

## R1A3 - State-of-Play Framework Development

Project number: 2021-1-DE02-KA220-ADU-000033587



Co-funded by  
the European Union

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E-Seniors

11/21/2022

## REVISION HISTORY

Version	Date	Author	Description	Action	Pages
[..]	DD/MM/YYYY	PARTNER ORGANIZATION	[Creation/Insert/ Delete/Update of the document]	[C/I/D/U]	[No. of pages]
1.0	21/11/2022	E-SENIORS			

(\*) Action: C = Creation, I = Insert, U = Update, R = Replace, D = Delete

## REFERENCED DOCUMENTS

ID	Reference	Title
1	2021-1-DE02-KA220-ADU-000033587	SmartHome4SENIORS Proposal
2		

## APPLICABLE DOCUMENTS

ID	Reference	Title
1		
2		

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## Introduction

This document is the third in a series of three reports. It follows a research phase and an analysis phase with 166 people responding to a questionnaire. In Germany, ILI collected 46 answers from respondents coming from 38 organizations dealing with senior citizens and stem. Other partners, in the Netherlands, France, Bulgaria, Ireland, Austria and Greece collected 20 answers each from seniors of their organization interested in the subject of smart homes. The aim of this report is to try to understand the knowledge, expectations and needs of senior citizens in relation to smart homes and DIY. This should enable the SmartHome4Seniors project to identify these needs and to propose a suitable learning framework.

### I. Most "popular" needs for senior citizens in relation to smart home automation.

*In this part, the task is to give an overview of the most relevant existing needs for senior citizens in relation to smart home automation. This will show how the solutions offered by the results of the project might answer those needs and improve the understanding of seniors regarding smart home automation.*

#### A. Making life easier in order to stay at home longer

Despite the fact that the understanding of seniors regarding home automation remains vague and unsure, most seniors identify that one of the most important benefits of smart homes is to make life easier. This need for an easier life when ageing comes from the living situation of seniors in Europe and the fact that they are more likely to live alone as they age. At the same time, seniors are willing to stay at home the longest possible, and are already succeeding in this. In the Netherlands, 80% of the population over 80 years old is living at home, with the government having the goal of increasing autonomy and life at home, thanks to the Dutch National Care for the Elderly Program launched between 2008 and 2011.

The consortium's own research shows, however, that 24% of senior citizens in the partner countries live alone. With ageing, not to mention loneliness, there is a degree of danger in living alone at home. Indeed, an accident or a fall may occur without any way to warn one's relatives or the emergency services. However, the research phase showed that there are various devices to ensure the safety of people living alone, to enable them to remain independent for longer in their homes. Examples include emergency call devices, emergency buttons and fall detectors. However, our survey showed that only 28% of the seniors surveyed thought that smart homes could help them to stay independent for longer.

The first results on the subject of Smart Homes specifically show that senior citizens know very little about the subject and the possibilities offered by Smart Homes. At first sight, they do not seem to be very interested because they are wary of this world that they do not know. There is therefore a real need to inform them about the subject.

## B. Health opportunities

If older people can remain independent at home for longer, it is thanks to the health devices that exist in the field of smart homes.

However, in the same way as the previous answers, the seniors surveyed are not aware of the different possibilities available to them. For example, our survey shows that 68% of the seniors surveyed have never used a smart home device and 96% of them have never used a fall detection system.

While some of the seniors surveyed are aware that smart homes offer opportunities in terms of health, they are not specifically aware of how this can benefit them. Fall sensors, automated bed rails, emergency call buttons, medication dispensers and many other devices exist to make their lives more comfortable and independent. But the barrier of lack of information and price preconceptions remains. Indeed, our research shows that 60% of them are worried about the price of installation and 45% of this same group is worried about the difficulty of installation and use (note that only 25% of the seniors who already have devices explain that they install them themselves without professional help or assistance).

Here again, there is a lack of information, skills and confidence in health opportunities. There is a real need for information in this area.

## C. Security and improved external communications

There is a real need for security among seniors. According to our survey, 40.5% of them consider security as one of the main benefits of smart homes.

There are different security devices in smart homes, the simplest being a more advanced alarm connected to the smartphone. There are also wireless cameras, smart smoke or CO2 detectors or smart door locks.

But our research showed that 75% of senior citizens surveyed had never used a smart security device.

There is therefore a real challenge to inform seniors about the security opportunities offered by the different devices and to convince them that these are also real opportunities to stay at home longer in safety.

As for external communications, 35% of the seniors surveyed consider them as major benefits. Throughout Europe, the Covid-19 crisis has shown the loneliness that older

people living alone can suffer and the limitations that their health imposes on them. Conversely, this health crisis has also helped to highlight Smart Home solutions. 25% of the seniors we interviewed live alone. But these seniors are able to use communication devices such as smartphones or computers. 87% of them use a smartphone every day and 59% of them use a computer every day. Digital competence is therefore present.

There is therefore a need to provide seniors with knowledge of the various external means of communication that they can use in their daily lives (and specific to connected homes) but also the means of communication related to emergency situations such as alert buttons or voice commands. Voice command devices have never been used by 79% of the seniors surveyed.

## II. Most needed skills and competencies in relation to DIY electronics and smart home solutions for senior citizens.

*This part aims to identify the most needed skills and competencies for seniors in order to learn more about and implement smart devices at home. In order to enhance the understanding and skills around connected appliances, there is firstly a need to improve the global ICT skills of senior citizens. Then the training part of the project should develop self-confidence and teach the benefits of smart home devices, including by implementing DIY solutions.*

### A. Basic ICT skills for seniors

In order to develop access to smart devices and smart home solutions among seniors, there is a necessity to develop their ICT skills and understanding how such smart appliances could be integrated into their already existing connected setups.

In the partner countries, some public and private courses are available for seniors to develop their ICT skills and to become more digitally literate. There is mostly the possibility to access free of charge options. Those initiatives are often developed at the local level, through associations working for the general interest and access to the Internet.

Considering the discrepancies in ICT levels of seniors among the partner countries and in Europe in general, it is important to include a part of the training explaining the basis of connected devices and the link to WiFi in an understandable way.

The seniors who are interested in smart homes often already have some basic ICT skills. According to the survey conducted, 87% of seniors use their smartphone daily and 59% of all participants use their computer also daily. However, seniors usually use those devices for basic tasks such as to check their emails, browse on the internet and for communications. Therefore, it could require extra training for them to learn how to navigate through mobile applications for connected devices and to be more independent in their

use of those devices. Indeed, 45,7% of participants in the survey consider the difficulties with installation & use as one of the main concerns regarding smart devices.

## B. Developing trust in DIY solutions and smart homes

While researching the subject and when reading the results of the survey, it came to light that a lot of seniors are unsure about DIY and smart home solutions. When asked if they think smart devices can allow them to live at home longer, only 38% answered yes and 39% answered that they don't know while 23% clearly answered no. This shows a lack of understanding of the benefits of smart devices and some skepticism toward how it would improve their way of life.

To address this concern, it would be important to challenge the misconceptions seniors may have toward smart devices and their interest in it.

Regarding DIY, most seniors interviewed knew what it was especially when not related to the digital topic. Even more, 45% of respondents have access to information about DIY and 65% have tried some DIY solutions in their home. It is therefore encouraging to see that DIY is rather welcome among the senior population. However, these DIY activities are mainly focused on construction, decoration or repair of non-digital equipment.

However, when asked about why DIY solutions can be motivating for seniors in relation to smart devices, they expressed interest in financial savings, which is a huge part of smart home solutions and being creative, which is also in line with the structure of the project. The implementation of DIY solutions in learning how to use and install smart devices at home could be a big advantage in order to make seniors feel more confident in their creative abilities and ICT skills but also with practical benefits such as for saving, an important need according to many seniors.

### III. General recommendations to engage more seniors in learning about smart homes.

*Engaging more seniors in learning about smart homes means addressing their fears and the challenges this part of the population might face while installing and using smart devices. To achieve that and to have a more durable impact on seniors and their understanding of smart homes, using intergenerational learning pathways can be very beneficial.*

#### A. Addressing challenges for seniors regarding smart home solutions: Reassurance on the cost, data theft and difficulties of installation and use

Among the feelings of the people surveyed, the lack of confidence in these little-known systems is one of the most common. This is also reflected in the answers to the questions from the questionnaire.

When talking about connected and intelligent homes or remote control, it is easy to become suspicious and think about cybercrime and data theft. This is one of the major concerns for 40% of the seniors who responded to the survey. Difficulties in installation and use are also a source of concern for 45%, while cost is a concern for up to 60% of seniors.

In addition to the potential lack of knowledge of the subject, or the knowledge of the global subject only, we notice that almost half of the respondents (or almost, depending on the answer) have concerns about Smart Homes which could prevent them from installing them or simply from being interested in them. These three subjects are therefore subjects on which it is necessary to reassure the seniors.

It is necessary to show seniors how to protect themselves from the risk of hacking or data theft, to reassure them about the price of the various connected devices, many of which are affordable, and to offer help with installation and use. This will require the development of guides for senior citizens in particular and the encouragement of informal intergenerational training with close friends and family... We have observed that many senior citizens are helped by their children and grandchildren.

We have noticed that very few seniors have more or less technical skills in the field of connected objects. The seniors do not consider themselves particularly capable of carrying out the different actions listed in the evaluation report of the questionnaires. The highest value is "I know how to connect smart devices to my network" and concerns 33.54% of respondents. This is reflected in the results of the previous questions, but not necessarily in the results concerning the level of ICT skills, which appeared to be relatively



high. Again, it is understandable that the field of connected objects seems remote to these people who see it as too complicated for them.

A comprehensive approach is needed to enable seniors to better understand the possibilities offered by the field of smart homes and their various devices, but also an approach to reassure them about the accessibility of a field they consider too remote and for which they feel completely incompetent.

## **B. Developing learning pathways adapted to seniors: Developing intergenerational learning pathways**

Intergenerational learning pathways are considered a great opportunity for teaching and learning when it comes to adult education. In most countries, intergenerational learning is seen as something positive in many countries, especially when it comes to the digital world. Older adults tend to believe that younger adults, especially in their relatives, such as grand-children, are more digitally literate. They welcome intergenerational cooperation as an enlivening method of learning and an opportunity to spend time with the younger generation.

Nevertheless, the actual practice of intergenerational cooperation is not so common outside of family gatherings. When answering the survey, half of the seniors said they were involved in intergenerational activities but only 17% of the participants in the survey are involved in such activities on the subject of smart devices.

The interest in intergenerational cooperation stays quite high with 67% of the participants in the survey feeling that this type of learning pathway could be beneficial for older adults to learn about smart devices.

Developing intergenerational cooperation during the project, by having younger adults explaining the purpose and use of smart home devices could offer an advantage in the impact of the training content developed. For example, the younger trainers should not hesitate to use their younger age to make activities with seniors more attractive, by talking about their use of smart devices and by sharing the enthusiasm they may have towards connected devices.

## Conclusion

This transnational report provides a conclusion to two other reports:

- Desk Research Transnational Report
- Questionnaire Evaluation Transnational Report

The research work and survey that the project partners have carried out has shown that connected homes represent good opportunities for senior citizens as they address several needs that accompany an ageing population, including

- Health issues (health concerns can accompany ageing)
- Security issues (older people can become vulnerable to bad people)
- Financial savings (many older people have a low standard of living)
- Loneliness

Indeed, smart homes are likely to enable people to remain independent in their own homes for longer thanks to various health, communication and security devices that are nevertheless unknown and unused by a majority of the seniors interviewed. There is therefore a real challenge to inform these people about these various opportunities.

Moreover, despite their use of basic ICT tools (smartphone, computer), many seniors consider themselves incompetent with regard to these technologies insofar as they do not think they have the necessary skills to install or use these tools. There is therefore a need to simplify access to this information for this target group. On the other hand, senior citizens are enthusiastic about DIY and the opportunities for financial savings, manual work, and ecology.

The implementation of DIY solutions in learning how to use and install smart devices at home could be a big advantage in order to make seniors feel more confident in their creative abilities and ICT skills but also with practical benefits such as for saving, an important need according to many seniors.

A global approach is needed to enable seniors to better understand the possibilities offered by the field of smart homes and their different devices, but also an approach to reassure them about the accessibility of a field they consider too remote and for which they feel totally incompetent.

Finally, the development of intergenerational cooperation during the project, by having younger adults explain the purpose and use of smart home devices could offer an advantage in the impact of the training content developed.

## References

- Age Action (2018). Supporting digital literacy among older people. Briefing Paper 5. Ireland.
- Age Action (2020). Ageing Better campaign calls for Senior Minister for Older People and a joined-up approach to Ireland's ageing population. Available at <https://www.ageaction.ie/news/2020/02/04/ageing-better-campaign-calls-senior-minister-older-people-and-joined-approach>
- Ageing better (2020). Putting Older people at the Heart of the Next Government. Priorities for General Election 2020. Ireland.
- Berčan, M., & Ovsenik, M. (2019). Intergenerational learning: A cornerstone of Quality Aging. *Journal of Educational and Social Research*, 9(2), 67–71. <https://doi.org/10.2478/jesr-2019-0014>
- Bergstra, M. (2021, October). Ageing policies - Access to services in different Member States. Annex VI - Country study on the Netherlands. [europarl.europa.eu](http://europarl.europa.eu). Retrieved February 20, 2022, from [https://www.europarl.europa.eu/RegData/etudes/STUD/2021/662940/IPOL\\_STU\(2021\)662940\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2021/662940/IPOL_STU(2021)662940_EN.pdf)
- Board Gáis (2022). Smart home guide. Available at <https://www.bordgaisenergy.ie/home/smart-home-guide>
- Capgeris : « Les Seniors européens vivent-ils bien leur âge ? La vie est-elle pour eux source de plaisir ? Quel rapport ont-ils à l'avenir ? », 2018, <https://www.capgeris.com/data-senior-1750/les-seniors-europeens-vivent-ils-bien-leur-age-la-vie-est-elle-pour-eux-source-de-plaisir-quel-rapport-ont-ils-a-l-avenir-a41611.htm>
- CBS. (2020, January 8). Dutch young elderly relatively rich and active. *Statistics Netherlands*. Retrieved February 19, 2022, from <https://www.cbs.nl/en-gb/news/2020/02/dutch-young-elderly-relatively-rich-and-active>
- Central Intelligence Agency (2020). Ireland. In *The world factbook*. Available at <https://www.cia.gov/the-world-factbook/countries/ireland/>
- Creaney, R., Reid, L., & Currie, M. (2021). The contribution of healthcare smart homes to older peoples' wellbeing: A new conceptual framework. *Wellbeing, Space and Society*, 2, 100031. <https://doi.org/10.1016/j.wss.2021.100031>
- CSO (2016). Central Statistics Office. An Age Profile of Ireland. Available at <https://www.cso.ie/en/csolatestnews/presspages/2017/census2016profile3-anageprofileofireland/>
- CSO (2021). Central Statistics Office. Releases and Publications: Internet Coverage and Use in Ireland. Available at <https://www.cso.ie/en/releasesandpublications/ep/p-isshtc/internetcoverageandusageinireland2021/frequencyofinternetusage/>
- Czaja, S.J., & Lee, C.C. (2007). Information technology and older adults. In J.A. Jacko & A. Sears (Eds.), *The human-computer interaction handbook* (2nd ed., pp. 777–792). New York: Erlbaum.

de Jong, B., Wynia, K., & Geluk-Bleumink, A. (2018). Ageing Better in the Netherlands. In G. D'Onofrio, A. Greco, & D. Sancarlo (Eds.), *Gerontology* (pp. 101–111). essay, IntechOpen. <https://doi.org/10.5772/intechopen.69934>

De Jonge, H. (2019, October 17). Speech at the Well Ageing Society Summit 2019. Government.nl. Retrieved February 24, 2022, from <https://www.government.nl/documents/speeches/2019/10/17/speech-hugo-de-jonge-well-ageing-society-summit-2019>

Define Project Website : <https://define.fh-joanneum.at/>

Deutsche Seniorenliga e.V. Joachim Dung, Referat Presse- und Öffentlichkeitsarbeit (16.12.2020)

DREES: “L’aide et l’action sociales en France”, 2020 Report, <https://drees.solidarites-sante.gouv.fr/sites/default/files/2021-01/Fiche%2011%20-%20Les%20personnes%20%C3%A2g%C3%A9es%20et%20leurs%20ressources.pdf>

EC Employment, Social Affairs & Inclusion. (n.d.). Greece - Long-term care benefits. Retrieved March 11, 2022, from <https://ec.europa.eu/social/main.jsp?catId=1112&langId=en&intPagelD=4570>

EPTA. (2019). EPTA report 2019. European Parliamentary Technology Assessment. Retrieved February 23, 2022, from [https://eptanetwork.org/images/documents/minutes/EPTA\\_report\\_2019.pdf](https://eptanetwork.org/images/documents/minutes/EPTA_report_2019.pdf)

Eurostat. (2020). Ageing Europe - statistics on population developments. Ageing Europe - statistics on population developments - Statistics Explained. Retrieved February 24, 2022, from [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Ageing\\_Europe\\_-\\_statistics\\_on\\_population\\_developments](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Ageing_Europe_-_statistics_on_population_developments)

Eurostat. (2021, May 17). How popular is internet use among older people? Retrieved March 11, 2022, from <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/edn-20210517-1>

Federal Statistical Office (Destatis): [https://www.destatis.de/DE/Themen/Querschnitt/Demografischer-Wandel/\\_inhalt.html#sprg371138](https://www.destatis.de/DE/Themen/Querschnitt/Demografischer-Wandel/_inhalt.html#sprg371138) (status: 14.01.2022)

Friemel, T.N. (2016). The digital divide has grown old: determinants of a digital divide among seniors. *New Media & Society*, 18(2), 313–331.

Gain, V. (2021). Vodafone Ireland launches digital training course for older people. Available at <https://www.siliconrepublic.com/enterprise/vodafone-ireland-hi-digital-skills-course-older-people>

Goodbody, W. (2019). Analysis finds Ireland is the biggest winner from US tech FDI. RTE. Available at <https://www.rte.ie/news/business/2019/0111/1022708-analysis-finds-ireland-biggest-winnerfrom-us-tech-fdi/>

Hatton-Yeo, A. (2007) *Intergenerational Practice: Active Participation Across the generations*. Stoke on Trent: Beth Johnson Foundation.

HELLENIC STATISTICAL AUTHORITY. (2021). 2020 Survey on Income and Living Conditions. HELLENIC STATISTICAL AUTHORITY. Retrieved March 11, 2022, from <https://www.statistics.gr/documents/20181/92456ff4-ca92-fd4d-df49-81c297c978e7>

Hernández-Encuentra, E., Pousada, M., & Gómez-Zúniga, B. (2009). ICT and older people: beyond usability. *Educational Gerontology*, 35(3), 226–245.

HI (2016). Home Instead. New cutting-edge health technology to enable older people with chronic illness to be treated in their own homes. Home Instead Senior Care. Available at <https://www.homeinstead.ie/news-events/2016/06/08/new-cutting-edge-health-technology-toenable-older-people-with-chronic-illnesses-to-be-treated-in-their-own-homes-launched-by-newminister-of-state-for-older-people>

IE (2018). 34% of Irish adults likely to implement smart-home technology in future. *Irish Examiner*. Available at <https://www.irishexaminer.com/breakingnews/business/34-of-irish-adults-likely-toimplement-smart-home-technology-in-future--survey-829127.html>

Innovative education in the field of intergenerational cooperation support Website : <http://intergenerational.eu/>

INSEE : <https://www.insee.fr/fr/statistiques/3303333?sommaire=3353488>

INSEE : <https://www.insee.fr/fr/statistiques/4238381?sommaire=4238781#:~:text=Au%201er%20janvier%202019,moyenne%20de%20l'Union%20europ%C3%A9enne>.

INSEE: [https://www.insee.fr/fr/statistiques/4238381?sommaire=4238781#graphique-figure1\\_radio1](https://www.insee.fr/fr/statistiques/4238381?sommaire=4238781#graphique-figure1_radio1)

Institut Amelis : « Internet pour les personnes âgées : usages et avantages », 2021, <https://institut.amelis-services.com/bien-vieillir/vie-sociale-fetes/internet-chez-les-seniors/>

Jones, J. S. (2021, December 2). Netherlands leads Smart Home Device use in Europe. *Smart Energy International*. Retrieved February 18, 2022, from <https://www.smart-energy.com/industry-sectors/iot/netherlands-leads-smart-home-device-use-in-europe-statistics-netherlands/>

Kelly, D., McLoone, S., & Dishongh, T. (2009). Enabling affordable and efficiently deployed location based smart home systems. *Technology and Health Care*. 17, 221–235.

L'obeservatoire, “Le Do-It-Yourself pour s’affranchir de la surconsommation numérique”, 2021, <https://www.mesdatasetmoi-observatoire.fr/article/le-do-it-yourself-pour-saffranchir-de-la-surconsommation-numerique>

Les Echos : “Le vieillissement de la population française va s’accroître”, nov 2021, <https://www.lesechos.fr/economie-france/social/le-vieillissement-de-la-population-francaise-va-saccroitre-1367888>

Ma, C., Guerra-Santin, O., & Mohammadi, M. (2021). Smart Home Modification Design Strategies for AGEING IN PLACE: A systematic review. *Journal of Housing and the Built Environment*. <https://doi.org/10.1007/s10901-021-09888-z>

Ministère de l'économie: [https://www.economie.gouv.fr/files/files/directions\\_services/dgccrf/documentation/fiches\\_pratiques/fiches/objets-connectes.pdf?v=1640181465](https://www.economie.gouv.fr/files/files/directions_services/dgccrf/documentation/fiches_pratiques/fiches/objets-connectes.pdf?v=1640181465)

Ministerie van Algemene Zaken [b]. (2021, May 10). Government encouraging the use of eHealth (telehealth). *eHealth (telehealth) | Government.nl*. Retrieved February 19, 2022, from <https://www.government.nl/topics/ehealth/government-encouraging-use-of-ehealth>

Ministerie van Algemene Zaken. (2021, December 13). De Waarde van Ouder Worden. Ouderenzorg | Rijksoverheid.nl. Retrieved February 19, 2022, from <https://www.rijksoverheid.nl/onderwerpen/ouderenzorg/waardig-ouder-worden>

Ministerie van Algemene Zaken. (2022, February 1). Living independently for longer. Care and support at home | Government.nl. Retrieved February 20, 2022, from <https://www.government.nl/topics/care-and-support-at-home/living-independently-for-longer>

Moens, I. S., van Gerven, L. J., Debeij, S. M., Bakker, C. H., Moester, M. J., Mooijaart, S. P., van der Pas, S., Vangeel, M., Gussekloo, J., Drewes, Y. M., & Elzen, W. P. (2022). Positive health during the COVID-19 pandemic: A survey among community-dwelling older individuals in the Netherlands. *BMC Geriatrics*, 22(1). <https://doi.org/10.1186/s12877-021-02737-2>

NDS (2013). National Disability Strategy. National Disability Strategy Implementation Plan. Government of Ireland.

Nieboer, A. (2018). IP2. Healthy Ageing. Stichting Erasmus Trustfonds. Retrieved February 18, 2022, from <https://trustfonds.nl/trustfonds-ip2-healthy-ageing-anna-nieboer-pdf/>

OECD. (2013). Pensions at a Glance 2013-OECD and G20 Indicators: Netherlands. OECD: Better policies for better lives. Retrieved February 20, 2022, from [https://www.oecd.org/social/OECD-PensionsAtAGlance-2013-Highlights-Netherlands\\_eng\\_final.pdf](https://www.oecd.org/social/OECD-PensionsAtAGlance-2013-Highlights-Netherlands_eng_final.pdf)

OECD. (2019). Pensions at a glance 2019:Country Profiles-Greece. Retrieved March 11, 2022, from <https://www.oecd.org/els/public-pensions/PAG2019-country-profile-Greece.pdf>

Pack Silver economy:

[https://www.cnil.fr/sites/default/files/atoms/files/pack\\_silver\\_economie\\_v4.pdf](https://www.cnil.fr/sites/default/files/atoms/files/pack_silver_economie_v4.pdf)

Peek, S. T., Luijkx, K. G., Vrijhoef, H. J., Nieboer, M. E., Aarts, S., van der Voort, C. S., Rijnaard, M. D., & Wouters, E. J. (2019). Understanding changes and stability in the long-term use of technologies by seniors who are aging in place: A dynamical framework. *BMC Geriatrics*, 19(1). <https://doi.org/10.1186/s12877-019-1241-9>

Phelan, A., Daly L., and Keogh B. (2021) Exploring Older People's Experiences of Shielding During the COVID-19 Pandemic. School of Nursing and Midwifery Trinity College Dublin, Dublin.

Rhinocc, « L'importance du numérique pour les seniors », 2020, <https://rhinocc.fr/limportance-du-numerique-pour-les-seniors/>

Salomão Filho, A., Corrigan, T., & Tillmanns, T. (2021). Towards Digital Inclusion in Europe: designing a course on smart-home technology for older adults. *The Online Journal of New Horizons in Education* 11(1), 43-58.

Sanyal, S. (2018). Is Ireland really a startup nation? *Forbes*. Available at <https://www.forbes.com/sites/shourjyasanyal/2018/11/27/is-ireland-really-a-startup-nation/?sh=1294ff134556>

Schreurs, K., Quan-Haase, A., & Martin, K. (2017). Problematizing the digital literacy paradox in the context of older adults' ICT use: aging, media discourse, and self-determination. *Canadian Journal of Communication*, 42(2), 359–377.

Senior actu: "Senioriales : inauguration d'une résidence services seniors "high-tech" dans le Val d'Oise", 2021, [https://www.senioractu.com/Senioriales-inauguration-d-une-residence-services-seniors-high-tech-dans-le-Val-d-Oise\\_a24007.html](https://www.senioractu.com/Senioriales-inauguration-d-une-residence-services-seniors-high-tech-dans-le-Val-d-Oise_a24007.html)

SilverEco, "Smart home, Silver home, bien vieillir grâce à la domotique", 2021, <https://www.silvereco.fr/dossier-smart-home-silver-home-bien-vieillir-grace-a-la-domotique/31111157>

Smits, C. H., van den Beld, H. K., Aartsen, M. J., & Schroots, J. J. (2013). Aging in the Netherlands: State of the art and science. *The Gerontologist*, 54(3), 335–343. <https://doi.org/10.1093/geront/gnt096>

SOS Creativity Project Website : <https://define.fh-joanneum.at/>

Sovacool, B. K., & Furszyfer Del Rio, D. D. (2020). Smart home technologies in Europe: a critical review of concepts, benefits, risks and policies. *Renewable and Sustainable Energy Reviews*, 120, 1–20.

Statista 2022: <https://de.statista.com/themen/172/senioren/#dossierKeyfigures> (status: 01.02.2022)

Statista. (2017). Share of people 55 years of age and older using smartphones in Greece from 2012 to 2017. Retrieved March 11, 2022, from <https://www.statista.com/statistics/696437/greece-smartphone-users-55-years-of-age-and-older/>

Statista. (2020). Average annual wages in Greece from 2000 to 2020 (in euros). Retrieved March 11, 2022, from <https://www.statista.com/statistics/416209/average-annual-wages-greece-y-on-y-in-euros/>

Statista. (2020). Share of daily internet users in Greece according to age from 2014 to 2020. Retrieved March 11, 2022, from <https://www.statista.com/statistics/1241512/greece-internet-users-use-accessed-internet-daily-age/>

Statista. (2022, January 7). Netherlands: Average age population 2021. Statista. Retrieved February 19, 2022, from <https://www.statista.com/statistics/521650/netherlands-average-age-population-by-gender/>

Statistics Netherlands [a]. (2020, February 14). The Netherlands ranks among the EU top in Digital Skills. Statistics Netherlands. Retrieved February 19, 2022, from <https://www.cbs.nl/en-gb/news/2020/07/the-netherlands-ranks-among-the-eu-top-in-digital-skills>

Statistics Netherlands. (2021, August 12). Population pyramid. Statistics Netherlands. Retrieved February 19, 2022, from <https://www.cbs.nl/en-GB/visualisaties/dashboard-bevolking/bevolkingspiramide>

The World Data Bank. (2020). Population ages 65 and above, total Greece. Retrieved March 11, 2022, from <https://data.worldbank.org/indicator/SP.POP.65UP.TO?end=2020&locations=GR&start=1960&view=chart>

Trading Economics. (2022). Greece - At risk of poverty or social exclusion rate for elderly (65+). Retrieved March 11, 2022, from <https://tradingeconomics.com/greece/people-at-risk-of-poverty-or-social-exclusion-65-years-or-over-eurostat-data.html>

TRAPEZE Project Website : <https://trapeze-project.eu/>

UN, Department of Economic and Social Affairs, Population Division (2017). World Population Ageing 2017 - Highlights (ST/ESA/SER.A/397).

Van Berlo, A. (2011). Experiences with Smart Homes for Older People. In J. F. M. Molenbroek, J. Mantas, & R. de Bruin (Eds.), A friendly rest room developing toilets of the future for disabled and elderly people (pp. 19–26). essay, IOS Press.

Vie publique: « Vieillissement de la population : une adaptation nécessaire », 2021,  
<https://www.vie-publique.fr/en-bref/280168-vieillissement-de-la-population-une-adpatation-necessaire>

Vorrink, S. N., Antonietti, A. M., Kort, H. S., Troosters, T., Zanen, P., & Lammers, J.-W. J. (2016). Technology use by older adults in the Netherlands and its associations with demographics and health outcomes. *Assistive Technology*, 29(4), 188–196.  
<https://doi.org/10.1080/10400435.2016.1219885>

Walsh, D. (2021). The 2021 Smart Home in Ireland: the rise of the connected home. Available at <https://www.smarthomeperfected.com/smart-home-ireland/>

Walsh, K. & Harvey, B. (2011). Report of the Commission of Older People: Experiences and Issues. Society of Saint Vincent de Paul. Available at <https://www.svp.ie/getattachment/138f2765-e716-4960-9151-0fb2d7632b8e/older-people-s-commission-report.aspx>

WHO (2018). World Health Organization. Ageing and health. Available at <https://www.who.int/news-room/fact-sheets/detail/ageing-and-health>

Wilson, C., Hargreaves, T., & Hauxwell-Baldwin, R. (2015). Smart homes and their users: a systematic analysis and key challenges. *Personal and Ubiquitous Computing*, 19(2), 463–476.

Wilson, C., Hargreaves, T., & Hauxwell-Baldwin, R. (2017). Benefits and risks of smart home technologies. *Energy Policy*, 103(January), 72–83.

Zolyomi, E. (2019, September). Loneliness in Europe. Strategies for supporting social inclusion at older age. Retrieved February 22, 2022, from <https://ec.europa.eu/social/BlobServlet?docId=21810&langId=it>

#### Websites:

[https://www.statistik.at/web\\_de/statistiken/menschen\\_und\\_gesellschaft/bevoelkerung/index.html](https://www.statistik.at/web_de/statistiken/menschen_und_gesellschaft/bevoelkerung/index.html)

<https://de.statista.com/statistik/daten/studie/998408/umfrage/senioren-in-oesterreich/>

<https://www.age-platform.eu/publications/covid-19-and-older-people-impact-their-lives-support-and-care>

[https://www.rechnungshof.gv.at/rh/home/home\\_1/home\\_1/Allgemeiner\\_Einkommensbericht\\_2020.pdf](https://www.rechnungshof.gv.at/rh/home/home_1/home_1/Allgemeiner_Einkommensbericht_2020.pdf)

[http://iibw.at/documents/2019%20SL\\_IIBW%20Marktbericht\\_Seniorenwohnen\\_WEB.pdf](http://iibw.at/documents/2019%20SL_IIBW%20Marktbericht_Seniorenwohnen_WEB.pdf)  
<https://broschuerenservice.sozialministerium.at/Home/Download?publicationId=201>



[https://www.digitaleseniorinnen.at/fileadmin/redakteure/Downloads/Benachteiligungen\\_von\\_OfflinerInnen\\_2017.pdf](https://www.digitaleseniorinnen.at/fileadmin/redakteure/Downloads/Benachteiligungen_von_OfflinerInnen_2017.pdf)

[https://www.digitaleseniorinnen.at/fileadmin/redakteure/Downloads/mobiseniora\\_Studie.pdf](https://www.digitaleseniorinnen.at/fileadmin/redakteure/Downloads/mobiseniora_Studie.pdf)

<https://www.whatsappsim.de/ratgeber/senioren/smartphones-fuer-senioren>

[https://www.noe.gv.at/noe/Familien/COVID19\\_Forschungsbericht\\_Publikation.pdf](https://www.noe.gv.at/noe/Familien/COVID19_Forschungsbericht_Publikation.pdf)

[https://www.digitaleseniorinnen.at/fileadmin/redakteure/Downloads/studie\\_massnahmen\\_fuer\\_seniorinnen\\_in\\_der\\_digitalen\\_welt.pdf](https://www.digitaleseniorinnen.at/fileadmin/redakteure/Downloads/studie_massnahmen_fuer_seniorinnen_in_der_digitalen_welt.pdf)

[https://unece.org/fileadmin/DAM/pau/age/WG.12/Presentations/2\\_National-Strategy-Active-Ageing-Bulgaria.pdf](https://unece.org/fileadmin/DAM/pau/age/WG.12/Presentations/2_National-Strategy-Active-Ageing-Bulgaria.pdf)

[http://seniorsgodigital.eu/wp-content/uploads/2019/06/SGD\\_IO1\\_Desktop-Research\\_BG.pdf](http://seniorsgodigital.eu/wp-content/uploads/2019/06/SGD_IO1_Desktop-Research_BG.pdf)

<http://envejecimiento.csic.es/documentos/documentos/enil-ilv-01.pdf>

[https://www.interregeurope.eu/fileadmin/user\\_upload/tx\\_tevprojects/library/file\\_1510760024.pdf](https://www.interregeurope.eu/fileadmin/user_upload/tx_tevprojects/library/file_1510760024.pdf)

[https://www.smartyourhome-project.ili.eu/wp-content/uploads/2019/08/SmartyourHome-Publication\\_EN.pdf](https://www.smartyourhome-project.ili.eu/wp-content/uploads/2019/08/SmartyourHome-Publication_EN.pdf)

<https://www.bitkom.org/Presse/Presseinformation/Schulnote-43-Ueber-65-Jaehrigewerten-eigene-digitale-Kompetenzen-nur-als-ausreichend> (Bitkom August, 2021)

<https://www.die-bonn.de/wb/2015-intergenerationelles-lernen-01.pdf>