following:

1. Menumat-system:

- a. It was a great success, the participants liked it very much. According to them it can be marketable in Hungary as well and not only in the big cities but in the rural area as well.
- b. The price can be the only problem, because in Hungary the retired are in a hard situation and their incomes are really low. They would need some kind of state or institutional support to purchase this service or to hire it.
- c. Many questions arose in the topic of the energy price (with regard the overheads). They were interested in the additional costs of the Menumat system (such as effects on their electric bill). Another suggestion was in connection with their safety, because the pensioner do not want to let in strangers into their homes.
- d. According to them the developments with regard their personal safety are really important (the personal and property protection is primary). We can mention the mechanical and electronical tools, informative films and brochures developed by the Borsod-Abaúj-Zemplén County Police Headquarter, which can provide information for the pensioners in the field of crime prevention, victim assistance and victim protection.

2. Gyroscope watch:

- a. The pensioners were really open for it.
- b. They made further suggestions:
 - i. It can be used as a mini-mobile phone with maximum 3 telephone number.
 - ii. It can measure physiological functions such as blood pressure.
 - iii. It has to be water-resistance, because it can be usable when they take a shower.

3. OKÉ (developed by the Bay-Logi)

- a. It should be operate with discount installment payments option or it could be hired. The financing is the main question by the introduction of this product.

4.1. Benefits

Many benefits of the ICT based solutions were mentioned during the interviews. More information relating to the world, could be better relationship with friends, relatives. This will also help maintain mental sharpness. From the ICT-based medical devices (for example massage equipment, physiotherapy equipment) to improve the physical condition promoted. Improvements are strongly needed in this direction.

Stakeholders think that the most important is that these tools can enable the elderly to live a more meaningful life. ICT-based solutions allow the elderly to get access to the services easier. Many elderly are disabled and find it difficult to move. For them, ICT-based solutions that make it easier to get access to a given service are welcome. For example the elderly can stay longer time at their home, because these solutions help them to make the daily routine. They do not become isolated, they can make contact with their families, relatives and friends more frequently. It contributes to their mental health and their family can be rest assured that their family member is in safe.

The second benefit is in connection with the efficiency of these systems. The care providers do not need to travel to all of the elderly, they can make their work in their own office. They can monitor many elderly at the same time and they can provide effective services. A further benefit of ICT-based solution could be the discount price for the elderly if there are any.

4.2. Barriers

The main barrier in implementing ICT-based solution for supporting the elderly is the lack of the necessary financial resources in the case of the concerned providers. Besides, the heterogeneity of the services provided for the elderly would require different solutions, which makes the implementation even more difficult.

We think that there are two main barriers with the effective introduction of the ICT-based solutions. The first one is that the elderly are often averse from the use of it. The elderly's ICT knowledge is insufficient in many cases. In the long run the ICT-training of the elderly is essential because they are afraid of the using the ICT-tools. If they get information and get to know these solutions they become more open for the new things. During the buying process, they do not get any punctual information about the advantages and disadvantages about the new inventions, and they usually do not treat the vendor who offers these things.

The other problem is in connection with the high price of the solutions and the low income status of the elderly, mainly in the North Hungarian region. The payment in installments or perhaps the leasing could be a good solution. Support from the state or from the municipality could also help in this problem, but this is also a sensitive question nowadays during the financial crises.

The main barrier in implementing ICT-based solution for supporting the elderly is the lack of the necessary financial resources also in the case of the concerned providers. An increasing number of hospitals have experienced financial problems in Hungary. When a hospital have problems in providing the necessary

services and the necessary staff for satisfying the basic needs of the patients, they cannot afford to care for the specific needs of the elderly.

Besides financial problems, the heterogeneity of the services necessary for the elderly also makes the implementation of ICT-based solution difficult. The problems of the elderly can be very different. It is enough to think about the different health problems that a hospital usually has to face when taking care of the elderly population. Each problem requires a different solution, which implies that a given ICT-based service or solution is not very often used. It worsens the profitability of the given solution and arises the question whether it is worth spending a lot of money on the implementation or not.

5. Potential of the region to utilize ICT-based solutions for supporting activity of the elderly

Besides the regional statistical data, the results of the questionnaires also support the negative tendencies mentioned above: the low state of health after the retirement ages and also the high unemployment rate keep the elderly away from the labour market and that is why they remain inactive. As they think, they have to give their places towards the youngsters, who have much worse possibilities to find a job in the region than they had 40-50 years before. A network could also support the elderly, a kind of knowledge network, where new investments and other information would be spread in order to introduce ICT based solution to the group of interest. With this, R&D potential of the region could be also raise.

5.1. The R+D and innovation potential in Northern Hungary

In the region, the industries employing most of workers are the manufacturing, transportation, trade and construction sectors. Regarding the number of enterprises most of them work in trade, then construction and manufacturing. Least of the firms operate in the industry of transportation. During 2003-2009 a decreasing trend can be observed regarding both the numbers of enterprises and employees in all sectors. Although a growing number of multinational firms have appeared in the region, the number of those performing R&D activities is low. It is rather dealt with the more significant companies. The lack of “business angels”, i.e. experts specialized in helping and launching enterprises further weakens the region. The already accessible European Union funds and the Hungarian Innovation Fund being launched soon provide further financing opportunities in the region. The SME sector can strongly feel the impact of SMEs, they have problems of financing.

The University of Miskolc has dominant role in terms of innovation. It employs a great number of leading teachers who publish in internationally known scientific journals. The low number of high-tech companies and the low innovation potential is to be mentioned as weakness. Firms should be ensured better innovation opportunities. In addition, fostering the vertical and lateral innovation can be significant. The inter-sectoral coordination and the funds necessary for environment development, which could help enhance the innovation performance, are missing.

Taking the innovation strategy of the region, the main objective is to raise economic competitiveness of entrepreneurs in the region due to R&D facilities, transfer of knowledge and technology, exploiting synergies in clusters, entrepreneurial corporations. The vision is competitive economy, improving infrastructure, raising standard of living, ensuring the mission, the balance of coordinated development of centres and peripheries in the region.

The region's preferences are:

- raising economic potential in the region,
- extension of social welfare in peripheries,
- mobility in the field of R&D&I, improving research infrastructure, clusters building on the cooperation of public and private spheres.

In accordance with objectives of development policy positive preference is applied:

- technology (nanotechnology),
- chemistry, machine industry, mechatronics
- geographical territories (development poles).

Taking the aims into consideration, there are many connecting possibilities where we can involve the region's elderly population indirectly: with the target of knowledge transfer, cooperation of generations and the prevention of exclusion and employment status. With improving the quality of life and make the elderly more active and cooperative, improving ICT solutions, maybe some of the retired people's re-integration into the labour market (as e.g. advisors or external expertise) would be also supported, that could raise the regional human and R&D potentials in the long term.

6. Recommendations of regional stakeholders

Many other possible directions with regard the new developments were mentioned in the workshop that was organised for the stakeholders and appr. 60 elderly person (they discussed it in small teams). The elderly and the institutional leaders formulated possible cooperation alternatives and they discussed the potential using forms of the info-communication tools.

1. Information flow among the institutions
 - a. The best professionals of the state, civil and church have to participate in the projects are in connection with elderly.
 - b. It can be called “Elderly Grant Advisory Committee” – 5-10 persons
 - c. It would be also very important to reach the elderly living in the least-developed rural regions.
2. Importance of IT-training
 - a. Starting computer sales for elderly (they need not only new but second-hand computer as well)
 - b. Cooperation of generations in the field of IT-training. Universities and high school students can be mentors of elderly.
 - c. Internet subscription in discount price (discount packets for pensioners). It would encourage them to use the computers and the internet, and these IT-systems would be cheaper.
 - d. Making E-points for example in the elderly clubs.
3. SENIOR TOURS: travel tours specializing on elderly.
4. Wegpages made for pensioner, where they can find information (for example about these products) and programs.
5. Information day about the reachable tools and ICT based solutions: short, half-day events have to be organized in the bigger cities. There the elderly could know the newest and the most practical and useful solutions. They can get information about the usage, the price and the availability.
6. The potential meeting points of elderly have to be found (such as elderly clubs, hospitals) and there information tables about the available ICT based solutions have to be placed. It is a problem that there is no so wide range of ICT based solutions for elderly than in Western or Eastern-Europe, but furthermore the available tools are not known as well.