

R1A1 - Transnational Report

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Introduction

This document is a guide to help bring together and compare research from each of the project's partner countries. You should follow the structure below and write paragraphs to answer the different questions. These questions are there to guide you and help you answer in the right way. The aim is to allow you to share the good practices you are working on or know about on our smart homes theme with the appropriate references. Feel free to add tables, figures and images.

Please feel free to make suggestions for this guide or to add information that you consider relevant to your own report.

I. The situation of senior people in the partners' countries

In this part, the task is to give an overview of the situation of the senior citizens in the national context by means of figures. This will show the share of active seniors as well as the average level of seniors with regard to ICT.

A. The national context according to active ageing

With an ageing society, the European Union must make changes and adapt to new challenges in order to provide a healthy and active way of life to all senior citizens. The prediction for 2050 among the partner's countries is around 29% of people over 65 years old. This can be explained by the ageing of the baby boomer's generation, born in the 1960's who are now reaching the retirement age. The second factor of the ageing population is the rise of life expectancy in all European countries along with a decrease of the birth rates.

Demographic situation in the partners' countries:

Bulgaria: People over 65 years old were 17,4% of the total population in 2010 and 21,3% of the total population in 2018. It is predicted that people over 65 years old will be 32,7% of the total population in Bulgaria in 2060.

Germany: People over 60 years old are currently $\frac{1}{4}$ of the total population, and in 2020 they were already 29% of the population. The people over 65 were 22% of the population in 2020. It is predicted that $\frac{1}{3}$ of the population will be over 60 years old in 2050 in Germany.

Austria: The people over 65 years old were 19.5% of the population in 2017. No predictions are given at the moment even if the number of older citizens is expected to grow in the total population.

Netherlands: The over 65 years old were 16% of the population in 2013. The prediction is that 26% of the population in 2035 will be over 65 in the Netherlands.

Ireland: People over 65 years old were 13,38% of the population in 2016. It is predicted that 25% of the population will be over 60 years old in 2041.

France: The people over 65 years old were 19,6% of the population in 2021. The prediction is that this part of the population will be 29% of the total population in 2070.

With different data collected throughout the partner countries, we can expect that people over 60 years old will take in average more than one quarter of the populations in the partner countries by 2050. This reality will shape the way societies organize work but also housing as the population is ageing.

Living situation of elderly in the partners countries:

Senior citizens have diverse living situations, with big gaps between the more rural and the more urban areas but also between the different countries in Europe. In

Seniors are more prone to live alone the older they get. In Germany, every third person living alone in 2020 is over 65 years old and in France, where 30% of people over 60 years old live alone. The same situation is observed in Austria.

In addition to living alone, seniors are at risk of social exclusion in almost all partner countries, but also at risk of poverty, such as in Ireland, where it affects 11.4% of people over 65. In Greece in 2022, 19,4% of seniors over 65 are at risk of poverty or social exclusion. In France, the poverty rate is around 8,7% of the population over 65 years old while in Austria, a lot of seniors live in the poverty line and are socially isolated, especially single women. Due to this situation, there is an increase in the number of seniors over 65 working in those countries, with Greece reporting 38,7% of the working population being seniors in 2022.

Nevertheless, 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 quality of life quality at home, thanks to the *Dutch National Care for the Elderly Programme* launched between 2008 and 2011.

In general, all partner countries are aiming toward a better inclusion of thematic related to seniors in their public policies. All governments recognize older citizens as a valuable part of society and most countries have different programs to answer the specific needs of this part of the population.

B. The level of ICT skills among seniors

Here are some guidelines for writing this section, you can use these questions to guide your writing.

According to research, what proportion of senior citizens use connected tools (connected watch, smartphone, tablet...)? Do they know the tools? How many have a computer? What use do they make of the internet (emails, information, reading, bank...)? Do they feel comfortable or confused? Do they think they are too digitally late to try?

In general, there is an increased interest of seniors for ICT and the digital world. This tendency has been accelerated by Covid-19 and the digitalization of many public and private services. Seniors are still left behind in national policies and often don't have the necessary ICT skills to be considered digitally included. Nevertheless, those who are using the Internet and smart devices are diversifying their uses. More devices are used, such as connected bracelets, smartphones, tablets, etc, which are a good indication that smart home appliances are ready to be integrated in the life of the more digitally connected seniors.

II. Initiatives and opportunities for seniors

In this section, you are asked to present the means you know to provide ICT training for seniors and briefly present one or more projects (e.g., Erasmus project) that have been set up to help the late digitals.

A. ICT training for seniors

Here are some tips for writing this section, you can use these questions to guide your writing.

Do you know any organisations that offer ICT courses for senior people? Do you offer training? Which organisations? What kind of training? What kind of activities? For what price? Do many elderly people attend these trainings? Does it work?

In the partners 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.

The demand for ICT trainings courses is very high in some countries, such as France, Ireland and Netherland. In all partners countries, the increase use and understanding of computers is seen as a positive thing for seniors when they overcome their fear of the Internet. Indeed, it helps overcome loneliness and allows them to adapt to the Covid-19 restrictions in order to keep connected to their relatives but also to cultural and social occupations.

The ICT courses provided in the partners countries are in form of trainings and workshops offering a tailored support. Most are designed by level and designed to answer the questions and specific demands of the users. In Ireland, the private company Vodafone in partnership with the charity Alone and Active Retirement Ireland, provide a 5 years digital skills training program named “*Hi Digital*” targeted towards people over 65 years of age. This course can be completed online or face-to-face with volunteers. In Germany, 900 adult education centres offer around 700 000 events per year such as courses, lectures, study trips, etc related to ICT and seniors, and are supported by local governments and local municipalities. In the Netherlands, the NL Leert Door (Continuing education in the Netherlands) scheme provides free training to people looking to increase their knowledge in ICT¹. This training is provided online by several training institutions and learners can choose based on the training they wish to follow.

B. Some examples of European projects

Have you worked on European projects that focus on ICT training for seniors or do you know any projects? You can briefly present one or more projects and what they have achieved.

The partners of this consortium worked in various european funded projects targeting ICT training for seniors. You can find below some examples of those projects:

- Silver Code is a project where ageing people were trained in the basics of coding to get them a better understanding of their digital devices.
- The recently completed EU Erasmus project “SmartYourHome: how to make seniors’ homes smarter” has shed light on the relationship between seniors and ICT skills, particularly smart home technology, in Ireland, Germany, Italy, Romania, and Spain. As to the methodological steps; first, each partner country conducted a survey – a total of 5 surveys with 176 participants: Ireland (n=20), Germany (n=24), Italy (n=29), Spain (n=80), and Romania (n=23). Posteriorly, each partner country held a focus group: a total of 5 focus groups with 39 participants: Ireland (n=11), Germany (n=7) Italy (n=9), Spain (n=8), Romania (n=4). Considering both research methods employed, a total of 215 older adults participated in the study (for a more detailed methodology, see Salomão Filho et al., 2021).

The project investigated the perspectives of older adults on smart homes, focusing on the participants’ current knowledge of smart home technology, and their imagined benefits as well as concerns emerging from the use of the technology. In addition, the perspectives of older adults on learning about smart home technology, such as their learning preferences and the amount of weekly time one

¹ <https://www.hoewerktnederland.nl/werknemen/leren-en-ontwikkelen/online-scholing> (in Dutch)

would invest in smart home technology learning, were examined. The project's main outcome was to design an online course on smart home technology tailored for older people, thus increasing digital inclusion. From March to June 2021, Dublin City University SYH project members held a series of four one-hour-duration focus groups throughout the length of the SYH course in order to capture the experience of the participants, offering them support if necessary.

- The 13 partners of the Horizon 2020 project Trapeze are working to provide the right tools and guidelines to enforce the will of citizens and turn the fight against data abuses and cybercrime into a joint effort. Trapeze brings together several years of EU-funded research in the field of security and privacy, as well as proprietary solutions and know-how into marketable innovations.

Among the project's tasks is the creation of a digital platform for online self-training on the following online security topics: email, passwords, privacy, RGPD...

The objectives are as follows:

- Empower citizens and build a more trusted data economy by leveraging existing and emerging technologies for data decentralisation, control and processing;
- Raise citizens' awareness of the risks associated with personal data processing and cyber threats by creating a one-stop shop for information and training

For more information: <https://trapeze-project.eu/>

- Senior+: Creating educational materials and engaging communities to boost business opportunities for unemployed people over 55 years old through entrepreneurship.
- SenGuide – Successfully develop high-quality online trainings to older adults

SenGuide is the successor project of the Erasmus+ project GrandExpertS. The interest and desire of older adults over the age of 55 to participate in online continuing education opportunities remains very high - especially among those who are unable to attend face-to-face events due to mobility limitations, family obligations, or a rural residence. In addition, the Corona pandemic strongly illustrated the importance of participating online. For this reason and the experiences in the previous project, we are taking a participatory approach in SenGuide and are making some changes and testing with regard to the learning management system and the learning modules in order to give seniors the opportunity to continue their education and share their knowledge and skills online.

<https://senguide.ili.eu/>

III. Smart homes, their interest.

Based on what you have written above, you can try to deduce what Smart Home solutions can do for seniors in general as well as in the Covid-19 time. Then you can present solutions that already exist.

A. Interest of Smart Home for seniors and interest regarding covid-19

Studies in different countries show that older people often live alone, especially when they become widowed. At the age of 95, 42% of women in France and 27% of men live in institutions, compared to 5% and 4% respectively at the age of 80.

28% of women live alone at 65 and 55% at 85. For men the share varies from 18 to 25%. As these people prefer to live at home than in an institution, 67% of them say they are ready to install connected home solutions to be able to stay at home longer.

Across Europe, the Covid-19 crisis has shown the loneliness that can affect older people living alone and the limitations that their health imposes on living alone. Conversely, this health crisis has also helped to bring Smart Homes solutions to the fore.

These solutions are becoming popular in the Netherlands, for example, which is ahead of other European countries in this field, while the government is encouraging digitalization strategies.

Among the solutions provided by Smart Homes, two have caught the attention of seniors according to an Irish study. These are security and cost savings. Indeed, Smart Home solutions allow the installation of surveillance systems, cameras, motion detectors as well as devices aiming at saving different energy sources by limiting them to their necessary use. The figures in this study are also found in other countries such as the Netherlands, France and Greece. Furthermore, the issue of health is also raised. Smart Homes seem to be able to address this issue as well, with the help of fall detectors or warning devices for example. More generally, IoT solutions are widely mentioned for health issues (medical applications) or as a means of combating the isolation of seniors.

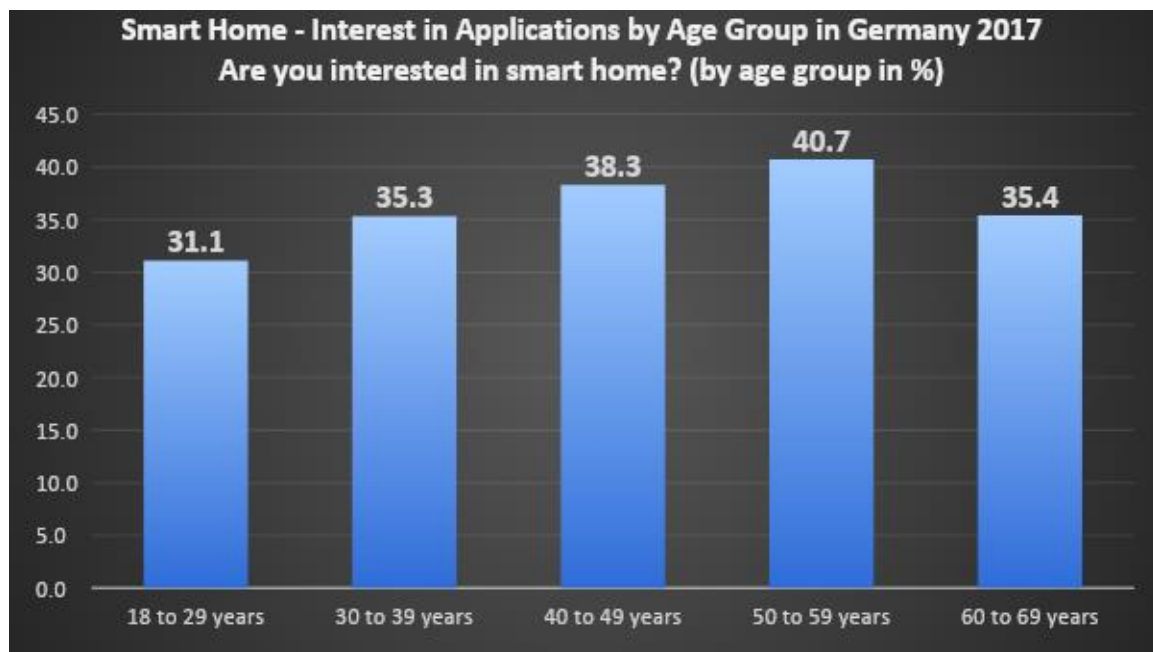
In Germany, in 2017, 40.7% of 50-59 year olds and 35.4% of 60-69 year olds said they were interested in the Smart Home.

To the question which device in your home can be controlled via the internet the respondents answered:

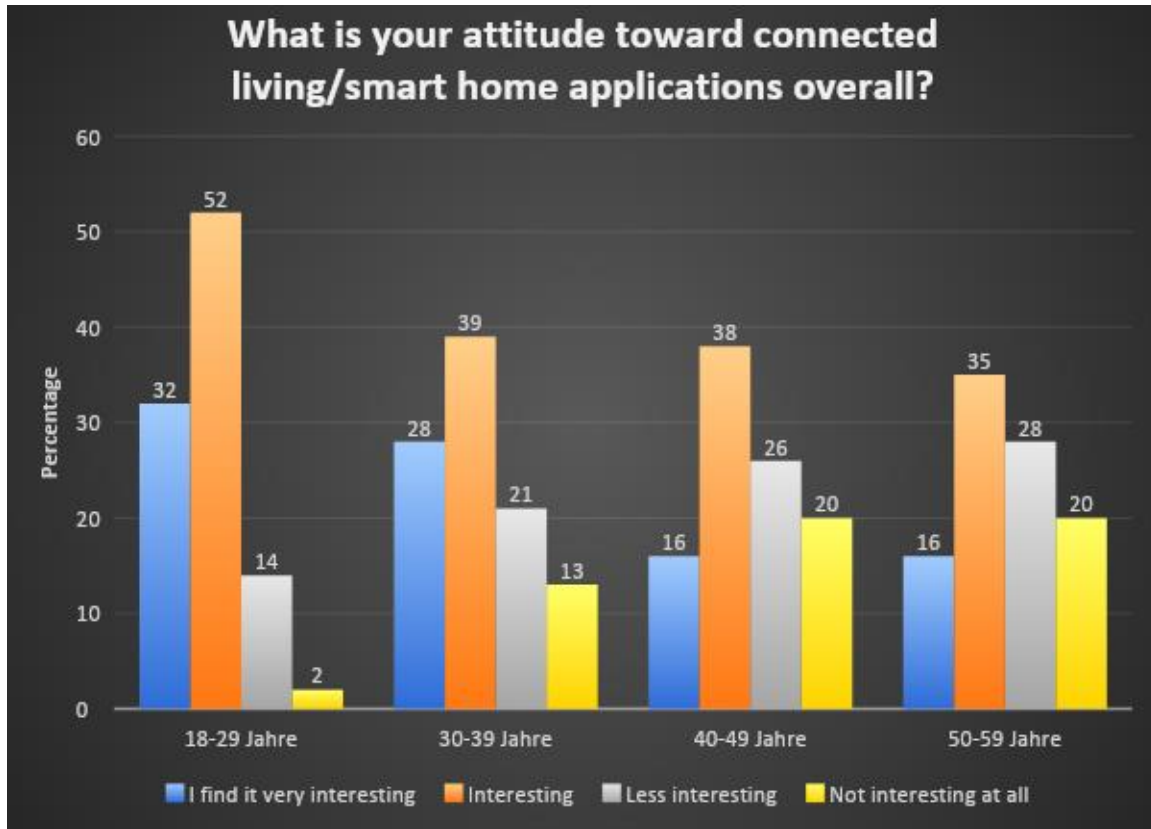
- Cameras for 11% of 18-59 year olds.
- 25% of respondents have internet controlled speakers.
- 18% of respondents do not control any device
- 53% already control their TV via the internet

Smart Homes and IoTs are therefore starting to become popular in countries such as France, Austria and the Netherlands but not so much in Germany or Bulgaria.

One of the main reasons for this, beyond the lack of information on the subject, is the lack of skills and the lack of confidence in these digital skills among senior citizens. They do not feel competent enough to take an interest in these subjects. They also see these devices as too expensive for them and are concerned about data protection issues. In Bulgaria, for example, smart home solutions are not particularly encouraged by national strategies. It is becoming more reassuring to stick to the "good old" solutions.



Source: © Statista 2022, Details: Germany; 06/02/2017 to 06/09/2017; 1,021 respondents; 18-69 years; respondents residing in Germany; online survey.



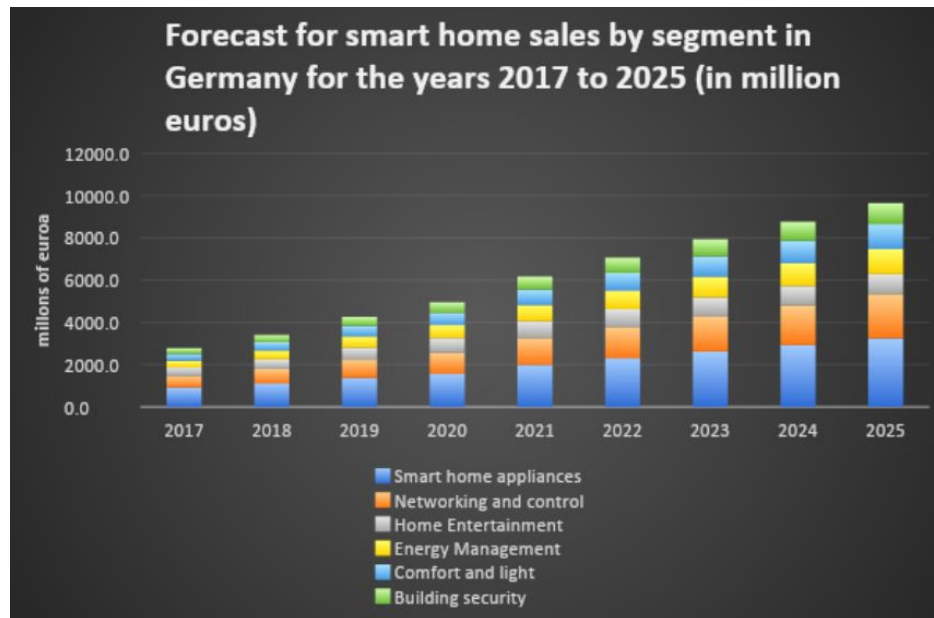
Source: © Statista 2022, Details: Germany, August 2016, 1008 respondents, 18 – 59 years

As these graphs show, senior citizens in Germany remain the least interested in Smart Homes solutions.

However, in all the countries covered by our research, there has been an increase in interest and installation of Smart Homes among the general population, due in part to the covid-19 crisis which has led to people staying at home more often.

More generally, home automation has seen a 50% year-on-year increase in Ireland (according to the energy supplier).

- 19% of Irish internet users use a virtual assistant via a speaker or app
- 15% use smart energy devices (lights, plugs, heating)
- 14% use smart security equipment (camera, smoke detector, smart lock...)
- 4% have connected household appliances (smart oven or fridge, robot hoover...)



Source: © Statista 2022, Details: Germany, 2021

B. Solutions that exist in terms of connected homes

As shown in the previous section, the field of Smart Homes is becoming popular in many European countries. The Covid-19 experience has greatly accelerated this popularisation. Thus, many companies have developed in this field and have increased their production and sales.

The studies conducted in Germany (previous graph) show the importance of the Smart Home financial sector by 2025.

According to the Digital Market Outlook, the revenue of the smart home segment "Smart Home Appliances" in Germany will be about 3,249.7 million euros in 2025.

In summary, the statistics demonstrate the striking growth of smart home appliances. Indeed, Digital Market Outlook forecasts that this segment will more than triple between 2017 and 2025. However, it should not be forgotten that, according to the graph above, other segments could also become very important. In the area of networking and control, sales may even quadruple. The trend towards a three to four times increase can also be observed in the areas of home entertainment, energy management, comfort and lighting, and building security.

Several actors in France (private sector) are developing smart homes, many of them are international companies investing in the French market. There are French ones like Félicie Smart Home which promises to help seniors maintain their independence while being safe in their homes. Each Félicie home is connected to allow the tenant to control the heating and shutters of the house via a touch box. Each home is also equipped with fall and smoke

detectors. Their activation triggers an alert to the 24/7 assistance center based in France, staffed by advisors whose main task is to inform the most appropriate person, either a relative or the emergency services, etc., depending on the situation at the time of the alert.

There are several other projects in the other countries of the consortium.

The SmartYourHome project in Germany, Italy, Romania, Spain and Ireland: This project aims to enable seniors to understand the options offered by the digitalisation of connected home concepts and their use. The aim of the project is to enable seniors to remain independent for longer in their own homes. The project has three outcomes: e-learning platform, e-Tutor's training and smart-home online courses.

In Austria, the platform called AAL Austria aims to promote interdisciplinary exchange between different projects and concepts. Some of these projects include different types of smart home solutions. The tests have shown satisfactory results and that it can really help seniors.

In Greece, the "Activage" programme worked with seniors to measure their vital signs, prevent falls and call a doctor or relatives in case of emergency. The programme recruited 450 houses in 12 Greek municipalities where various motion and temperature sensors were installed, as well as other features such as panic buttons...surveys showed that these new technologies were widely accepted by the seniors and helped them to become more independent.

Connected home solutions offer different types of solutions, all as IoT, for seniors, to enable them to stay independent at home longer. There are voice control systems, access to entertainment or reminders to take medication as well as increased security, comfort or energy savings.

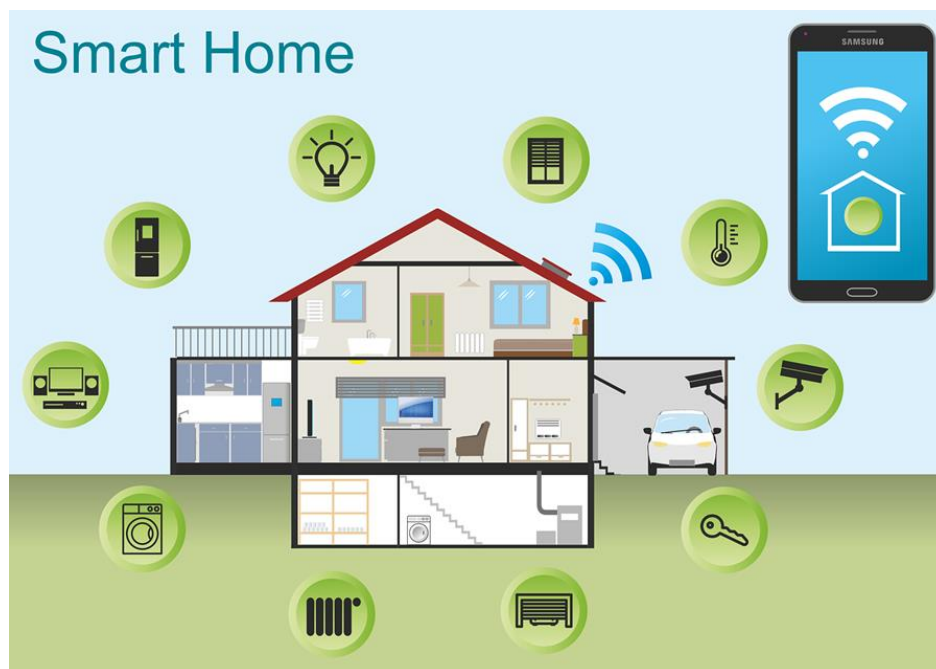


Image Title : Smart Home

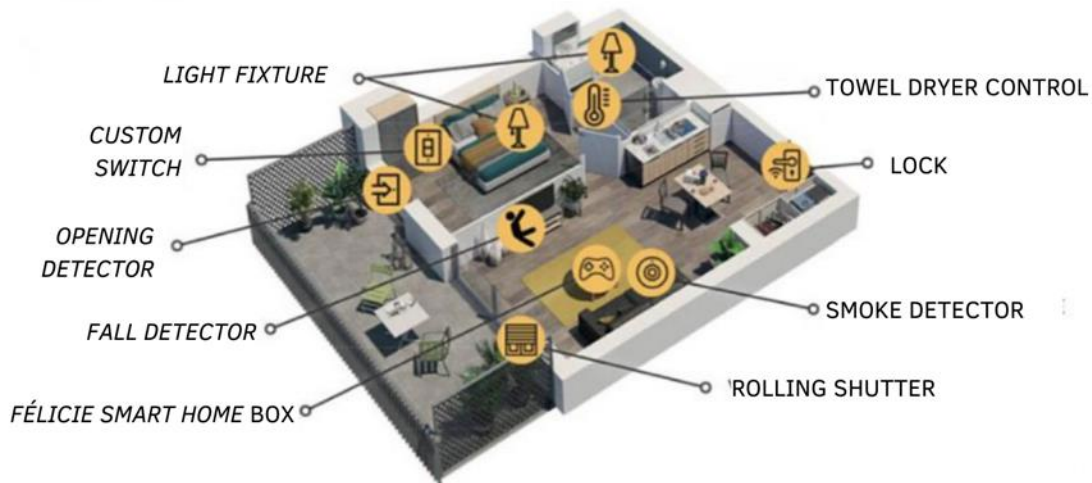
Source: pixabay.com

There are indeed many possibilities and expectations. For example, the latest CSO statistics for smart home technology usage in Ireland shows that :

- 19% of Irish internet users make use of a virtual assistant through a smart speaker or app.
- 15% use smart energy devices like smart thermostats, smart plugs, or smart lights.
- 14% use smart security equipment like wireless cameras, smart smoke or Co2 detectors, smart door locks, or alarm systems.
- 4% of users have connected appliances like smart ovens, robot vacuums, or smart fridges

Another example, in France, shows that the connected objects and smart home devices in France that are of most interest to seniors are the following:

- Motion detectors and automatic lighting devices in order to allow for a "light path" at night to reduce the risk of falls.
- Remote equipment communication controls allow, for example, the opening of the front door without having to move, all associated with a video doorkeeper.
- Several access control systems can be set up to facilitate the interventions of professional caregivers and avoid complex key management.
- Various alarms (anti-intrusion, fire, water leakage, gas, carbon monoxide, etc.) secure people and property by automatically cutting off electrical circuits or activating the house's ventilation systems if necessary.
- The implementation of "life scenarios" activates the heating, the opening of the shutters, the switching on of the lights by pressing a single button, at the time of waking up and at bedtime for example.



Source : Senior actu: "Senioriales : inauguration d'une résidence services seniors "high-tech" dans le Val d'Oise", 2021,

There are therefore many connected home solutions, which are not necessarily known to everyone, especially seniors, and several projects show that their implementation is quite feasible. Studies and surveys also show that these solutions are really beneficial to the extension of seniors' autonomy and are very well received by them. However, it remains to make these solutions known and to encourage seniors who do not always think they are capable of making this change, who think that these devices are too expensive, that they will not know how to install them or who do not trust these technological systems.

IV. DIY Approaches for older people (in the context of ICT and IoT)

A. Interest on the part of older people in DIY offers in general.

The attitude towards DIY, especially among senior citizens, varies from country to country. While Ireland, Austria and Greece have few or no projects with a DIY aspect, it is different in Bulgaria, France, Germany and the Netherlands.

For example, DIY is well integrated in Bulgarian culture, especially among the elderly, as this is a generation that is not used to everyday consumption. It is also a question of income. Instead of choosing something new and ready to use, a part of the seniors prefer to use their creativity and be inspired by already existing solutions to produce their own

version. This attitude can also be found in France, where DIY has been popular for some years now, to avoid a new purchase in a world of intensive and expensive consumption, and in an ecological concern.

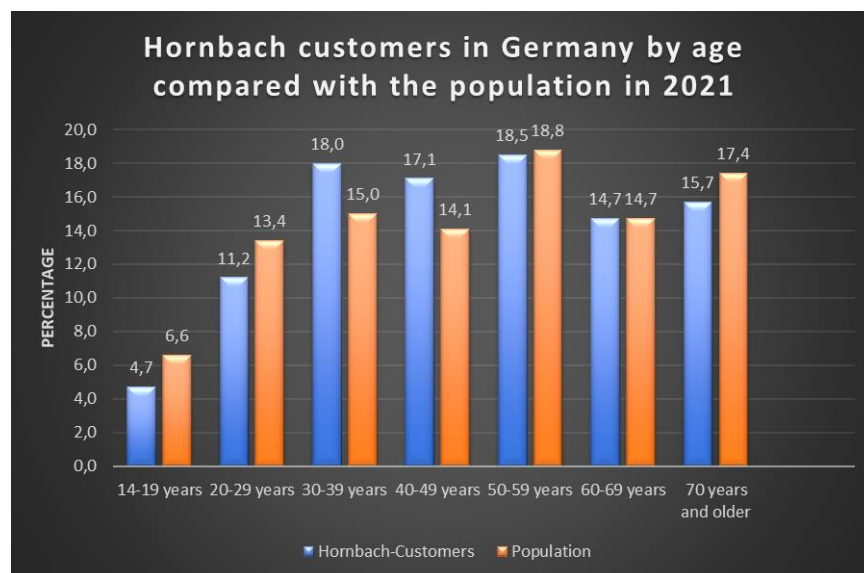
DIY in the home became widespread after the COVID-19 pandemic. Many people started to adapt their homes to spend more time in them.

Dutch culture, meanwhile, supports the autonomy and contribution of older generations to society (Smits et al., 2014). The government also promotes the DIY approach to ICT and IoT as part of its digitalisation strategy. Informative websites and easy-to-use platforms are set up and encourage older people to improve their digital skills. E-health also follows the DIY approach to a large extent, urging older people to use appropriate applications.

In France, several organisations are trying to democratise digital DIY. This is the case, for example, of Hortense Sauvard, CEO of the start-up Oui Are Makers, an online platform that connects people who want to share their DIY experience. The practice has also started to develop in France thanks to a Dutch idea, the creation of Repair Cafés where participants come to repair their objects with the help of volunteers. Today, they can be found in almost every district of Paris.

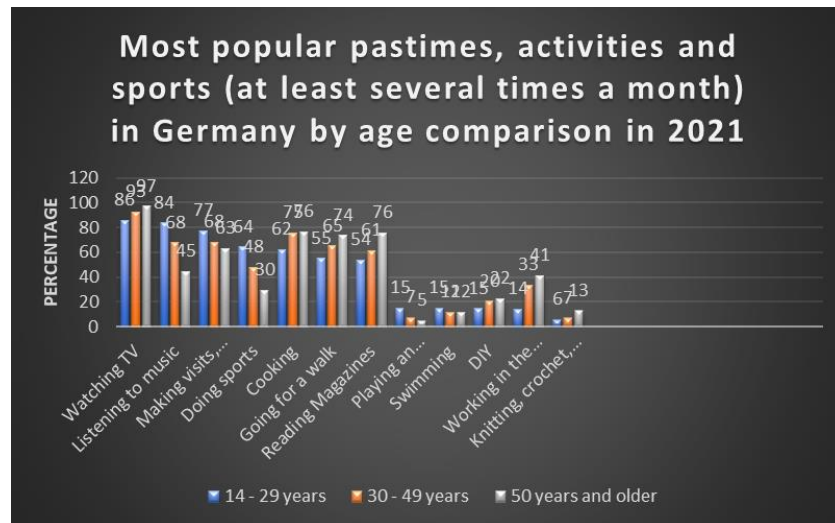
Sales in the German DIY market have fluctuated between 43 and 47 billion euros in the last ten years. In 2020, the year of Covid-19, the market amounted to 51 billion euros.

This graph shows that 50.9% of the total German population is over 50 years old and 48.9% of this age group also made regular purchases at Hornbach (DIY shop). This suggests a great interest in DIY activities. This trend is also clearly noticeable among the over 70s.



Source: © Statista 2022, Details: Germany, November 2021, 23.299 respondents, Computer assisted personal interviews, from 14 years old

But there are also signs that DIY is becoming more interesting for people in their 50s and beyond. The chart below shows this at the points of 'working in the garden', 'knitting' and 'DIY' in general.



Source: © Statista 2022, Details: Germany, 2021, 23.299 respondents, from 14 years old, Face-to-Face-Interviews

The DIY offer in general is therefore relatively well integrated in most countries of the consortium. Even if the younger generations are more inclined to take advantage of it, senior citizens also find it interesting. In addition, the crisis in Covid-19, which has led to people spending more time at home, has greatly increased the area of DIY in general and its use.

B. Interest on the part of older people in DIY in the SmartHome area

If the field of connected homes is starting to spread little by little in the countries of the consortium, it is difficult to find much data on the interest of the elderly in this field or on the national experiences already made. This may therefore provide a form of response, potentially a lack of interest but also a lack of infrastructure, providers or training to support or inform older people in this area.

Research has shown that there are as yet no providers of DIY initiatives for older people in Ireland. In Greece there are some training centres offering lessons but there is no mention of these being suitable for older people and no data is available. This is also the

case in France. There is no experience of digital DIY and IoT with seniors. Although digital DIY is starting to become popular in France, seniors do not participate or very rarely. However, there are a few media to provide information on the subject of connected housing to facilitate the life of seniors at home, to age well.

These materials² present various connected objects (connected lamp, alarm, voice assistant, etc.) but also companies likely to install them in senior citizens' homes (connected toilets, doors that open remotely, etc.).

In Bulgaria, the few materials available are only in English and often require prior knowledge and different skill sets. A necessary skill in the Netherlands too, where research has shown that home automation requires qualified installers (Van Berlo, 2011), which is rarely the case with older people. It remains to be seen whether or not the Dutch digitalisation strategy (<https://www.nederlanddigitaal.nl/english/the-dutch-digitalisation-strategy-2021>) will inspire more confidence in older people by strengthening digital skills.

There are a few projects in Austria that try to bring technological knowledge to older people. Most of them are still new and started between the last three and five years. So there is not much information to be found yet. The Austrian government wants to support projects in this direction. For example, it has launched the Federal Plan for the Elderly. The ÖIAT (Austrian Institute for Applied Telecommunications) has developed projects such as digitaleseniorinnen.at and saferinternet.at to teach knowledge about basic Internet use. On their platform, one can find know-how and guides designed to educate seniors and offer didactic solutions for this age group. We would therefore say that there is a willingness to support the development of technological knowledge for older people.

In concrete terms, we can see that there are few digital DIY opportunities for seniors in these European countries. If there are any, they are rarely adapted to seniors who are not necessarily interested in them. However, it is encouraging to see that some policies and actions are starting to emerge in favour of this topic.

V. Intergenerational cooperation: feasible or stumbling block?

In our project, younger people are to teach older people how to use SmartHome DIY. What is the best way to create opportunities for the generations to learn from each other? Are there already projects in this direction (focusing on learning from each other).

² Example : <https://www.youtube.com/watch?v=bGWui2vXKL4> (in French) or <https://www.diysmarthomesolutions.com/smart-homes-for-seniors-technology-forindependent-living/>

Intergenerational learning is seen as something positive in most countries, as it corresponds to a tradition of passing knowledge that exists in most societies. But this time it is mainly about intergenerational cooperation and passing knowledge not from the older peoples to the youth but quite the contrary. The change in paradigm may be a difficult thing to implement during the project, as some seniors may be reluctant to be in the position of learning from younger people. Therefore, it is essential to understand during the field questionnaires phase if intergenerational cooperation in the field of digital devices could serve the purpose of the project.

Moreover, intergenerational cooperation is mainly experienced in the family, or with very local projects, but not really the center of national policies. It is important to identify who and how to mobilize in order to incorporate intergenerational learning parts into the project.

References

This document is a combination of seven reports written by the seven SmartHome4Seniors project partners following their own country research phase.

The countries are as follows:

- [Germany](#)
- [France](#)
- [Austria](#)
- [Greece](#)
- [Netherland](#)
- [Ireland](#)
- [Bulgaria](#)