

Paternalistic rather than Assistive? Concepts and social attributions of older adults represented in Active Assisted Living technology project descriptions

Ulrike Bechtold MSc PhD^{a,*}

Leo Capari MSc^a

^aInstitute of Technology Assessment of the Austrian Academy of Sciences, Vienna, Austria;

*Corresponding author: ulrike.bechtold@oeaw.ac.at

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Background The promises of Active Assisted Living (AAL) are manifold: it claims that technology will relieve economic burdens and develop new markets, and that European citizens will enjoy better, healthier and more active ageing. **Research aim** We ask whether these promises are merely extrinsic attributions, or if these hopes can actually be fulfilled by the introduction of AAL. To do so we identify and examine the attributions (i.e. hopes and expectations) projected onto the development of AAL applications by project teams; these attributions are likely to be operationalised throughout the project, and materialise in the technological answers the project team elaborates. **Methods** We analyse all AAL project descriptions financed by the European AAL joint programme and presented as success stories on the official AAL webpage in 2016 and 2017 (The European JPI on AAL: <http://www.aal-europe.eu/>). The rationale behind the analysis of this sort of text is that this is where project teams present their ideas, thoughts and results in a very brief summary to the outside world and interested public. Using a combination of social network analysis and qualitative content analysis, we examined the text corpora of these 10 success stories and try to identify attributions, which we also call inherent assumptions about ageing. **Results** The attributions to ageing we found were in many respects contradictory. Most of them involve a rather paternalistic view of older adults. The majority of the descriptions analysed make no reference whatsoever to the role of the user. **Conclusion(s)** Generating a relational dataset, we highlight possible consequences for future technology development (innovation side) and adoption (diffusion), as well as implications for technology as a way of dealing with demographic change. We conclude that market-oriented technology research and development programmes like the AAL-JP should consider being more reflective about the attributions to ageing they (necessarily) apply. One way of doing this would be to invite applicants to consciously question and express how a given technology affects older adults in more than merely economic and technological ways.

Keywords: Active assisted living, AAL research policy, imagining old age, social attributions to older adults, Information and communication technology and older adults, AAL success stories

INTRODUCTION

It is widely assumed among European policy makers, experts and engineers that technologies for Active Assisted Living (AAL) can contribute to tackling the Grand Challenge of demographic change (Peine et al. 2015; Khosravi, Rezvani and Wiewiora 2016; Rodrigues et al. 2016; Dobre et al. 2017). Since its foundation in 2008, the European AAL Joint programme has funded numerous projects and combines the challenges of an ageing society with market opportunities. A good research and development management

strategy is needed to fulfil both requirements (McCready and Tinker; 2005; Broek et al. 2010; Boudiny, 2013; Dobre et al. 2017).

The roots of the AAL Joint Programme can be traced back to the European Commission Information Society Technologies (IST) programme (DG Connect 2013: 8). As long ago as 2000, the IST advisory group (ISTAG) set out a vision of creating an ambient intelligence landscape (Aml). A further step towards the foundation of the AAL JP was taken in the E2020 strategy, where the

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Table 1. Call – description of the first eight AAL-JP calls and their development in terms of thematic foci

Call Title	Budget/funded projects*	Call Topics
Call 1: ICT based solutions for Prevention and Management of Chronic Conditions of Elderly People	57.7 M/23	<i>Chronic conditions: education and self-management, care management, decision support and social interaction</i>
Call 2: ICT based solutions for Advancement of Social Interaction of Elderly People	60.9 M/32	<i>Social conditions: Living actively and enjoying life, bridging distances, preventing loneliness and isolation</i>
Call 3: ICT-based solutions for Advancement of Older Persons' Independence and Participation in the "Self-Serve Society"	54.6 M/22	<i>Solutions, that enable older adults to: 1) Preserve and enhance independence and dignity in all aspects of life, 2) Take active part in the self-serve society, 3) Stimulate and support the capacities required for such participation.</i>
Call 4: ICT based solutions for Advancement of Older Persons' Mobility	52.2 M/24	<i>1) Orientation and Navigation: management of information, journey planning, cognitive impairments, physical and cognitive training, 2) Assistive Technology</i>
Call 5: ICT-based Solutions for (Self-) Management of Daily Life Activities of Older Adults at Home*	51.55 M/29	<i>1) Enabling older adults to sustain and continue managing daily life activities in their home. This includes ICT-based solutions which are used by the older adults, as well as solutions which require support by others; 2) Supporting informal carers to give assistance.</i>
Call 6: ICT-based Solutions for Supporting Occupation in Life of Older Adults	41.76 M/24	<i>ICT solutions to promote, enhance and sustain: -paid activity (including but not exclusive to professional, entrepreneurial/small business and self-employment) -unpaid activity (e.g. volunteering, knowledge sharing, counselling).</i>
Call 2014: Care for the future: An Ageing society faces an increasing need for care, how will ICT contribute to sustainable solutions?	33.832 M/15	<i>How ICT-based solutions: -reconcile increased demand with limited resources -increase and facilitate the supply of formal and informal care -reduce the demand for care through prevention and self-management -can support the shift towards better care at home and in the community.</i>
Call 2015: Living actively and independently at home	28.9 M/9 (until July 2016)	<i>The key priority for the projects should be to provide and to pilot ICT-based solutions that will support older adults in their homes which: -Integrate existing technologies or develop technologies and infrastructures into easy to use, affordable and sustainable solutions that address a range of needs -Have a high potential to be commercialised and scalable</i>

*Notes: According to project descriptions as well as technopolis report (Mostert et al. 2014)

grand challenge of demographic change was framed as an opportunity for smart, sustainable, and inclusive growth (COM 2010).

After the first phase of the AAL JP from 2008-2013, and with the end of FP7, a second phase of the AAL JP was launched. The EC proposed to follow up the JP Initiative in the H2020 framework programme for the 2014-2020 period. In this second phase, the AAL JP receives more than € 700 million for 7 years (the same ratio as for the first phase – 50% industrial partners/25% member states/25% Commission). The activities of the AAL JP include technological research, prototyping and piloting, and dissemination activities, but also networking activities which are realised in the annual AAL forum. The framing

of the calls differs slightly, as shown in the calls analysis in Table 1. Dominant topics are applications and solutions to increase social interaction and autonomy, mobility, and applications to cope with specific diseases. The most recent calls have a stronger focus on a socio-economic perspective. The commonality of all calls is a strong ICT focus.

However, after all these projects, the market drive they induced, and the research and development activities they stimulated, there have also been critical assessments of the impact of AAL on several levels. These include the economy, e.g. the development of national markets (Broek, Cavallo and Wehrmann 2010), financial relief for social systems (LaingBuisson 2008; Stav

et al. 2013), and the real added value for individual users (Dobre et al. 2017; Siegel and Dörner 2017). The promises made at the programme level are manifold: technology will relieve economic burdens and develop new markets, and European individuals will enjoy better, healthier and more active ageing. Neven (2015) identifies a triple-win rhetoric, which claims that there are only winners since technology will allow the elderly to remain in their homes (1) longer and (2) with improved quality of life, and that this will (3) help to provide relief to the state budget. Although Neven's comment can be seen as a fundamental criticism, so far it has rarely been questioned whether these promises are merely attributions or if these hopes (of different actors) may be fulfilled (and if so, for whom).

Current research shows that AAL may be just another way to shift the responsibility from the community to the individual in a neo-liberal manner (Endter 2016) or in an interventionist way (Peine and Neven 2018), or to technically reproduce what are known as unquestioned stereotypes (Cuddy, Norton and Fiske 2005, North and Fiske, 2013, Ayalon 2014, Carney and Gray 2015, Ayalon and Tesch Römer 2018). Age stereotypes are difficult to identify and often underlie subjective valuations (Ayalon 2016), and they have been shown to impact on older adults' self-esteem and real life (e.g. Bennett and Gaines, 2010, Robertson and Kenny 2016). Although they are commonly seen in a highly critical light once they have been identified, age stereotypes often remain opaque as they are often widely accepted, and incorporated in the local cultures (see also Wilinska, de Hontheim and Anbäcken, 2018) and deeply interwoven with our everyday lives (Sargent-Cox 2017). Therefore, their detection requires conscious reflection. In this article, we try to contribute another piece of evidence that will help to unveil inherent conceptions of

“older adults” as visible in project descriptions and, consequently, most probably materialised in AAL technology (Feenberg 1995, Verbeek 2009, Detweiler and Henriks 2016). We aim to detect what Dahl et al. are referring to when they say: „Assistive technology comes with embedded values that have implications for the care situation, independently of the user's or the designer's original intent.” (Dahl et al., 2016: 598)

We therefore raise the question of what social attributions can be identified within AAL technology descriptions, and critically discuss the values they contain. We do so by analysing ten declared success stories of the AAL JP initiative. All of them are completed projects and presented officially on the AAL JP website as best cases (i.e. success stories). Analysing short descriptions of projects, we are fully aware and want to emphasise that the actual assumptions as deployed by the researchers when realising their projects may differ from what we find within our critical approach. Already since decades technology assessment (TA) contributes critical perspectives to the role of (rapidly developing information and communication) technology as relevant to individuals, society, research, etc. in the context of demographic change e.g. Smits et al. (1995) and the conceptualisation of ageing is thoroughly analysed as well from different angles (e.g. Gudowsky et al. 2019, Dominguez-Rué and Nierling, 2017).

In the next section we describe our material and the method used to identify underlying social attributions (the inherent assumptions) inherent in the success stories. We present the results of our analysis (section 3), followed by a discussion (section 4) and some concluding remarks (section 5).

MATERIAL AND METHOD

In order to identify the inherent assumptions, and to find answers to the questions of what the

Table 2. Overview of the ten projects

Project Nr.	Technology	Level of aggregation of technology (specific device versus contributions to technological infrastructure or both)	Product on market
1	A humanoid support and communication robot	Device and infrastructure	Y
2	Activity monitoring system for flats	Sensors (devices) and infrastructure	Y
3	Medical monitoring and medication system - attached to the body	Device and infrastructure	N
4	Body monitoring system	Device and infrastructure	N
5	Communication tool	Infrastructure	Y
6	Communication tool	Device and infrastructure	Y
7	Communication tool	Device and infrastructure	Unclear
8	Communication and activity tool	Software	Y
9	Communication tool	Software and infrastructure	Unclear
10	Web-based storytelling and communication tool	Apps and the Book: 'Design for an Empathic Society'	Y

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technical concepts are like and what social attributions result from them, we analysed ten AAL project descriptions.

The selected projects were conducted within calls from 2016 and 2015, and presented as "success stories" on the AAL JP website between November 2016 and August 2017. We collected the data to conduct our analysis in the first half of 2018. The declaration of these projects as success stories implies that they

- produced either a marketable prototype or product or
- were nominated for a prize or award, or
- found an investor (i.e. arrived on the market).

As of May 2018, the following success stories are mentioned: *Access*, *AALuis*, *Co-Living*, *Cap-Mouse*, *Connected Vitality*, *Domeo*, *Express 2 Connect*, *Fearless*, *Help*, *Inclusion Society*, *My Life*, *Rosetta*, *Rehabilitation Gaming Systems*, *Softcare*, *We Care*, *2PCS*. Those we have not analysed in this paper are highlighted in italics.

Table 2 provides an overview of the 10 projects, the technology they apply/develop, and a distinction between a technology used as a specific device (e.g. a smart tablet) and a contribution to technology infrastructure (e.g. communication solution between different users). Lastly, it indi-

cates whether a product resulting from the project is available on the market (as of April 2018).

Each success story is described by a narrative in which the underlying problem is described, followed by the description of the technological solution/system. Analysing the texts of the description of these ten stories, we identified the imaginaries and, on that basis, what inherent assumptions they contain.

In order to identify the underlying inherent assumptions in the ten success stories, we used a text coding software which combines social network analysis and qualitative content analysis (Discourse Network Analyzer DNA; Programme download at: <https://www.philipleifeld.com/software/software.html>); Leifeld (2013). It offers the opportunity to analyse and codify texts and to put the codes of the different source documents in relation to each other in the form of a "network of phrases". Figure 1 illustrates the steps of the process. A detailed description of the steps is provided in the following paragraphs.

1. The source texts used are the descriptions of the 10 success stories on the AAL-JP webpage (<http://www.aal-europe.eu/about/success-stories/>). The rationale for using these texts relates to how they are presented. They provide infor-

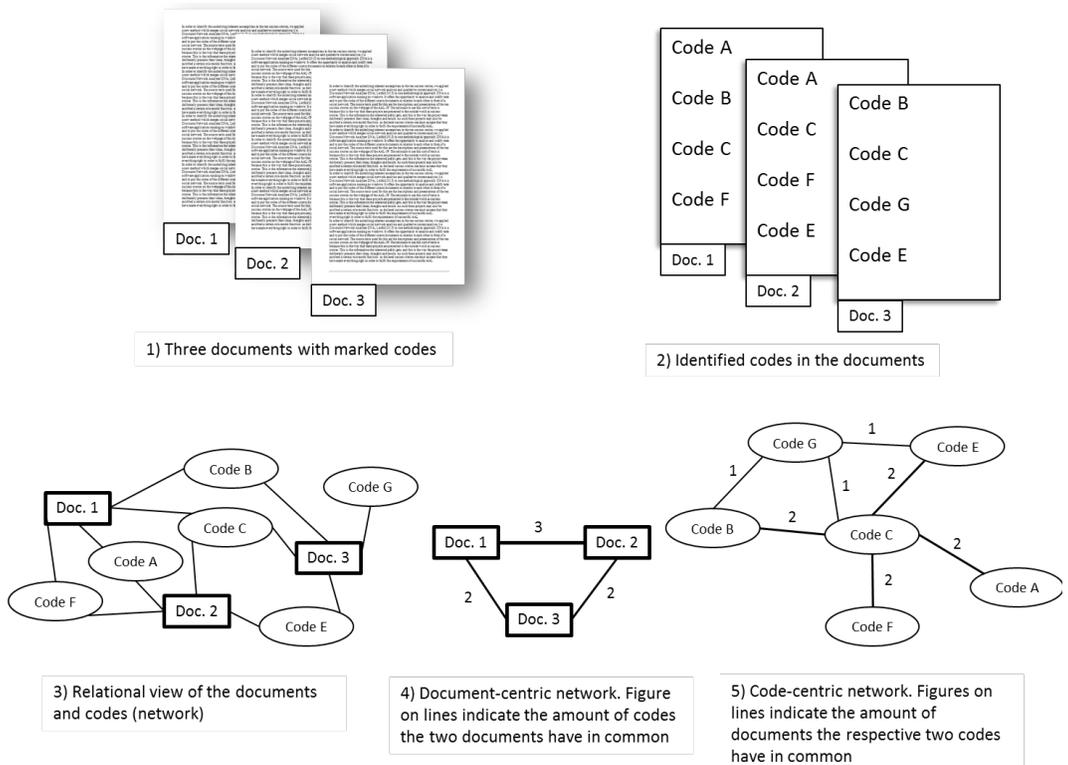


Figure 1. Five steps of the network generation

mation to the wider public. Furthermore, they are easily available on the homepage (without any need for additional download of any documents or extensive information retrieval efforts by those visiting the homepage). As such, these projects may also be ascribed a certain role model function: as declared AAL success stories, one may assume they fulfil the requirements of successful AAL.

2. The codification procedure was jointly performed by the two authors, with discussion of each phrase and its codification in an iterative process. Guiding questions served to identify the underlying assumptions in the ten success stories:

- What picture of older adults is inherent to the project description (e.g. helpless isolated older adult, deficit perspective, capacitive older adult etc.)?
- What are the main promises/solutions the project/technology offers (economic efficiency, quality of life etc.)?
- How is demographic change understood (opportunity, burden, etc.)?

Using these questions, the 10 text corpora were codified.

3. The codification process of the 10 text corpora (success stories) relates them to each other. This network-based approach allows a relational view across all success stories, as it makes it possible to identify central codes. Because each code is based on the guiding questions from paragraph 2, which serve to determine the attributions of older adults in the success stories, one ends up with a relational representation of the attributions (see illustration *Figure 1*). *Table 3* lists all identified codes with representative text passages from the success stories. The visualisation and further analysis of the codified data was performed in Pajek (de Nooy, Mrvar and Batagelj 2011), a programme used for the analysis of social networks.

4. & 5. Two different network types can be generated by the procedure described: a document-centric (4) and a code-centric network (5). For the purposes of this paper, the code-centric network was used in the further analysis.

Additional questions to the coordinators

To get a more holistic view and to stimulate a reflection process on the projects, we sent the following four questions to the coordinators via e-mail (February 2017). All coordinators were reminded five weeks later (March 2017). The coordinators were asked to provide a more personal point of view taking the whole project experience into account, and they were explicitly as-

sured that the answers would be processed in an aggregated form and no names of projects would be given.

The questions related to their personal perspective as to

- what would make their project a success story from their point of view;
- their concept of the ideal target person or addressee;
- the estimated contribution of their project to coping with the (future) challenges of demographic change;
- an ideal user of their product;

One immediate negative response was the only result in the first round. Only 2 positive responses (one of which was very short due to a change of job) were sent within 8 weeks (and after a second reminder). We therefore refrained from analysing them in depth.

RESULTS

To provide an overview of the phrasing the success stories have used, *Table 3* lists all the identified codes as found in the text corpora and provides for each code one or more exemplary text source(s).

References to the actual role of the end-users or how they were to be integrated are quite rare. One project defines the product in terms of user integration, one describes end-user testing, and two projects explicitly emphasise (more or less) the continuous integration of users.

Network analysis

The density of a network indicates its cohesion, which is the relation between theoretically possible and actually present connections. A cohesion value of 1 would indicate that all the possible connections are present, and a cohesion value of 0 would indicate a network without any connections. In our case cohesion relates to the codified project descriptions. It is therefore a measure for the semantic connection of the success stories.

The density of the network is 0.87. This means that 87% of the connections between the assigned codes are realised in the network. This indicates a high semantic cohesion between the 10 success stories.

The degree of a node in a network is another important measure. It illustrates how well connected each individual node is in the whole network. It is also possible to calculate the average degree for the network. In our case the average degree is 9.66, meaning that each code co-occurs on average with 9.66 other codes. Putting this in relation to the total number of 12 codes, we can conclude

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Table 3. The 12 codes and respective statements (in grey statements from different projects).

Code	Example(s)
INHERENT ASSUMPTION	
Intergenerational relations and experience exchange are important for older adults	<i>"bring (grand-)parents and (grand-) children closer together and make web storytelling valuable to siblings and/or cousins"</i>
Older adult agrees to telecare/telemedicine	<i>"Care contact, connecting the elderly with their care professional and supporting the care plan (...)"</i>
Older adults agree that technology takes over control and/or decides	<i>"The XX-system is made up of a wearable subcutaneous pump, an intraoral cartridge inserted in the patient's mouth, a wearable movement sensor, blood pressure device and a control system that is constantly sending data, checking the patient and calculating the right quantity of drug to be supplied."</i>
Older adults are not concerned about their privacy/agree to be surveyed by technology	<i>"Providing a management portal with an overview of Service Users condition and data collected by medical and smart home sensors." "Early detection of deviations in the patient's behaviour." "The (...) project has developed a prototype of a monitoring system for seniors that allow carers (formal and informal) and senior users to get real-time alarms in dangerous or potentially dangerous situations and warnings of long-term trends that could indicate a future problem." "The (...) System is for Service Providers or Municipal Health Services & gives the central care office an updated overview of those at home through an alerts system as well alarm warnings in emergency situations."</i>
Older adults are a burden for the care environment	<i>"Prevention of overload of the caregiver and as a result prevention of burn-out" "This suggests an alternative way to face PD, not only in managing patients at an individual level, but also in optimising cost effectiveness of health care plans"</i>
Older adults are isolated and suffer from it	<i>"In which up to 50 people can interact and conduct social meaningful activities with each other, a new vision on meaningful contact from a distance will arise." "(...) is a collaborative European project whose primary goal is to encourage older people to create, participate in and continue their social networks in order to prevent isolation and loneliness" " The initial data collection synthesised insights from the participating partners in relation to the issues of loneliness"</i>
Older adults depend/are linked to a care environment	<i>"Impact of the system on the autonomy, quality of life and delay in nursing home admission of elderly people with chronic disabilities, and burden and feelings of incompetence of their informal carers."</i>
Older adults are willing to be part of a virtual community	<i>"(...) to develop, test and deploy a web service, which stimulates and facilitates personal storytelling, and enables interest-based connections and communication among elders and thereby empowers them and enriches their life."</i>
Older adults want/can maintain self-sufficiency and autonomy	<i>"By increasing their autonomy, older people will be able to live at home longer, will preserve their quality of life, and (they) will continue to give their input and contribution to the neighbourhood and the larger society."</i>
The technology will help to save money for the public sector	<i>"(It allows the saving) of enormous resources besides the strictly medical ones."</i>
Older adults do not know their needs and how to deal with them	<i>"The system will make elderly people the owners of their own needs and provide tools for dealing with them" "The tool itself was going to be developed in close contact with end users to make sure it would really meet their requirements."</i>
User needs are considered	

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that the underlying assumptions and social attributions of older adults in the projects have a strong common denominator.

As illustrated in *Figure 1*, two codes can co-occur in more than one project. This leads to a weighted co-occurrence. If the relation (= co-occurrence) between two codes has a value higher than 1 (i.e. the two codes co-occur in more than one project), then the semantic importance of these two codes is also higher. We use the weighted co-occurrence between two codes in order to identify the central inherent assumptions of the 10 success stories. *Figure 2* illustrates the whole network with all codes. As one can see, a centre of highly connected codes with weighted co-occurrences higher than 1 is visible.

Table 4 shows the distribution of weighted co-occurrences (i.e. line values). A line value of 1 indicates that two codes are connected via one project. A line value of 6 indicates that the code pair is connected via 6 projects. The distribution of line values gives us an indication of how the different codes and, consequently, the projects are connected to each other via the codes. We can see that nearly 75 % of all co-occurrences between the codes have line values between one and three. The corresponding codes can be found at the periphery of the network. The remaining 25% of relations are spread across the line values 4, 5 and 6. They constitute a very dense core of codes, as can be seen in the network representation.

In *Table 5* a distribution of the sum co-occurrences is presented. Codes with high sum values

are strongly represented across the success stories, indicating the inherent assumptions of the success stories.

DISCUSSION

Neither the choice of material nor the choice of method shall serve to criticize the projects (corresponding to the descriptions). Our intention is not at all to criticize the projects or project leaders. Our main aim is to highlight the value of reasoning about target groups and the societal meaning of technology in the era of responsible research and innovation (e.g. Wilkowska, Brauner & Ziefle, 2018).

The high density of the network indicates that the 12 inherent assumptions we identified in the 10 success stories are prevalent in all projects. The project descriptions seem to apply similar ageing attributions irrespective of the technology concerned.

Remain independent ...

The code “Older adults want/can maintain self-sufficiency and autonomy” indicates that most of the projects are in line with the main assumption of the whole AAL initiative, which contains the precondition that it is a fundamental value and an explicit wish of older adults to age in place and maintain autonomy as long as possible.

... and active by technology!

However, connected to the category “Older adults do not know their needs and how to deal with them” is a strong indication to the contrary, as it shows the need for technological support to fulfil the main assumption, “Older adults want/can maintain self-sufficiency and autonomy”. It

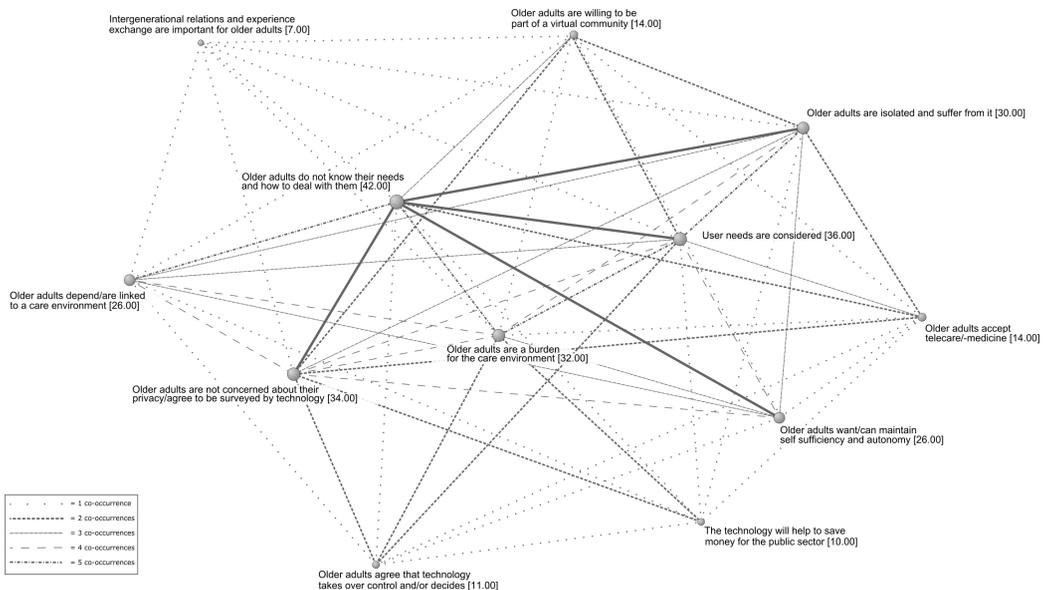


Figure 2. Whole network of code co-occurrences. The size of the nodes corresponds to their sum of co-occurrences with other codes their values are in square brackets

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Table 4. Distribution of weighted co-occurrences (i.e. line values).

Line Values	Frequency	Cumulative frequency [%]
1	23	40.35
2	11	59.65
3	8	73.68
4	7	85.96
5	4	92.98
6	4	100
Total:	57	100

furthermore underlines a conception of older adults as (partially) incapable of living well without (technological) support. This code contains “Older adults need support to keep active” as a clear sub-message which may reflect an unquestioned paradigm of “keeping active”, which has already been critically discussed by Dyk et al. (2013): “Instead, the ‘late freedom’ associated with life after employment is highly valued by most of our interviewees, who at the same time do not believe in popular promises to bring new value to old age by means of its activation: this promise – which is central to the public legitimization of the ‘active ageing’ paradigm – obviously contrasts with people’s everyday experiences and is, at least for the time being, not considered to be a part of their social reality.” (p. 32)

Care is needed by everyone

A predominant deficit perspective, as indicated in the assumption that “older adults do not know their needs”, also appears when it comes to the assumption that older adults are closely linked with/dependent on a care environment. This also excludes as target groups those older adults who are not (yet) closely related to care environments. On the other hand, it implies that at a certain

time in one’s life everyone becomes dependent on a care environment. There is an evident lack of closer description of primary target groups of the project summaries here. This lack is aggravated as older adults tend to see themselves as not yet getting older as long as they do not encounter severe difficulties (e.g. Gräfe et al. 2011). However, an unquestioned focus on dependency seems problematic

in itself. Several authors have questioned such readings and marked them as predominantly socially constructed (e.g. Plath 2008, Weicht 2013) or short-sighted, as the important aspects of materiality of care and care practices are often not considered (Purkis and Ceci, 2014).

Neither privacy nor intimacy assumed

This primary focus on dependency can also be seen in the clear framing of most projects that surveillance technologies can make up an essential part of the AAL care environment. However, the category “privacy”, in the way it appears, strongly indicates that older adults are assumed to be uncritical and/or not sensitive as to (potential) privacy infringements. This can be read in at least four ways: either they are assumed not to know about it, or they are expected not to care about surveillance, or they are assumed not to have any private life worth protecting, or the researchers just don’t care to think about the privacy of technology users. All four readings would be highly problematic.

Hence one has to assume that the price for a newly achieved self-sufficiency through the use of AAL is an unquestioned commitment to surveillance without bothering about privacy or the intimate life of older adults. This touches on the trade-off between security and privacy, which is assumed to have been overcome (e.g. Melander-Wikman, Fältholm and Gard 2008). However, in this reading, privacy-enhancing technologies are entirely ignored (e.g. Wahdwa and Wright 2010) and the question of trust seems absent (Lie, Lindsay and Brittain, 2015).

Isolation and loneliness – taken as a matter of fact

The view that “Older adults are isolated and suffer from it” is surely an important issue for later adulthood (e.g. Landeiro et al. 2017), but it may also contain the assumption that older adults are incapable of organising their social needs by themselves and that

Table 5. Distribution of the sum co-occurrence of each of the 12 codes

\sum co-occurrences	Code
42	Older adults do not know their needs and how to deal with them
36	User needs are considered
34	Older adults are not concerned about their privacy/agree to be surveyed by technology
32	Older adults are a burden for the care environment
30	Older adults are isolated and suffer from it
26	Older adults depend/are linked to a care environment
26	Older adults want/can maintain self-sufficiency and autonomy
14	Older adults accept telecare/-medicine
14	Older adults are willing to be part of a virtual community
11	Older adults agree that technology takes over control and/or decides
10	The technology will help to save money for the public sector
7	Intergenerational relations and experience exchange are important for older adults

they would gratefully use (technological) support to enable them to do so. The fact that technological communication devices also require a personal network to communicate with is somewhat neglected, or it is assumed that older adults are either willing to connect with anyone who is also “old and isolated” or they are willing to (virtually) talk to other persons they do not know pertaining to other demographics. Metzke, Kwekkeboom and Abma (2015) have shown in the context of Family Group Conferencing that older adults are reluctant to share their lives – that is to say, with other people they do not know. The imaginary of “older adults as being incapable of organising their social needs and needing (technological) support to do so” is in line with what Weicht (2013) found to be the construction of the elderly: the social other, whose needs are defined by others (see also van Dyk, 2016).

Old age has its price

“Older adults are a burden for the care environment” contains the economic and interpersonal dimensions of pressure that care arrangements can contain. The care burden for informal family carers who are also working full time often results in them reaching their physical and psychological limits (Schmitz and Stroka 2013).

However, the evidence of this category indicates a negative connotation of ageing which is framed in terms of a predominantly economic rationality (cf. Castagna et al. 2013; Mihic, Todorovic and Obradovic 2014; Konetzka 2014; Cook and Polgar 2015). Moreover, informal family carers who are working earn less (Van Houtven, Coe and Skira 2013, van den Hoonaard 2018). Economic considerations (on the individual as well as the societal level) may put the target group under additional pressure – they have to accept technological support so as to avoid being a burden to others. Social pressure and technology paternalism may be other consequences (see also Kinder, Ball and Busby 2008).

Social pressure on older adults to choose cheapest not best

Another subcategory subsumed into this code was “support for older adults (with diseases) is expensive”, which not only supports the programmes’ general line of market orientation but also emphasises the general idea that older adults are dependent and that this dependency is an economic burden (see also Campagna et al. 2013). This supports the assumption of the authors that such a rationality is a result of a critical assumption: it may place societal pressure on older adults, and may create individual pressure on them to make choices which are not individually preferred but are socially desired or peer-group steered (see also Chelms and Prasanna

2013). Such a rationality would follow what North and Fiske (2013) describe as a prescriptive stereotype – and contain a certain expectation of how older adults should behave.

Considering user needs

Within the project descriptions users are frequently mentioned in the role of testing the end-product, but they are also considered a valuable source for identifying product details and properties. However, the result that 6 out of 10 project descriptions make no further reference to the exact (and active) role of the users is – especially in the light of an intensification of user integration requirements of public research funding schemes (e.g. Horizon 2020) – somewhat surprising. One project describes end-user testing, one project defines the product in terms of user integration, and two projects explicitly emphasise (more or less) continuous integration of users and show a clear tendency to presuppose a technological and market-push rationality.

The lack of integration of users and certain stakeholder groups in the development process of AAL is widely discussed in the literature (e.g. Saborowski and Kollak 2015; Weinberger, Krings and Decker 2014; Bechtold and Sotoudeh 2013).

The dominant economic framing may have two causes. Firstly, the JP AAL is a market-oriented Research Programme, which strongly focuses on perspectives of commercial exploitability; secondly, we are living in a time when ageing is predominantly discussed from a neoliberal viewpoint, problematising its societal and budgetary consequences (e.g. Davidson, 2012). In this context, it is interesting to see that the primary addressees are the individual users. Nevertheless, we found that the usefulness of the technology in question was not argued for by promising individual monetary savings for just these users.

We have mentioned the fact that our reflective activity in approaching the project coordinators with questions met with hardly any response (one immediate negative response, two positive responses in eight weeks, and seven non-responses). When we reconsidered this after having conducted our research, we found this less surprising. The project leaders may very well be involved in highly competitive working contexts, neither having time for this nor being convinced that reflective activities will be of any use (and hence not worth spending time on). Moreover, they were in no way obliged to respond to our request.

CONCLUDING REMARKS

The high density of the network implies that the 12 codes we identified in the success story descriptions are able to cover common mental constructions and representations of ageing and how

older adults are depicted (and operationalised) within the project descriptions. However, we want to emphasise that while the project realisations may vary in all these respects, the descriptions of the projects do or do not mention certain aspects and do so in a distinct way. We think the project descriptions are relevant: they serve as a low-threshold orientation for researchers, stakeholders, policy makers, and citizens who are interested in the field of AAL.

The assumption of the AAL programme is that (in addition to the individual users) the main actors to profit are industries and regions, and a main goal of the programme is to develop new and profitable markets by means of assuring technology leadership. It is interesting that this rationality is not mentioned explicitly in any of the project descriptions. Nevertheless, we assume (also due to the market logic of the consortia, including SMEs and with the goal of producing a marketable product within three years) that this rationality is of fundamental importance for all AAL projects within the JPI framework. This might be mirrored in the economic reasoning which was found to be dominant throughout most of the descriptions. Yet, even in the light of this dominant economic framing (AAL as a way to reduce the economic burden of care), a total lack of the perspective of individual affordability of the technological devices and services in the ten success stories is surprising, and not in line with the main requirements of responsible research and innovation (RRI as coined by Von Schomberg 2001, and detailed in Owen, Bessant and Heitze 2013). RRI aims to actively integrate citizens and affected user-groups and to foster the responsibility of research towards society. In the light of the predominant conceptions of ageing and AAL, it remains important to ask in what ways AAL and the RTD process of AAL can profit from the research agendas of RRI.

This is also true for the dominant paternalistic view, as found in the project descriptions, which assumes that older adults need technological support to organise their needs and lives. It is assumed that older adults themselves are unable to express their needs and see that these are fulfilled adequately, either by technological or non-technological means; instead, external entities support older adults with technological devices which bring relief to the target group as finally their (perhaps hitherto unknown) needs are fulfilled.

Contradictory attributions to ageing can be found in the ten project descriptions. Older adults are assumed to want to live autonomously and stay in their homes as long as possible – nevertheless, technological means are assumed as necessary preconditions to achieve this autonomy. This fram-

ing of technology dependency is quite critical.

In line with these paternalistic attributions is the attribution of a certain incapacitation. Older adults are not assumed to insist on fundamental rights such as privacy. Whether they are thought to lack interest, information or critical consciousness cannot be determined. However, the worst assumption would be if older adults were considered not to have a private life at all – if they were, as Weicht (2013: 189) says, treated like children who are “dependent, vulnerable, innocent, asexual”.

The fact that 6 out of 10 project descriptions make no reference to the role of the users is surprising. The way participatory activities are framed shows a clear tendency towards a technology and market-push rationality. One project describes end-user testing, and one project defines the product in terms of user integration. In this context the important question arises of whether, and if so to what extent, AAL can (currently and in future) contribute to solving the main challenges of demographic change. Even if we were to admit that the economic dimension is the core issue of AAL, usability, accessibility and the requirement that AAL should do no harm are fundamental prerequisites to achieve an economic effect.

Therefore, AAL of the future and AAL success stories should be able to:

- overcome a merely economic rationality as it has been applied to most topics related to ageing up to now
- pervade all societal strata in terms of desirability and economic affordability of the devices developed
- provide an answer to people’s problems but not present themselves as the only possible solutions (social organisational solutions may be preferred or more effective in some contexts)
- provide truly helpful and accessible assistance to older adults and the carers and be developed as answers to the needs they are able to express
- respect and incorporate social and organisational routines

Having analysed the ten AAL success stories, we are aware that our results exclusively rely on these short documents and the respective contexts. The actually motivating values and assumptions of the researchers within these ten projects may fundamentally differ from what we found. However, we strongly recommend that market-oriented technology research and development programmes should also consider being more reflective as to the “attributions to ageing” they (necessarily) apply. One way would be to invite applicants to consciously question and express

how a given technology affects older adults in more than the two ways usually referred to:

- Technology level: “tangible problem-fixing” approach - this is the problem of user X or
- Economic level: “savings legitimate this technology” – this technology X will save money for entity Y.

The programmes should encourage applicants to think about and consciously identify what values and what idea of man they are applying – that is to say, they should think explicitly about and express clearly what “idea of older adults” they have and what all this implies in terms of ethical, societal and economic consequences. This last question should include thinking about different actors affected – such as the users themselves, the whole care arrangement, but also family

members or friends and so on, as well as how to involve them meaningfully. Expressing these thoughts within the project description could be another tiny step towards a closer relation between technology developer and technology user (groups) which is characterised by respect, empathy and interest in one another.

This request is in line with the seamless continuation of the JPI AAL (Such recommendations could inspire an implementation of the suggested criteria in FP9; <https://ec.europa.eu/programmes/horizon2020/en/tags/fp9>). However, the role of economic reasoning seems to have been dominant so far. Going beyond this very narrow perspective would also be in line with the requirements of responsible research and innovation (RRI).

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