APPEAL TO THE INCENTIVES AND AWARENESS OF LIFE-PROOF HOUSES AND LIFE-PROOF NEIGBOORHOODS BY ALL STAKEHOLDERS?

T.G.M. Spierings, PhD, MSc,
HAN University of Applied Sciences, Research centre Civil Society Lab
Deken de Louwstraat 11, 5401 BE Uden, The Netherlands
email: dort.spierings@han.nl
Professor R. Daniels, PhD
Zuyd University of Applied Sciences, Research centre Assistive Technology in Health Care
ramon.daniels@zuyd.nl
J. Heijkers, MSc
Zuyd University of Applied Sciences, Research centre Assistive Technology in Health Care
jeanne.heijkers@zuyd.nl
R. Waltman, BSc candidate
HAN University of Applied Sciences, Institute of the Built Environment
email: rick_awc@live.nl

Abstract (max 150 words)

Dutch government policy is aimed at aging at home, closely aligned with what citizens want. However, the demand is higher than the supply of life-proof houses. This need is felt by professionals in healthcare, and housing. But is this also the case with small and medium-sized enterprises (SMEs)? And, how do home-owners value the life-proofness of their own homes? How can we prepare them for more self-reliance? Can we make them more and in an earlier sub study aware of obstacles and solutions? And is the house or the neighbourhood the critical path in this?

As the final step in a two year research period with all stakeholders, students developed a website which can help home-owners to judge their home and their neighbourhood on life-proofness. For the neighbourhood, nearby facilities as a supermarket, care and a social network proofed to be crucial. Fort their homes accessibility, compactness, safety and comfort were leading indicators. All will be present in the web tool.

Keywords
life-proof home, life-proof neighbourhood, user value, awareness of obstacles and solutions, webtool

Introduction

As in many other European countries, government policy in the Netherlands is aimed at ensuring that citizens with health problems continue to live independently in their own home situation for as long as possible. This policy is closely aligned with what citizens usually prefer (Aanjaagteam Langer Zelfstandig Wonen, 2016). Many nursing homes and sheltered housing will be closed for financial reasons in the coming years, which means that around 100,000 citizens will have to live in their own homes (Duivenvoorden et al., 2015). It is therefore important that the supply of life-proof houses should be in line with the demand for it in the future (Kenniscentrum Wonen-Zorg, 2009).
The growing need is felt by governments, but little need is felt by the elderly to adjust housing (IPSO Facto, 2016). Professionals in healthcare, as well in architectural design and real estate developers, acknowledge the importance too.

The definition of life-proof housing was given in the 1990s by the Humanitas Foundation (Humanitas, w.d.). It means that homes are built and adjusted in such a way that the residents can continue living, also if their living conditions change, for example due to age, illness or disability. This definition is supported by the Dutch Kenniscentrum Wonen-Zorg, (Portal2care, wd.).

The number of over-75 years old is growing fast. In 2040 there are expected to be 2.6 million elderly people in this age group in the Netherlands, which is twice as much as now. This entails consequences in many areas, in particular for care and the housing market (the Netherlands Environmental Assessment Agency, 2016). As the number of retired elderly people will grow, there is a greater pressure on the care related labour force to facilitate this group. This pressure can be seen both financially and in numbers of working force (PBL, 2016).
Because the elderly have more physical limitations on average, the need for informal care in the neighbourhood is increasing (PBL, 2016). When there are more elderly people, there should also be more facilities that are tailored to the needs of this target group.

Unnecessary care and social costs

The majority of private home owners usually think about making home adjustments when they are confronted with a life-changing circumstance (Aanjaagteam Langer Zelfstandig Wonen, 2016). Imagine a family member that unexpectedly has to deal with a disability. If one's home cannot be adjusted easily or the home will not be sold, this can lead to many restrictions in daily living. An example of such an undesirable situation is the fracture of a hip by a fall of the stairs or by slipping in the shower. Such fall incidents cost the Dutch community 60 million euros annually in medical costs (Van Triest, 2015). Also, due to the lack of (timely) home adjustments, often there is a need for informal care or even professional help. This could have been prevented if adjustments were made in time. Based on this, the assumption is that it would be better for private home owners to adjust their homes before these undesirable situations occur. There might be many ways to make this attractive. Generating a capital gain achieved during the final sale of the property might be one of them.

Consequences of aging related to the housing market

The changes in aging ensure that the flow-through process in the housing market is clogged. It is difficult for the starters to find a suitable home. This is due to, for example, the fact that families, which are no longer starters, cannot move up to an adjusted home.
The stiffening effect of the housing market can be turned into an opportunity. To counteract this rigidifying effect, it is worth considering to have the current home adjusted to a life-proof house.. When carrying out these adjustments as: lowered thresholds, walk-in shower, bedroom and / or bathroom on the ground floor, stair lift, brackets, adjusted kitchen and / or bathroom, anti-slip floor, automatic door opener, hoist, adjusted bed and wide doors. But also comfort and sustainability solutions as creating ground floor space which could be easily adjusted later on in life or services as more add in-house apartments for informal caregiving.

Consequences of the credit crisis for the housing market

At the time, the credit crisis ensured that housing construction, due to the high housing supply, had almost completely stopped. For that reason, it was also impossible to respond to the demand for other forms of housing that have arisen over time. This is also not missed by the General Dutch Association for the Elderly (ANBO). Their survey shows that 56% of the municipalities in 2012 concluded that there is a shortage of senior housing (ANBO, 2015). Two years later, this shortage is still not reduced. "Housing production, which has declined in recent years, has to increase again in order to shorten the deficit in the long term", says director Den Haan of the elderly organization.

The research report called 'The State of the housing market 'indicates that there are large regional differences in the deficits. In some densely populated areas the deficit is relatively large (ANBO, 2015).

In addition, this research on the housing market also shows that 50,000 owner-occupied houses will become available annually due to the aging population in 20 years' time. This is especially the case in regions where housing demand is limited: supply and demand must therefore be geared to this (ANBO, 2015). It is expected that the released owner-occupied properties will largely not meet the requirements of a life-proof home. However, that could be changed according to Den Haan who invokes the government at national, regional and local level: "Speed up the construction of more suitable housing and the renovation of existing housing!". Not surprisingly, ANBO responds to the results of the study with concern: "The government policy is aimed at enhancing elderly people to live independently at home as long as possible, and that is also the wish of many elderly people. But as it is now, that is unfeasible (de Groot, 2016)".

The government Governement policy was introduced in 2015 and the aim is to create a society that offers people more opportunities to take responsibility for their own lives, and for more equal participation (Rijksoverheid, 2013). This paradigm shift is best described as follows: citizens' entitlement to receive certain (individual) care services has been replaced by municipalities' duty to compensate for these. This denotes that municipalities are responsible for supporting citizens in such a way that they are able to participate in society to a level satisfactory to them, by being enabled to run their own household and go about their business both inside and outside of their own homes. The question 'what care do you think you need?' consequently becomes more important than a mere analysis of who is entitled to what. Further, care should be provided as much as possible in the living environment. Both municipal and health insurers are involved in this. The purpose of this policy is also to create a situation in which people initially try to find a solution for their need for support themselves and with their social environment. In the second instance, an appeal can be made to municipalities and/or the health insurer(s) (Rijksoverheid, 2013).
With this reform, the Governement is reconciling what people can and prefer and makes municipalities and health insurers more responsible for home help. Older people often need other forms of support and care than people with a physical, mental or social disability (Rijksoverheid, 2013).
Up to now, possibilities for aging at home have already increased through, among other things, informal care, a more flexible use of home care and new forms of domotics.

New ways of financing life-proof homes

For individuals who are unable or unwilling to take extra mortgage to make their home more sustainable, the banks are currently developing an alternative 'building-related' form of financing (Vastgoedactueel, 2017; Rijksoverheid 2018). This alternative would ensure that individuals get more incentives to adjust their house. One of the ideas is to expand the National Mortgage Guarantee for zero-energy homes (Sustainably built, 2017). The idea comes from 'Sustainable Development Goals', with which the Dutch Banking Association (NVB) translates the challenge of the United Nations to ambitions for the Netherlands (Vastgoedactueel, 2017).
Furthermore, the Dutch banks intends to support customers with their services to stay longer at home, if desired. The idea is to use cash flows for housing, care and pensions more flexible for specific needs. The banks are discussing these topics with (health) insurers, pension funds and the government (Duurzaam gebouwd, 2017).

An initiative that has already been applied in practice is the 'Blijvers lening'. a financial tool that includes the 'Savings Loan' instrument (Government, 2016). By means of this loan adjustments can be made that makes a home life-proof. In this way, residents can enjoy their home longer. The most important factors that contribute to the amount of the loan are (SVN, z.d.): age limit, duration, principal amount of the loan.
Not every municipality offers a Savings loan. Of the three elected municipalities for this study: Horst aan de Maas, Nijmegen and Renkum, the latter is the only municipality that offers a Savings loan.

Stimulation of life-proof homes in the local municipality of Horst aan de Maas, the Netherlands

For this two year study, the local municipality of Horst aan de Maas, the Netherlands, was the case. On 28 March 2017, the 'Regulation on land price measures to encourage life-course and / or gas-free new homes' was accepted by the municipality. The purpose of this regulation is to stimulate the sale and construction of life-course and / or gas-free homes (Council of the municipality of Horst aan de Maas, 2017, Horstaandemaas.nl 2019).
In this decree, the term 'life-proof new house' is defined as follows: "A new house where living, cooking, sleeping and bathing / showering takes place on one level and all rooms are wheelchair accessible. In the case of an apartment, an elevator must also be present in the relevant complex, which is accessible to wheelchairs. The purchase price limit of the complete life-proof new-build house (or apartment) amounts to a maximum of € 300,000 (price level 1-1-2017) and must be located in an area in which the municipality of Horst aan de Maas carries out the land development (Council of the Municipality of Horst on the Maas, 2017).

A long term loan for making home adjustments is granted by the municipality on the basis of the Social Support Act (WMO). In determining this, municipalities have a large policy freedom. This means that the granting of the subsidy can bring big differences per municipality (Rijksoverheid, z.d.). Nowadays we strive for a society that offers people more opportunities to take responsibility for their own lives, for more equal participation and more direct control. This also applies to the WMO 2015: people first have to find a solution to the problem themselves. When home-owners themselves have looked at the possibilities for aging at home and they do not offer a solution, the municipality needs to assist. In a house visit, the experienced problem areas and possible solutions will be discussed with the WMO consultant (housing adjustments money & law, etc.). If this discussion shows that the problem cannot be solved alone or with the help of a general provision, the municipality will look for a suitable tailor-made service. The municipality can also indicate whether a move to another, already adjusted (or cheaper) home is possible (Ouderenwegwijs, 2017). From this follows the conclusion on whether or not moving is the best solution. If the latter is the case, namely not moving, then a remodelling comes into the picture. The municipality directs the Schedule of Requirements. This requires to request at least two contractor quotations specified on components. As soon as these have been received, they must be sent to the municipality (Housing adjustment money & law, etc.). The municipality evaluates these offers, among other things, on the criterion 'cheapest adequate' and tests it against its own Schedule of Requirements. If necessary, budget items are changed or deleted. On the basis of this procedure, the subsidy amount is ultimately determined by the municipality (Ouderenwegwijs, 2017).

Incentives and awareness among stakeholders life-proof houses and life-proof neighbourhoods

The dual aim of this paper is firstly to give an overview of four sub studies that were conducted in 2017-2019 on this theme of life-proof living and the incentives and awareness among stakeholders, especially home-owners on the demand side and small business enterprises (SMEs) on the supply side, and secondly to triangulate to the incentives and awareness among the different stakeholders regarding life-proof living.

Table 1. Overview four sub studies of research on life-proof home and life-proof neighbourhood

Sub study 1: The added value of life-proof housing according to real estate agents (Eeren, Kant, and Knoop 2018).
Sub study 2: Collaboration of Small and medium-sized enterprises (SMEs) regarding a total concept for life-proof housing (Klösters, Rikken, Verbeek and Westdijk, 2018).
Sub study 3: Impact through a web tool to home-owners regarding awareness of life-proof housing and life-proof neighboorhoods (Oosterhof, Schouten, Verlinden and Waltman, 2019).

Table 1 gives an overview of the four sub studies, in which real estate agents, home-owners, SMEs and a combination of home-owner and SMEs subsequently were the respondents. In figure 1 these stakeholders were placed in the whole of involved parties. The reason for the choice of home-owners is

the fact that they are not organised and therefore not involved in life-proof projects from governments and housing associations. The reason for focusing on SMEs came from their own needs to add more contribution to the local society, to extend their existing cooperation on energy sustainability to life-proof living, and finally to explore opportunities for new business.

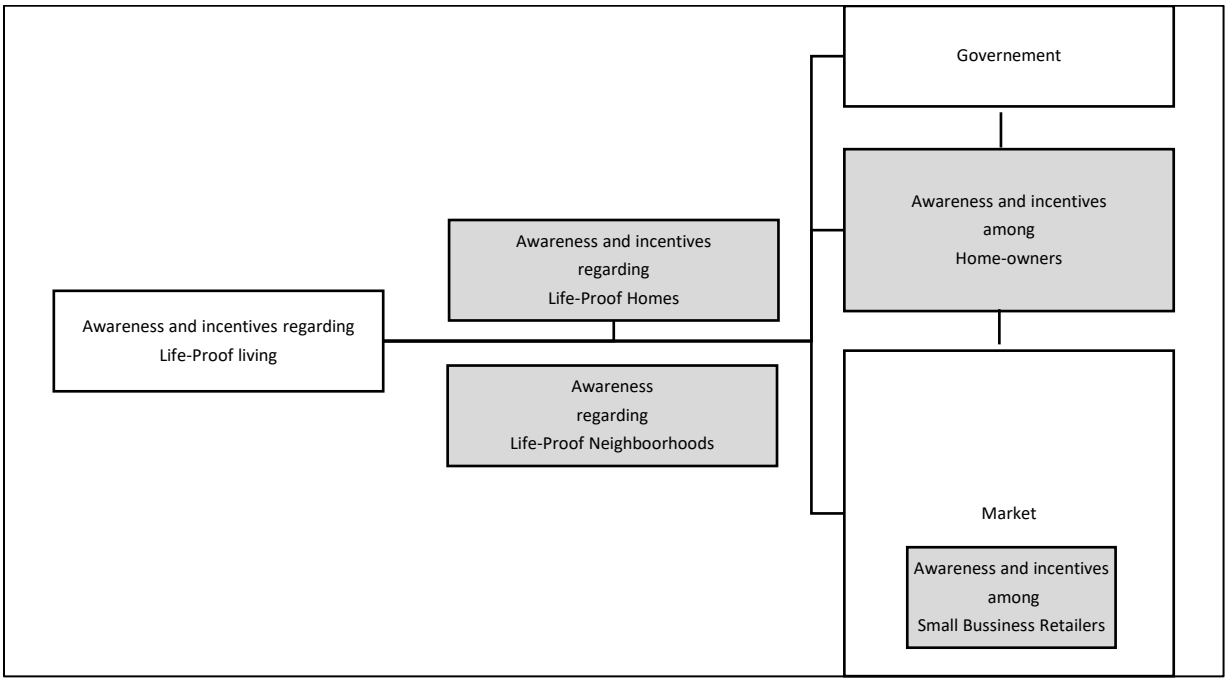

Figure 1 Awareness and incentives among stakeholders life-proof living

Main and sub questions

This introduction leads for this research to the following main question
"How to increase the awareness of life-proof housing and life-proof neighbourhoods of relevant stakeholders?"

In order to achieve the above goal, sub-questions have been drawn up:
• What is already known about the awareness of life-proof houses and life-proof neighbourhoods?
• Are homes worth extra or more saleable if they are life-proof, according to the different stakeholders?
• How do Small and medium-sized enterprises (SMEs) include the theme of life-cycle continuity in their services?
• Could the awareness of life-proof housing and life-proof neighbourhoods to home-owners be increased through a web tool?

Method

To answer the main and sub questions, the four sub studies of the research were triangulated
An exploratory literature study was conducted for this research and both quantitative and qualitative research methods were used.

Sub study 1
For this study information about the supply of life-proof houses on the Funda website was used. Funda is the most used website in the Netherlands for the housing market. The aim was to reveal to what extent and how life-proof housing elements are promoted by real estate agents; how often are such elements reported on the website and about life-proofness and how it is presented. In total 51 property advertisements were checked for terms related to life-proofness. A distinction has been made between three regions, all with a total of 17 homes.

Next, both sales and purchase real estate agents were interviewed; all were active in the municipality of Horst on the Maas (rural area) and Nijmegen (urban area). The aim of these interviews was to find out how real estate agents (n= 14) incorporate life-cycle continuity in their services now and how they envision the future.
A quantitative study was conducted, starting with the presentation of three different scenarios for two semidetached and a detached house to the contacted real estate agents (n=14). These three scenarios range from completely unadjusted homes to completely adjusted homes. The real estate agents were asked was to estimate the value of the properties. In this way an estimate can be made of the expected added value of a life-proof (= fully adjusted) house.

Sub study 2
For the second sub study of research, narrative interviews were conducted with five Small and medium-sized enterprises (SMEs) and 1 project developer from the city of Nijmegen. They demonstrated the extent to which SMEs collaborate with each other and how they think about life-proof housing. To facilitate collaboration, an online platform for SMEs regarding life-proof housing was suggested and build in concept.

Substudy 3
For the third and final sub study an online tool is developed and tested that allows home owners to test their home for the degree of life-course stability, research has been done into the environment in the municipality of Horst aan de Maas and reference websites (Zuyd Hogeschool. 2017). The environmental analysis looked at the level of facilities, demographic data and housing figures of the researched municipality. The facilities examined: supermarkets, public transport, pharmacies and ATMs. By studying comparable online tools, do's and don'ts have come to light and inspiration has been gained. By studying the preliminary research, factors why people want to and can continue to live independently for longer, at government incentive schemes and at why people make their home life-proof or not were taken in to the tool.
Based on the primary sub studies of the research, a tool was ultimately created and tested in concept regarding life-proof houses and neighbourhoods.

Results

In this section the conclusions of the separate sub studies will be presented as partial results.

Results sub study 1: The added value of life-proof housing according to real estate agents (Eeren, Kant, and Knoop 2018).

29 brokers are active in the 51 homes researched on the Funda website. Only four times was the term life-course-resistant literally mentioned in the description. The term was not used in six other homes, but the life course stability was described in other words.
In 11 homes it was found that life-course-resistant elements were present without these being named. There are also 13 homes that have the potential to be adjusted for life-course-proofing. This would mean that in the description of the broker at least two in five times the term life course stability could have been described. The term life course stability is for the most part described as a senior citizen's home or sheltered home. The brokers therefore clearly refrain from naming the term. As a result, they may miss out on potential customers who are looking for a home that offers these options.

In response to the research question, the results from the integrated, triangulated analysis show that the theme of life-cycle resilience among all regions is known and in most cases is included in the service provision of real estate agents.
Lifetime stability is mainly taken into account regarding recommendations for renovations. Real estate agents indicate that they realize this for customers from the age of 55 or in request of customers. The

reasons for mentioning life-cycle continuity are: increasing the target group and answering to customer's requests. Whether this group is looking for life-proof homes is insure, their interest mainly deviate towards apartments instead of homes. Besides that, the supply of life-proof homes is currently very low. When a life-proof house is on the market, it is almost immediately sold. The demand here is therefore larger than the supply.

It can be seen that adjustments regarding the comfort component are the most appealing adjustments. And especially the adjustments in the field of insulation. From the real estate agents, the houses are more often seen as family homes instead of a life-proof house. As a result, some adjustments in the field of life-course resistance may not yield any added value. The question is also whether the asking prices of the homes are currently the right ones and whether they are not too high.

The theme of life-course resilience appears to be familiar among the real estate agents in all regions and in most cases this is included in the service provision. Lifetime stability is mainly taken into account in the way of recommendations for renovations. Real estate agents indicate doing this with the age group from the age of 55 or when customers request this.
Under real estate agents, it was examined on the basis of various scenarios whether there is a financial added value to a life-proof home. As soon as minimal adjustments have been made in the field of life-course continuity, 10% of the respondents will allocate a financial added value. And once maximum adjustments have been made (a ground dwelling has been created), 20% of the respondents will have a financial added value. How high this added value differs per house that was used in making the scenarios. The theory cannot be generalized and for this reason every home must be viewed separately.

The conclusion for the main question regarding incentives an awareness of life-proof living among this stakeholder is that the incentives and awareness among the researched group of real estate agents is mediate. There is a little attention for the aspects, sometimes it is hidden in more functional arguments. The extra value for an life-proof adapted house is with 10% up to 20% not a striking result.

Results sub study 2: Collaboration of Small and medium-sized enterprises (SMEs) regarding a total concept for life-proof housing (Klösters, Rikken, Verbeek and Westdijk, 2018).

In all six conversations with Small and medium-sized enterprises (SMEs), it emerged that very little is currently going on in the area of lifecycle-proof homes. The various companies were not currently concerned with life-course-proof adaptation of homes. They do ?? in life-proof adjustments to private individuals while renovating a home. They compare the pros and cons and allow individuals to make the decision. In our literature review it is described that it is important to emphasize the advantages and disadvantages, so that individuals can be convinced. A few years ago, SMEs were more concerned with life-course-proof adjustments. At that time, a subsidy was granted by the municipality for life-course-resistant adjustments. Private homeowners came to the contractor with a request for minor adjustments. With the subsidy provided by the municipality, the personal contribution for homeowners remained low. This changed when the municipality stopped providing subsidies for life-course-proof adjustments. Private homeowners nowadays find it too expensive to make small adjustments without the municipality's subsidy.

Life-course-resistant adjustments for private homeowners are not common. Making life-course proof of homes for housing associations much more happen. From the various conversations it appears that the demand for life-course-proof adaptations in homes for housing associations has decreased considerably in recent years. literature review, the elderly experience many limitations indoors with housework, climbing stairs and taking a bath or in the shower. The interviews revealed that the most common adjustments also take place in the kitchen and bathroom. In addition, door openings are often widened and sills removed. This therefore corresponds to the literature review.

In the new regulations for housing, much more attention is paid to the concept of lifecycle-proof living. Taking life-course stability into account is already taking place when designing new-build projects, this should mean that minor adjustments will have to be made less frequently in the future.

SMEs agree that a total concept for lifecycle-proof home can be an added value for private homeowners. It is not clear what this total concept should look like. All the parties interviewed are of the opinion that one party should be responsible for ensuring that there are short lines. Placing responsibility with one party must ensure that communication with private individuals runs as smoothly as possible.
In the literature it is described that SMEs need a network in order to achieve good cooperation (source!). The SMEs interviewed, already work regularly with other SMEs. In addition, they also occasionally share activities and work with subcontractors on projects. However, this can be much more.??
Advantages of a collaboration is that there is clarity about the concept of building. This saves a lot of time in the preparation of the projects. In this way, we would get SMEs to work together on life-course-proof adaptations. A total concept for a lifecycle-proof home will have no added value for SMEs. However, the collaboration is already present, so the idea to create a platform where employers can place employees who are left within the organization came up. On this platform you can link an employee to a life-course-resistant job. In this way private individuals can find these employees and book them for a job. In addition, other employers, where they have a man short, can also book these employees to help. This helps with the planning of SMEs, because they can fill the employees well in terms of planning through renting and hiring.

The conclusion for the main question among this stakeholder is that regarding incentives and awareness of life-proof living their focus on the current period of a high demand and low supply is not in particularly to this market. Otherwise are the characteristics of SMEs, meaning their quickly response, flexible and custom made methods very suitable for this market. The use of web based tool to optimize cooperation is a solution worth investigating.

Results sub study 3: Impact through a web tool to home-owners regarding awareness of life-proof housing (Oosterhof, Schouten, Verlinden and Waltman, 2019).

With regard to the demographic data, it is clear that aging also plays a role in the examined region. The percentage of elderly people is high in this region. It is also noticeable that a large part of the houses in this municipality are owner-occupied, namely more than three out of four houses turn out to be owner-occupied. It is striking to see that the differences in the municipality are large with regard to the facilities. The facilities are often located a few kilometres away from the centre of the villages.

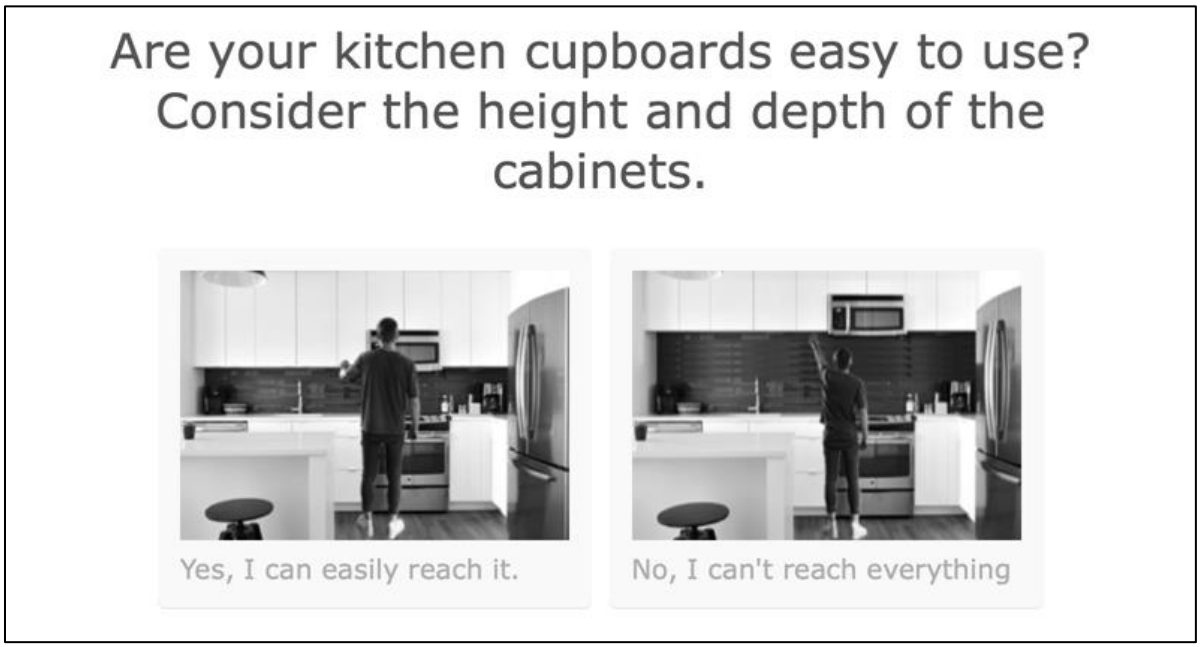

Figure 2 Example of a question from the tool regarding life-proof homes

Based on the findings in the previous sub studies, regarding awareness among SME's (Eeren, Kant, and Knoop 2018; Klösters, Rikken, Verbeek and Westdijk, 2018) and the possible on line platforms ((Pol, Tol, and van Vlerken, 2018; Klösters, Rikken, Verbeek and Westdijk, 2018; www.mijnhuisopmaat.nl, 2019; www.levensloopbestendigwonenlimburg.nl, 2019) a web based tool is developed that meets requirements with help of a web designer. See figure 2 for an example of a question regarding life-proof houses and figure 3 for an example of a question regarding life-proof neighbourhoods.

The tool is not designed in particular for sick, weak and nauseous people. The reason is that people with disabilities often do not like being confronted with this, but people in the stage before that even more withhold themselves from that upcoming future (TOPOnderzoek, 2017) . The aim is that one takes the test before having a disability and start thinking about life-course-proof living. Our tool therefore distinguishes itself with the tools that are already available.

The current online tool is working, but it does not (fully) meet the wishes of those involved. For example, no explanation can be given for questions and answer options, questions cannot be skipped after a certain answer to a previous question, the images used are not always professional (enough) and the environment has not been processed in the tool as previously hoped. These matters must be resolved to deliver a tool that is really an added value for both the project team and the end user, being the homeowner. However, the tool might provide a basis for the design of a tool that meets the wishes and needs.

Figure 3 Visualization implementation environment in the tool

The conclusion for the main question regarding incentives an awareness of life-proof living among this stakeholder is that it could be increased by low profile information and suggestion for adaptions regarding homes as well as neighbourhood services. The low profile concerns easy access and usability but also an appeal to positive incentives as comfort and not to sickness and disability. A webtool as intermediate between demand from a growing ICT adapted generation, and the custom made service of SMEs could be an useful instrument.

Discussion

Validity of the research design

The studies are mostly qualitative with 10-50 respondents or cases, which makes generalizing for the Netherlands or to other similar countries in Europe not possible yet. However the range did include enough respondents/cases regarding the area of research.

The website as an interface between end-users and small and middle sized enterprises is not yet tested on its usability and the degree of response to the principles.

New insights

An online platform as a working method for the small and middle sized enterprises could be very useful, especially regarding their fast response and tailor made approach.

An online tool as an interface between end-users and small and middle sized enterprises could be very useful, when the user friendly-ness, objectivity and response is facilitated.

An appeal to comfort and not to health will be better received by the end-users, being not an negative appeal but stimulating.

Life-proofness is not only about homes but also about neighbourhoods, this is not represented in most research and tools.

Conclusion and recommendations

In this section the four sub studies of the research will be juxtaposed.

Conclusion

Life-proof adjustments for private homeowners are not common

Life-proof adjustments as market among small business enterprises is not yet fully recognized and explored

Online tools for the life-proof market of home-owners and small business retailers could partly solve the lack of awareness

A market web tool should not be designed in particular for sick, weak and nauseous people.

Online tools for the cooperation in supply for the life-proof market for small business retailers could partly solve lack of employees in the high market in this period

The supply web tool should appeal to the flexible and custom made characteristics of the small business enterprises in this market.

Recommendations for future research

In the interest of the follow-up research, it is advisable to continue the research. In this way a result can be obtained that can be more generalized and offer further validated answer to the research question.

More research for the incentives and awareness of life-proof adjustments for private homeowners are needed.

Collaboration in SME investigations, how does communication with temporary collaboration work?

Measuring what cooperation yields, does it deliver more and better tasks? is the number of lifecycle-proof homes increasing?

Implement in other parts of the Netherlands and other Western countries that face similar problems

Acknowledgement

We would like to thank Research centre Assistive Technology in Health Care for the possibility to contribute in their overall research on life proof homes, the HAN Institute of Built Environment for the fund support and the Small and medium-sized enterprises (SMEs) and other respondents for the cooperation in collecting the broad research data.

References

Aanjaagteam Langer zelfstandig wonen (2016). Van tehuis naar thuis. Hoe is te bevorderen dat mensen zelfstandig kunnen (blijven) wonen?

ABF Research. (2016). Vooruitzichten bevolking, huishoudens en woningmarkt.

ANBO. (2015). Bouw meer geschikte seniorenwoningen.

Duivenvoorden, A., Kooistra, H., Triest, N. van, Senior, P., Witter, Y. (2015). Langer zelfstandig wonen: de opgave voor corporaties. Platform31, Den Haag.

Duurzaam gebouwd. (2017). Banken willen meer financieringsruimte duurzame woningen.

Eeren, M., Kant, S. en Knoop, J. (2018) De meerwaarde van levensloopbestendige woningen volgens makelaars. Hogeschool Arnhem en Nijmegen en Hogeschool Zuyd

Groot, N. de,. (2016). Tekort aan seniorenwoningen loopt snel op.

Heijkers, J., Oberjé, E.J.M., & Daniels, R. (2019). Particuliere woningbezitters stimuleren tot het levensloopbestendig maken van hun woning. *FMT Gezondheidszorg*; 1:24-25.

Horstaandemaas.nl. (2019). *Subsidie, lening of regeling voor uw woning*. Opgehaald van www.horstaandemaas.nl: https://www.horstaandemaas.nl/subsidie-lening-regeling-voor-uw-woning

Horstaandemaas.nl. (2019). *WMO en WLZ*. Opgehaald van www.horstaandemaas.nl: https://www.horstaandemaas.nl/wmo-en-wlz

Humanitas. (z.d.). Geschiedenis Humanitas. Geraadpleegd op 5 oktober 2017, van http://www.stichtinghumanitas.nl/home/homepage/over-humanitas/geschiedenis-humanitas/

Ipso Facto (2016). Landelijk onderzoek lokaal beleid seniorenhuisvesting 2016.

Kenniscentrum Wonen-Zorg. (2009). Introductie woonvariaties.

Klösters, D., Rikken, W., Verbeek, T. en Westdijk, T. (2019). Moeizame wegen leiden naar mooie bestemmingen. Het vergroten van de co-creatie tussen MKB'ers op het gebied van levensloopbestendige wonen. Hogeschool Arnhem en Nijmegen en Hogeschool Zuyd

langerthuisinhuis.nl. (2019, januari 01). checklist - langer thuis in huis. Opgehaald van www.langerthuisinhuis.nl: https://langerthuisinhuis.nl/hulpmiddelen/checklist/

levensloopbestendigwonenlimburg.nl. (2019, juni 11). Levensloopbestendigwonenlimburg.nl. Opgehaald van www.levensloopbestendigwonenlimburg.nl: https://levensloopbestendigwonenlimburg.nl/

www.mijnhuisopmaat.nl. (2019, januari 1). doe de huistest. Opgehaald van www.mijnhuisopmaat.nl: https://www.mijnhuisopmaat.nl/test/ 33

Oberjé, E.J.M., Daniels, R., & Spierings, T.G.M. (2019). De financiële meerwaarde van levensloopbestendige woningen. *Vastgoed Actueel*; 94(3):22-24.

Oosterhof, P., Schouten, B., Verlinden, A. en Waltman, R. (2019). Lang leve(n) uw woning. Live longer in your home. Hogeschool Arnhem en Nijmegen en Hogeschool Zuyd

Ouderenwegwijs. (2017). Eigen huis met aanpassingen.

Overheid. (2016). 32847 (Hoofddossier) Integrale visie op de woningmarkt: Nr. 228 brief van de minister voor wonen en rijksdienst en staatssecretaris van volksgezondheid, welzijn en sport. Aan de Voorzitter van de Tweede Kamer der Staten-Generaal.

Pol, E., Tol, L., Vlerken, W. van. (2018). De meerwaarde van levensloopbestendig aanpassen van woningen. Hogeschool Arnhem en Nijmegen en Hogeschool Zuyd

Planbureau voor de leefomgeving. (2016). Wat zijn de gevolgen van de vergrijzing?

Portal2care. (z.d.). Wat houdt 'levensloop bestendig wonen' in?. Geraadpleegd op 5 oktober 2017, van https://www.portal2care.nu/inc/media/inhoud/downloads/levensloop-bestendig-wonen-24.pdf

Raad van de gemeente Horst aan de Maas. (2017). Besluit; vast te stellen de: Verordening grondprijsmaatregelen ter stimulering levensloopbestendige en/of gasloze nieuwbouwwoningen.

Rijksoverheid. (2007). Beter (t)huis in de buurt: Actieplan Samenwerken aan wonen, welzijn en zorg 2007-2011 van de minister voor Wonen, Wijken en Integratie en de staatssecretaris van Volksgezondheid, Welzijn en Sport.

Rijksoverheid. (2018). *Kan ik een vergoeding krijgen als ik een woningaanpassing nodig heb?* Opgehaald van www.rijksoverheid.nl: https://www.rijksoverheid.nl/onderwerpen/zorg-en-ondersteuning-thuis/vraag-en-antwoord/vergoeding-voor-woningaanpassing

Stimuleringsfonds Volkshuisvesting. (z.d.). Wat is de Blijverslening?

TOPOnderzoek. (2017). *Redenen wel/niet levensloopbestendig maken van een woning.* n.t.b.: TOPOnderzoek.

Triest, N. van,. (2015). Preventief investeren in woningaanpassingen loont! Op weg naar een nieuwe businesscase voor woningaanpassingen.Platform31 / Energiesprong.

Vastgoedactueel. (2017). NVB wil meer financieringsruimte duurzame en levensloopbestendige woningen.

Woonvisie Nijmegen 2015-2020. (2016). Samen werken aan goed wonen.

Zuyd Hogeschool. (2017). Verwachtingen m.b.t. informatieverstrekking over levensloopbestendig wonen.