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D6.1 INVESTMENT READINESS ASSESSMENT

IN-4-AHA Project – Innovation Networks for Scaling Active and Healthy Ageing

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More information about the project can be found on the IN-4-AHA webpage and social media pages: <u>https://innovation4ageing.eu/</u> <u>https://www.facebook.com/IN4AHA</u> <u>https://twitter.com/EIP_AHA</u> <u>https://www.linkedin.com/groups/8912125/</u>

More information about the EIP on AHA community and FUTURIUM platform: <u>https://futurium.ec.europa.eu/en/active-and-healthy-living-digital-world</u> https://digital-strategy.ec.europa.eu/en/policies/eip-aha

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Executive summary

There is a lack of research on the current investment landscape of the active and healthy ageing (AHA) market, including on the barriers and gaps present in this sector. In order to support the IN-4-AHA project, deliver significant impact with its activities and achieve its desired outcomes, this report aimed to compile an investment readiness assessment of the AHA market, identifying the current gaps on the market and proposing potential solutions to mitigate those, and a checklist for start-ups preparing to raise investment in this sector.

In order to compose a document of significant benefit, secondary research on the AHA market, investment landscape and previous projects was made, in addition to primary research in the form of interviews with key market players – investors, companies and ecosystem facilitators. The interviewees provided insights into their experiences on the AHA market and elaborated on their perceptions of the current investment landscape. Subsequently, common themes were identified, gaps on the current market were mapped and potential solutions were drafted.

Based on the analysis, a review of available options for entrepreneurs to finance the development and scale-up phases of their AHA businesses were identified, including different private, public, and blended sources. For each instrument, the analyses summarised the main information allowing AHA innovators to assess the relevance of the instrument depending on their development status and investment needs. The instruments were also mapped based on the relevance by product readiness, technology readiness and company development stage, together with an assessment of the overall performance of each instrument to fund innovation within the AHA ecosystem. Based on the information provided, a separate checklist for funding innovation was also developed (added as a stand-alone tool in the Annex 3).

While it is evident that the availability of instruments is not uniform, special emphasis was placed on understanding the main drivers and reasons behind the situation so that the Investment strategy can be built to prioritize interventions to create the impact. Five key gaps were identified and potential solutions to mitigate those were proposed:

Gap No. 1: The AHA market is deemed as being highly fragmented in the EU, causing less innovation and start-up activity on this market as well as challenges when trying to scale.

- Solution 1: Initiatives on both national and EU levels.
- Solution 2: Innovators should be better prepared to navigate the complexities.

Gap No. 2: Innovators lack understanding of their stakeholders.

- Solution 1: Government-backed sandboxes.
- Solution 2: Comprehensive ways to engage with the stakeholders.

Gap No. 3: There is a stigma associated with getting old/the older generation.

- Solution 1: Initiatives to change the attitudes via education and intergenerational contact.
- Solution 2: A move towards needs-based solutions, rather than aged-based, shifting from healthy ageing to healthy living.

Gap No. 4: Lack of business support for AHA start-ups in the early stages.



• Solution: Specialised accelerators and sandboxes for AHA businesses.

Gap No. 5: Lack of investor activity.

- Solution 1: Implementing initiatives that encourage investor activity in the AHA market.
- Solution 2: Utilising the ESG movement to foster investment into the AHA market.



1. Introduction

This report is one of the important steps to achieve the objectives of the IN-4-AHA project - to **develop a practical**, **validated innovation scale-up model to facilitate the scale-up of innovative solutions across EU in active and healthy ageing.** Among the 4 sub-objectives, this report most directly is connected with the fourth one, dealing with the need to establish a clear and actionable **Investment strategy**.

When establishing the investment readiness for the healthy ageing ecosystem, it is important to define more specifically, what are the most likely vectors of investment and the recipients of funding to explore and understand. To establish this focus, we start with some of the key aspects of the ecosystem and also how the actual objectives of this initiative inform the investment readiness assessment:

Key aspect	Contextual information	The impact on the design of the investment readiness assessment framework
Scale up across EU	The overall objective puts the focus on scale-up of innovative solutions across EU in active and healthy ageing.	As a consequence, one needs to focus on the types of innovation and innovators that are capable to carry the innovations cross border. Also, in particular, it is important to assess how much the national borders are a hurdle hindering innovation and the investment readiness of the sector itself.
Blended funding, in particular, attraction of private investors	It is clear from the project objectives that the focus is on a long-term investment strategy which would leverage and blend funding sources from European, national and/or regional programmes or promotional banks as well as private investments, and involve new players and partners.	Provided we set the objective of blended investment, the focus should be on the attraction of the private investors. Whereas the public and EU level funds can be directed by socio-economic considerations and therefore can be deployed to a very early-stage innovation, the private investment is most usually driven by search of attractive financial return. As a consequence, investment readiness for private investment is a stricter test to apply, and was therefore chosen as essential when analysing the investment readiness.
The suppliers of innovation established as start- ups, SME-s and large industries	The outcomes of the project (proposals) are also expected to set up a cooperation mechanism facilitating regular exchanges between the demand (both public and private procurers) and supply (including SMEs and start-ups) sides to identify the difficulties innovators	It is clear that the innovation can be initiated by a number of ecosystem participants, including research institutions as well as demand side players (such as large care facilities or networks, even governments in general), but also commercially driven actors such as SMEs and start-ups as well as larger industrial providers. When choosing the area of focus, the model where the innovator is a separate, commercially oriented supplier (business entity) was selected

Table 1. Summary of key aspects defining the focus of investment readiness assessment report.



may experience in scaling up solutions across borders in the EU and define measures to improve cross-border deployment of these solutions. as the main one. This conclusion stems from the already established roles in the ecosystem as defined in the project statement of objectives and context, but also it is very logical when taking all key aspects described together: it is most logical to expect, that notable scale-up of AHA innovations will be delivered by commercially driven suppliers, having the clear focus on growing presence across the EU, backed by a blend of financing, including the private investors seeking return.

With these aspects and areas of focus in mind, the aim of the document is to map the current investment landscape of the AHA market, taking into account insights from companies, investors, and ecosystem facilitators, to better understand the market needs and compile a set of potential solutions to mitigate the current gaps on the market.

This document includes an overview of the current AHA market, a summary of the investment landscape, providing a review of the private, public, and blended funding opportunities available for start-ups and other innovators, and key takeaways of the AHA market from previous projects. Deep insights were collected from key market players including investors, companies, and ecosystem facilitators by conducting interviews. Based on the insights from secondary research and the conducted interviews, market gaps were identified and suggestions on the potential solutions to mitigate those were made, as well as a checklist for entities aiming to improve their readiness for investment and fund their innovations in this sector.

The aspect of cost efficiency in AHA innovations is fundamental to the way the economic value will be exchanged in the transformed ecosystem, and how the innovations could be rewarded. However, this also creates some challenges as the person acquiring the new product or solution is not necessarily the actor that is also getting the full benefits of the potential lowering of long-term costs – mostly due to the prominent role of health and care systems played in the space of AHA. This aspect, from the standpoint of most of suppliers as defined (SMEs, start-ups, major companies) is a complication to the business model, in a sense that transactions of buying and selling can get multi-directional, and almost inevitably require action from the state – sponsored health and care systems to accommodate the innovation.



Figure 1. The complex distribution of cost efficiency and benefits from Innovation in the AHA ecosystem.

Source: Compiled by authors.



As a consequence, some additional objectives can be identified when assessing the investment readiness of the AHA ecosystem and the potential funding sources:

- Increased focus on assessing the level and types of gaps emerging from the specifics of the ecosystem itself and how these gaps affect the investment readiness of the innovative solution providers;
- Increased focus on ways how the innovation suppliers could be facilitated to navigate the complexities and build viable business models. It can be argued, that because the interdependencies of AHA and the health and care systems that frequently defines the financing model, it is ultimately the responsibility of health and care system players or public sector entities more generally to reduce friction in such systems to actually enable the innovation;
- It is quite clear, that the objective of pan-EU scale-up also requires to assess the investment readiness from this perspective: what is the investment readiness of innovators that have the ambition to scale on a pan-EU level, and what are the distinguishing factors that enable such business models.



2. Methodology

In order to build upon already existing knowledge, the first step of the assessment was an analysis of secondary research.

Firstly, **the background information on the AHA market was examined and key areas identified**, providing an overview of the importance of the market, the major sub-sectors that contribute to its continuous growth, the role that policymakers play in this market, and the main business models prevalent in this sector.

Secondly, **research on the investment landscape of the AHA market was made**, providing a summary of private, public, and blended funding opportunities available for start-ups on the market, together with some specific examples of initiatives that are relevant to businesses in this sector. Additionally, the aspect of **investment cost-efficiency was defined** in this context and elaborated on further. A transaction analysis of investments into the market during the last 10 years was also conducted, using the available data from Crunchbase, a large business information platform that tracks investments and funding information.

Additional **secondary research was made on previous projects with a focus on the needs of older adults** that had, in the scope of the project, also assessed the current market situation and its outlook for the future, therefore already providing useful insight into the AHA innovations sector. The projects that were examined included the Innovation to Market project, Homes4Life project, Digital Health Europe, and the Osiris project. The secondary research on previous projects was also accompanied by an interview with one of the coordinators of the WE4AHA project, who gave additional insight into the AHA sector and the current market shortcomings from the perspective of the project that they were involved with.

Based on the conclusions of the first findings on the conducted secondary research, three groups of notable market players were mapped. Those include:

- investors that are currently or have in the past invested in AHA innovations;
- companies that are operating in the AHA sector with an innovative product or service;
- **ecosystem facilitators** impacting this market, such as EU project coordinators, policy makers and innovation hub founders.

Eight semi-structured interviews, lasting approximately 1 hour, were conducted with representatives from each group to gain insight into their experiences on the market, to identify the gaps that are present, and to gather the recommendations they had for improving the current situation. The guidelines for the interviews can be found in Annex 1 and details on who were interviewed in Annex 2. Additionally, insights from a report compiled for the innovation project INFINITy, during which interviews with healthcare system experts and companies were conducted, were utilised. This enabled conclusions to be drawn on the **current market gaps and suggestions on the potential solutions** to mitigate those to be made.



3. Background information about the AHA market

Worldwide, the number of elderly people is rising, causing a fundamental shift in the demographics. According to WHO, by 2050, the world's population aged 60 years and older is expected to be around 2 billion, thus the proportion of people older than 60 will nearly double from 12% to 22%¹. Without preparations made for prevention, treatment, and rehabilitation, the ageing population will bring markable increase to the burden on healthcare, including an increase in non-communicable, chronic diseases like cancer, diabetes, and cardiovascular diseases, declining cognitive acuity and mental health, and increased health and care costs. This is where the active and healthy ageing (AHA) market comes in, focusing on extending access to healthcare and scaling-up innovative products and services. It contributes to the long-term sustainability of health, care, and social service systems by fostering innovative and costeffective technologies, services, and policies to address the needs of an ageing population. Creating innovative solutions also translates into new business opportunities for the industry and multisectoral contribution to the Silver Economy (the economy of the population over 50). Overall, this area of health and care innovation is diverse and wide ranging in the type of technology, solutions and integrated service platforms that are on offer or in development. It is described as a dynamic sector that is continuously developing new types of solutions designed to respond to the specific needs from buyers, users, and procurers.

A study conducted by the European Commission has identified that growth in this sector is derived from seven major subsectors²:

- **Connected health.** Europe's national health services invest in connected health systems and are expected to continue doing so heavily over the next few years, from patient records to online prescriptions. The roll out of these all-encompassing digital systems is also expected to drive the market for new health-related software applications, mHealth (*mobile health*) devices and services. Market research companies are forecasting dramatic growth in this sub-sector, largely driven by the public sector in search of efficiency savings, however, private consumption is also expected to become more prominent. It is expected that Europe's software and tech firms will benefit significantly from this rapid expansion.
- Robotics. The European market for domestic robots and other devices for assisting older people is small at present, but the technology is developing rapidly, and it is estimated that the market will see significant growth during the next decade, albeit probably in the public and third sector before it is taken on by private individuals. The development of the robotics sector includes innovation in not only hardware robots but also in software which can, for instance, provide entertainment to older adults through games, help remind them of events and appointments, and provide social engagement. The market for artificial intelligence-based applications is expected to emerge first and grow quickly, driven by leading players like Amazon and Google. The development of applications specifically for older adults is expected to progress more slowly, because of developers' perceptions of the conservatism and price sensitivity of the older market

¹ <u>https://www.who.int/news-room/fact-sheets/detail/ageing-and-health</u>

² <u>https://digital-strategy.ec.europa.eu/en/library/silver-economy-study-how-stimulate-economy-hundreds-millions-euros-year</u>



segment. Europe has considerable strengths in software and underpinning research, with capabilities in hardware in multiple member states.

- Integrated care. The global market for ICT solutions for health and care monitoring in private homes is estimated to be roughly €32 billion. This sector is expected to develop quickly across much of Europe with older citizens very much in the mix, albeit mostly for the younger and more affluent members of the wide Silver Economy cohort. However, there is a need for more active promotion and demonstrations to help accelerate diffusion across the wider population of older citizens. Europe has a strong industrial base in this sector and is competitive globally.
- Smart homes. Smart home solutions have come of age and are increasingly common in new homes and they are being adopted by older adults in increasing numbers, for pleasure or convenience in many cases, but also for more fundamental tasks. Home automation can help older people to live longer at home, independently. Smart home technology also relates to developments in domestic robotics (domotics) and to connected health, through the integrated care model. The smart homes market is a tiny fraction of the total European house-building market at present, however, the demand for smart home technologies is growing and is widely expected to be installed in tens of millions of homes (across all age groups) by 2025.
- Active and healthy lifestyle. The global wearable technology market is estimated to grow to over €96 billion by 2023 and €144 billion by 2026. This includes products such as smartwatches, fitness trackers, smart eyewear, smart clothing, medical devices, and other infotainment devices. This sector has immense potential with Silver Economy consumers and will likely be an important subsector of growth for the AHA market.
- Silver tourism. European tourists aged 65+ spend on average €53 per day and €66 billion per year, 16% of total tourism expenditure in the EU. Globally, the 50+ population spend €109 billion per year on sectors directly related to tourism, close to 3% of GDP, and contributing to 100 000 jobs and inducing further economic growth in other sectors of the economy. This is identified as an important sub-sector that is becoming more significant, encouraging wide-scale changes in different industries to accommodate the ever-increasing number of older consumers.
- Driverless cars. Autonomous vehicle technologies are developing quickly, with European car manufacturers and regulators in the forefront of developments internationally. The technologies are of special relevance to older people, many of whom must cope with various small impairments, which can make driving a little harder, and a little less confident. Assistive technologies are widely available in premium models but will diffuse to lower cost models in time. Higher levels of vehicle intelligence are some years away still, however, older consumers are likely to be early adopters and their input should be taken into account during the development phase.

All of the companies in these sectors aim to one way or another alleviate problems directly linked to ageing. The market, however, is much more diverse in terms of stakeholders than just the older adults that the innovative solutions are aimed at, it also includes their entire care circle, comprising of family members, governments, and healthcare and other service providers who purchase innovative products and services that benefit the ageing population. The Gerontechnologist, a leading source for healthy



ageing market analysis, has recognised **three main business models** on the healthy ageing market that companies utilise, depending on who their main target stakeholder is³:

- Business-to-business (B2B) models target institutional care providers, such as home care providers and retirement homes. This is the easiest market segment for businesses to enter as the sales and marketing approaches are relatively straightforward and similar to other sectors. Furthermore, it is more likely that home care providers and retirement homes will purchase the innovative product or service than the average consumer in the Silver Economy as the institutions have more resources available for spending. B2B consumers also tend to wait for technologies to be tested first, and are better informed about their purchases as their own business is greatly affected by it, as well as the quantity of purchases often made being quite large. However, this also means that the sales cycles can be quite long. Additionally, as the product or service is sold to a business, rather than the end-consumer itself, there may be differences in priorities in terms of which innovations are needed. The businesses, such as home care providers and retirement homes, may acquire innovations that the end-user doesn't necessarily use or benefit the most from.
- Business-to-public sector (B2G) business models require purchases and/or reimbursement from the public sector, for example health insurance boards, local municipalities, and social insurance boards. Healthy ageing has become a central topic for the wider public sector in recent years, and their interest towards AHA innovations has grown immensely and continues to do so, which means that this business model represents immense potential for businesses trying to enter the AHA market. Public bodies, both at the national and local levels, are looking for new solutions to address the needs of an ageing population while also taking steps to ease the potential burden on healthcare. However, attaining reimbursement or securing purchases from the public sector is often a long and complicated process, as well as it being much more risk averse than doing business with the private sector. Similarly to the B2B business model, public sector institutions are also intermediaries between the business and the end-consumer which means that there may be differences in priorities in terms of which innovations are needed. This can lead to unnecessary innovations flooding the market, meaning only short-term success for the businesses and unfulfilled needs for the end-consumer.
- Business-to-customer (B2C) business models target either directly the older person themselves or their family members to purchase the product or service for them. Directly targeting the end-user simplifies getting pilot customers and initial revenue through technology-oriented early adopters. Ultimately, however, scaling this type of business is believed to be difficult due to the reluctance of older adults to buy innovative products and services, as well as their low solvency. Another significant challenge in the B2C market is defining and understanding the consumer as older adults are a highly diverse group. The needs, interests and capabilities of a 50-year-old and a 95-year-old are rarely the same, and often aren't the same for two 50-year-olds. This diversity must be reflected in the range of products and services developed. Better market research and customer segmentation, which recognises the diversity of the over 50s age-group is essential. Older consumers are also not a self-identifying group which means that individuals do not typically define themselves by their age. Specifically targeting over 50s or older consumers will always exclude a large portion of the population, despite them objectively falling within those categories.

³ <u>https://www.thegerontechnologist.com/</u>



Nine in ten (88%) people believe that brands should focus on needs and interests rather than age, while four in five (83%) agree that age neutral and inclusive brands feel the most modern and relevant, making the adoption of age-friendly innovations more likely⁴. Therefore, it is largely believed that in the long run, shifting towards the development of age inclusive products and services is essential to reach a wide scale adoption of AHA innovations by customers. In other words, for B2C business models to be successful, there needs to be a shift towards developing products that are aimed at the general public while also taking into account the needs of the older adults, rather than developing dedicated products for the older generation.

To provide opportunities for stakeholders in this sector and encourage the development of the AHA market, **policymakers** have become increasingly important. There is a need for policymakers to take appropriate actions to accelerate the growth of the AHA market and ensure the well-being of the everincreasing ageing population. Policymakers can employ a range of policies and strategies in order to control costs of care and accelerate the funding of innovative products and services that the older adults would benefit from. For instance, governments willing to make the necessary upfront investments in health infrastructure can play a critical role. These institutions will have an opportunity to create policies that encourage new innovations that marry a return on health with a return on investment. Those direct financial incentives will further enable the scale up of pilot projects, and their subsequent deployment in poorer, marginalized communities that do not have the wealth to invest in innovative healthy ageing solutions. Appropriate legislation and regulation by policymakers will not only strengthen the primary health and care system to deliver accessible, affordable, and cost-effective care for older people but also ensure that there is sufficient sustainable funding available for new healthy ageing products and services to develop and scale.

⁴ <u>https://ageing-better.org.uk/sites/default/files/2019-08/Innovation-Investment-report.pdf</u>



4. Overview of the investment landscape in the AHA market

This section focuses on **EU**, **public and private funding sources available** to AHA innovators, first and foremost defined as companies in SME and start-up phase as well as larger corporations (if identified). Such focus is already discussed to some extent and stems from the key aspects of this project, requiring to focus on pan-EU scaling potential, the need to blend in the private investment that both are easier facilitated in case of corporate innovators. The readiness to invest and interest in AHA innovation was also assessed. In particular, for EU and public sources the formal requirements and dedicated programs for AHA were examined to assess how much of emphasis and attention such innovation is being awarded. In terms of private investors, the interest and readiness to invest was assessed from existing intensity of transactions, the number of specialized funds active in the AHA market, and the qualitative information on relative interest in AHA received from the interviews.

The differences in current performance of public/private funding were reviewed by collecting information on relative intensity of investment, contrasted to the relative need by type of investment. In such a way, the gaps will be evaluated based on a qualitative assessment that are needed to be overcome to deliver significant impact. The funding sources will be assessed against a structure framework, based on categories applied in Social Impact Creation Cycle model, and cover the (1) definition of the model, (2) main requirements / terms of readiness for attracting this instrument, (3) current performance in AHA sector, (4) notable examples of instrument being used in AHA space, (5) assessment of the overall gap ⁵.

4.1 Recent trends and the overall gap assessment

Along with the growth of the AHA market, the investment and funding landscape has also seen rapid development in the last couple of years. For entrepreneurs looking to develop and commercialise an AHA solution, both public and private funding instruments are available, although limited. Despite the AHA market's fast development in recent years, the funding landscape is still in its infancy and there's a clear shortage of both viable start-ups and investor interest. However, several AHA market stakeholders have compared the current state of the sector with the Fintech market in 2008 when the global financial services market appeared to be too conservative and slow for innovation, disregarding tech-enabled start-ups as a niche with limited market potential. Fast forward to 2021 where the financial services market have grown to 121 billion USD⁶, having been just over 1 billion in 2008⁷. By drawing this comparison, these stakeholders predict a similar trajectory for the AHA market.

The various options for entrepreneurs to finance the development and scale-up phases of their AHA businesses include different **private**, **public**, **and blended sources** (Figure 2 below)⁸. This report focuses

⁵ The original categories reflect (a) area of interest to invest, (b) area of problems to be addressed, (c) steps needed to be taken for investment, (d) expectations for measurement of success, and the ways how impact can be reached ⁶ <u>https://home.kpmg/xx/en/home/media/press-releases/2021/08/record-breaking-vc-investment-in-fintech-in-first-half-of-2021.html</u>

⁷ <u>https://www2.deloitte.com/tr/en/pages/financial-services/articles/fintech-by-the-numbers.html</u>

⁸ The grouping of accelerators and incubators is not completely definite as some can be publicly owned, however, they were grouped as private sources as they are usually profit seeking, majority of those also being privately owned



on investment types that are essential during the early stages of innovative companies, mainly including grant and equity financing⁹.



Figure 2. Financing instruments for AHA businesses.

Source: Compiled by authors.

Viability of lending to fund innovation

The full list of funding sources should also cover **lending as a potential source of financing**. The method is especially useful in situations where the businesses are more mature and have predictable cash flow, and in such cases, lenders are willing to take on the financing without diluting the existing shareholders. If to compare with most forms of grant financing, lending does offer much greater flexibility as well.

However, the **suitability of bank lending to finance innovation is widely seen as limited**. As per report by EBRD, "A rather pessimistic view stresses the uncertain nature of innovation – particularly R&D. This makes banks less suitable as financiers for four reasons. First, the assets associated with innovation are often intangible, firm-specific and linked to human capital. They are therefore hard to redeploy elsewhere, which makes them difficult for banks to collateralise. Second, innovative firms typically generate volatile cash flows, at least initially. This does not fit well with the inflexible repayment schedules of most loans. Third, banks may simply lack the skills needed to assess early-stage technologies. Lastly, banks may fear that funding new technologies will erode the value of collateral underlying existing loans (which will mostly represent old technologies). For all of these reasons, banks may be either unwilling or unable to fund innovative firms.¹⁰"

For AHA innovations, most of the features that limit the suitability for bank lending do apply: most of the companies are early-stage, have high unpredictability of the cash flow, to the point where the business model is not yet defined; most innovations are also knowledge intensive and do not rely on assets that could be used as collateral. The option was also not discussed by the industry stakeholders

⁹ The debt financing options are not reviewed due to limited relevance to early-stage companies

¹⁰ EBRD Transition report, <u>https://www.ebrd.com/downloads/research/transition/tr14d.pdf</u>



during the interview phase as well. As a consequence, it was concluded that debt funding is too problematic to act as a significant funding source to drive scale-up of AHA innovation.

4.2 Private funding

Private funding enables access to funding for businesses by individuals, companies and financial institutions. Seeking private funding is a natural step in the development cycle of a start-up as it is the prevailing form financing for product development and market entry during the period where the company itself doesn't have sufficient cash flows. At the same time, uncertainty of cash flows and the higher risk profile of the company requires equity-based financing (as opposed to debt instruments). As the AHA market is currently an emerging one, most start-ups are looking for early-stage funding¹¹. Figure 3 below illustrates the different funding options generally available for start-ups, focusing on the earlier stages of development.

Figure 3. Different early-stage private funding options.



Source: Compiled by authors.

The stages of start-up funding are the following:

- **Pre-seed:** Founders explore the possibility of building an idea into a product or service. Funds are used to take the idea off the ground and develop a prototype or a proof-of-concept. Round size is usually up to €1 million.
- Seed: The product or service will be launched, and the start-up builds traction to generate early revenue. Focus is on product development and market research which is essential to test product-market fit, as well as the business model. Round size is usually between €0.25 €5 million.

¹¹ <u>https://www.forbes.com/sites/tinawoods/2019/02/01/age-tech-the-next-frontier-market-for-technology-disruption/?sh=28ac9f996c84</u>



- Series A: The start-up already has a reliable revenue stream, a proven business model and a strong strategy. Funds are used to grow the user base, boost growth, and carry out the company's long-term strategy. Round size is usually €2 €15 million.
- Series B+: Funds are used for expansion to increase market share and enter into new markets, as well as for the development of new products and acquisitions. Round size after series A is usually more than €10 million.

After these rounds, the first of what are called "later-stage" investments follow. For instance, series C funding round generally occurs to make the start-up appealing for acquisition or to support a public offering. This can then continue into series D funding, series E funding, series F funding, series G funding, private equity funding rounds, etc. It is important to note that a significant share of companies do not even make it to series C. The reason for this is because series C investors are looking for breakout companies that have already demonstrated significant traction¹². Thus, the deal size of series C funding rounds and onwards have continued to increase.

To better understand the available private funding sources, an explanation of key types of providers is summarized below.

4.2.1 Angel investors

Angel investors are private investors who provide financial backing for start-ups or entrepreneurs, typically in exchange for ownership equity in the company. Besides supporting with capital, angel investors usually provide mentorship, advice, expertise, and network connections. The average funding round size can vary from €50 - €500 thousand.

Criteria	Summary
Definition of the instrument	High-net-worth private investors focused on financing small business ventures in exchange for equity, using their own net worth, rather than an investment fund. Typically, mentorship, advice, expertise, and network connections are provided as well.
Main requirements / terms of readiness for attracting this instrument	Angel investors are mostly focused on funding start-ups in the early stages, especially in pre-seed and seed stages, where the main focus is on developing the idea, prototyping, and creating the business plan.
Current performance in AHA sector	Currently, there are not many angel investors specifically focusing on the AHA market. A more active AHA specific angel investor community can be expected to emerge in 5-7 years after the first round of successful exits of current founders have been made, who in turn start investing in the next wave of AHA companies.

Table 2. Summary of angel investors.

¹² <u>https://www.forbes.com/sites/tinawoods/2019/02/01/age-tech-the-next-frontier-market-for-technology-disruption/?sh=28ac9f996c84</u>



Notable instrument AHA space	examples of being used in	Dominic Endicott, an angel investor, made a successful venture capital investment in Great Call, a mobile wellness service oriented at the needs of the older adults, and based on this experience, he proceeded to set up a venture capital fund called 4Gen Ventures focused on technological innovations aimed at the over-50s ¹³ .
Assessment of the overall gap	Current community of angel investors are not currently focusing on the AHA space, so this is a rarely accessible option for start-ups on this market. Angel investors are often successful founders who have made an exit from their company and are now looking to invest in a similar field as they know the market and can provide relevant knowledge for the start-up. Therefore, a more active AHA specific angel investor community can be expected to emerge in 5-7 years after the first round of successful exits of current founders have been made, who in turn	
	start investing in the next wave of AHA companies, with a pre-condition that start-up creation and investment attraction will accelerate in the AHA space currently.	

4.2.2 Venture Capital

Venture Capital is the financing provided by specialized equity investors to start-ups exhibiting high growth potential in exchange for equity. Venture capitalists are typically focusing on larger deals than angel investors. Investment from a venture capital fund in most cases automatically also means other forms of support for the start-up, such as expertise and advice, whereas support from angel investors is not guaranteed and generally depends on the angel investor. Funding rounds start from €1 million.

In addition to dedicated funds for businesses with healthy ageing innovations, there are some generalist technology funds that are willing to invest in AHA solutions if the business idea aligns with the investment strategy of the fund. Generalist funds often look for specific horizontal technologies across several business verticals. For example, some funds are primarily focused on B2B platforms, some on machine learning and data science etc. Such funds widen the circle of potential investors for AHA start-ups.

Table 3. Summary of venture capital investment option.

Criteria	Summary
Definition of the instrument	Venture funds' investments, covering sub-strategies across the growth stages (frequently funds are specialized by stage). Venture capital mostly focused on companies in Seed, Series A, Series B rounds.
Main requirements / terms of readiness for attracting this instrument	Venture capital providers are mostly active in Seed, Series A and Series B investment rounds. Companies seeking investment in these rounds are at different levels of investment readiness, from early product development to expansion.

¹³ <u>https://www.forbes.com/sites/tinawoods/2019/02/01/age-tech-the-next-frontier-market-for-technology-disruption/?sh=464a59b26c84</u>



	The investor is always looking for strong strategy and ambitious growth targets, with companies seeing ways to increase the size and value of their business at least 10 times during the investment horizon.
Current performance in AHA sector	Globally, observed deal volume of around €200-500 million annually. However, the market is clearly dominated by US based companies, while EU based AHA type companies reach only 6% of investment volume of the US counterparts.
Notable examples of instrument being used in AHA space	 <u>Two Sigma Ventures (USA)</u> – early-stage venture capital fund <u>Quadrivio group Silver Economy fund (ITA)</u> – seed and early series A stage fund <u>Mediterranean Towers Ventures (ISR)</u> – early-stage venture capital fund <u>TechStars Ventures (USA)</u> – seed and early-stage venture capital fund <u>Primetime Partners (USA)</u> – seed and early-stage venture capital fund <u>AGen Ventures (UK/USA)</u> – seed and early series A stage fund; venture studio to develop companies from scratch, similarly to accelerators <u>Third Act Ventures (USA)</u> – pre-seed and seed up to early series A fund <u>Generator Ventures (USA)</u> – series A and beyond <u>1843 Capital (USA)</u> – seed and early-stage fund <u>Ziegler Link-Age Funds (USA)</u> – series B stage and onwards fund <u>Mangrove Capital VC (LUX)</u> – pre-seed and seed up to early series A fund
Assessment of the overall gap	The venture capital option is extremely rarely accessible to AHA companies in Europe, as it is seen from the review of transactions (4.2.6 Transaction data on AHA investments). It seems to be mostly the result of limited growth potential of purely AHA based companies due to high dependency on national health systems that are in turn fragmented (as compared to US) Because the venture investment later creates further types of investment (such as M&A, angel investors emerging from successfully divested companies, etc.) The gap can be seen as a primary and fundamental gap in terms of the ability to fund significant scale-up of commercial applications of AHA cantered innovation across Europe.

¹⁴ <u>https://www.thegerontechnologist.com/who-is-investing-in-the-age-tech-revolution/</u>



4.2.3 Accelerators and incubators

Start-up accelerators and business incubators are established structures that aim to support start-ups, especially in the early stages of the business. Accelerators are usually for-profit commercial set-ups that help entrepreneurs get established and boost their growth. Their business model is based on portfolio strategy and relatively low entry valuations and has an extensive mentoring period (usually 3-6 months). Business incubators are support structures that help entrepreneurs grow their business by providing supportive services like mentoring, training, providing a workspace, networking, and funding¹⁵. The main differences between incubators and accelerators include the following:

- accelerators are cohort based; incubators accept companies on an ongoing basis
- incubators are focused on disruptive innovation and technologies; accelerators are more focused on boosting the business
- accelerators usually do an equity investment; incubators often charge a monthly fee
- accelerators generally run an intensive programme; incubator services are less structured

In some cases, however, acceleration and incubation services can be provided by public bodies or in a form of public-private partnership (discussed in more detail in section 4.3.3). For instance, the European Institute of Innovation and Technology (EIT), an independent body of the European Union that aims to boost innovation and entrepreneurship across Europe, has an instrument called the Knowledge and Innovation Communities (KICs). The KICs are expected to boost entrepreneurship and support the emergence of new companies in their thematic areas that relate to various societal challenges. The KICs are public-private partnerships with significant industrial participation and are currently co-funded by the EU's Horizon 2020 programme. Their programmes, while varied in terms of settings, all offer a typical range of accelerator services, including coaching, business planning and investment readiness for a duration of about 12 to 24 months. Most of the currently operational KICs, including a topically relevant EIT Health, have established collaboration schemes with the relevant regional ecosystems.¹⁶

Criteria	Summary
Definition of the instrument	Organisations providing education, mentorship, networking opportunities, other support services, and at times also financing.
Main requirements / terms of readiness for attracting this instrument	Most accelerators require start-ups to have a minimum viable product in place, as well as a strong team. However, the requirements are dependent on the specific programmes.
Current performance in AHA sector	Although there are numerous accelerators and incubators available for start-ups, including the ones that focus on broader topics of digital health or health tech, there aren't many that specifically focus on the AHA sector. Therefore, start-ups do get to participate in those

Table 4. Summary of accelerators and incubators.

¹⁵ It is important to note that not all incubators provide funding

¹⁶ <u>https://www.interregeurope.eu/fileadmin/user_upload/plp_uploads/policy_briefs/Policy_Brief__Public-private_start-up_accelerators_in_regional_business_support_ecosystems_2018-12-20_VALIDATED_01.pdf</u>



	programmes, but lack the specialised support needed to navigate the specifics of AHA market.
Notable examples of instrument being used in AHA space	Age Tech Accelerator which was created as part of the Interreg programme SEAS2Grow (finished in 2020). It provided nearly €4 million to fund accelerator services for many innovative Silver Economy businesses, both start-ups and scale-ups. The Age Tech Accelerator currently has national branches in Belgium, France, UK, Netherlands, and Portugal. Although the project funding has ended, the accelerator plans to continue operations with public and private investors.
	above.
Assessment of the overall gap	There is a lack of AHA sector specialised accelerators and incubators available for start-ups. AHA start-ups would greatly benefit from acceleration and incubation services focused specifically on healthy ageing, geared towards deeper engagement of actors and experts from the health and care systems.

4.2.4 Crowdfunding

Crowdfunding is a form of crowdsourcing and alternative finance that uses small amounts of capital from a large number of individuals to finance a new business venture. It is a form of financing that has become increasingly popular, raising over ≤ 170 million for start-ups across Europe in 2020^{17} . This includes funding from debt crowdfunding (lending through a platform), reward crowdfunding (with the investors gaining a non-financial reward or product in exchange for their contribution) and equity crowdfunding, where businesses receive capital in exchange for equity.

Table 5. Summary of crowdfunding.

Criteria	Summary
Definition of the instrument	A relatively novel funding method that enables businesses to collect financing from a large number of people via online platforms. It can also be a way of cultivating a community around the product or service, gain useful market insights and access to new customers.
Main requirements / terms of readiness for attracting this instrument	It is aimed at start-ups in the early stages where an idea and/or prototype has been established but additional funding is needed to manufacture and sell it. The main requirement to attract sufficient funding with this instrument is having a captivating idea that is well marketed on the crowdfunding platforms.
Current performance in AHA sector	Start-ups in the AHA sector are taking advantage of this alternative financing method. For instance, Kraydel, a platform that helps older

¹⁷ <u>https://sifted.eu/articles/top-crowdfunding-rounds-2020/</u>



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	people combat loneliness and maintain independence, has raised nearly ≤ 1.6 million in crowdfunding ¹⁸ .
Notable examples of instrument being used in AHA space	Main crowdfunding platforms that could be utilized include Seed Invest ¹⁹ , Kickstarter ²⁰ , Indiegogo ²¹ .
Assessment of the overall gap	This alternative and still relatively novel funding method overall, and the main question that remains is whether there would be enough interest to fund AHA innovations at a significant scale via crowdfunding. Overall, the method could be suitable for start-ups in AHA sector, as a source for businesses aiming to bring their product into the market.

4.2.5 Mergers and acquisitions

In addition to the investment sources mentioned above, the AHA sector is seeing trends of Mergers and acquisitions (M&A) starting to take place, showing that the market is developing. Ageing population, evolving regulatory environment, technical advances across both hardware and software, consumerism and digital health are just a few of the many drivers contributing to market development and the emergence of mergers and acquisitions on the market over the last few years.

While M&A do not automatically act as a source of new investment for the company, these transactions tend to precede significant new investment when the acquirer is a financially strong strategic investor willing to develop the technology further. The uptick in investment by both private equity funds that are relatively new to health and care investment, and venture firms targeting nascent enterprises, particularly in the technology space for healthy ageing, have also had a positive influence on this trend as such investments help drive significant consolidation across regional markets and various service niches. Further growth in M&A will likely take place after the leading players become more established and the need to ensure further growth and innovation emerges, resulting in them buying more innovative startups or absorbing competitors. It is also important to note that healthy M&A activity indirectly contributes to investments as it increases the interest from the financial investors in the sector. Investors tend to be interested in industries where it is likely that there will be a successful exit from the investment, M&A is one of the key options to do so.

4.2.6 Transaction data on AHA investments

When looking at the collected data on private investment funding, it can be seen that the majority of funding for AHA innovations for the past 10 years has been in the early-stage investments, including seed, series A and series B (Figure 4 below). It can be therefore deduced that the market is still only emerging with most start-ups in early stages of product and business development.

¹⁸ <u>https://www.insidermedia.com/news/ireland/agetech-firm-nears-1.35m-crowdfunding-target</u>

¹⁹ <u>https://www.seedinvest.com/</u>

²⁰ <u>https://www.kickstarter.com/</u>

²¹ <u>https://www.indiegogo.com/</u>





Figure 4. Distribution of investments for AHA innovations during the past 10 years.

Source: Compiled by authors based on the data available at Crunchbase.

Based on the deal data from Crunchbase²², it can be seen that **the amount of investment into AHA innovations globally has significantly grown over the last decade** (seen in Figure 5). This indicates that the investment landscape for AHA innovations in regard to private funding is developing and expanding, showing potential for start-ups going forward. It is likely that the interest towards AHA business ideas is not going to slow down, especially considering the increase of the target segment of older adults and the pressure it places on the business sector to bring forward innovative products and services.



Figure 5. Number of investments into AHA innovations over the last several years.

Source: Crunchbase, 2020.23

²² <u>https://news.crunchbase.com/news/living-their-best-life-at-home-senior-focused-startups-vcs-reevaluate-elder-care/</u>

²³ https://news.crunchbase.com/news/living-their-best-life-at-home-senior-focused-startups-vcs-reevaluate-eldercare/



Due to the young age of the sector, however, **there is still a lack of large exits and payoffs for venture capital investors** to prove that it's possible to earn revenue by investing in AHA solutions. The three largest venture capital exits from healthy ageing start-ups have been PillPack (acquired by Amazon in 2018 for around €655 million), GreatCall (acquired by Best Buy in 2018 for €698 million), and Care (stock launch in 2014 valued around €550 million).²⁴ Although PillPack and Care aren't dedicated AHA companies, serving older adults is a large part of their value proposition. In the past, the outlook for potential acquirers was limited to mostly medical care and insurance providers, but both GreatCall and PillPack were acquired by consumer retail giants, indicating that the circle of corporations interested in acquiring AHA companies is growing.

Overall, in terms of privately funded AHA start-ups, **EU has clearly fallen behind the US market**. Crunchbase contains information on 490 companies that have a healthy ageing solution with headquarters in Europe. These companies have completed 175 funding rounds and secured over \leq 272 million in total funding in 2021. The funding rounds have been led by 70 different lead investors.²⁵ To put that into perspective, globally Crunchbase tracks 1943 companies focused on older adults, more than half of which are situated in the US, with 646 funding rounds and \leq 4.5 billion funding in total completed. The most active investors in these funding rounds have been Two Sigma Ventures, Mass Challenge, TechStars and the Y Combinator.²⁶

The USA market is most active both in terms of the number of start-ups founded and the number of funding rounds secured. The overall start-up funding was three times larger in the US compared to Europe in 2020²⁷, and healthy ageing start-up investment seems to be following the same trend. At the same time, it needs to be considered **that health insurance in the US is dominated by private companies who are prepared to take larger risks in terms of innovative care practises**. This means that there are less barriers to enter the market for new solution providers, compared to the EU market dominated by slower and more conservative stakeholders in public health insurance systems. In Europe, the most active markets in terms of both the number of start-ups founded, and the amount of private investment raised, are the Germany and France²⁸.

4.3 Public funding

Public funding is a means of funding that comes from the public treasury, and is generally used for the funding of health, environmental and community initiatives, as well as other ideas that serve the public need. This type of funding may come through **international as well as national or local level institutions**, funding opportunities being selected and structured independently at each level.

From the most relevant types of instruments, of note are **grants** to start-ups provided by public authorities based on the assumption that the business idea can contribute to a specific goal or initiative. Relevant objectives for IN- 4-AHA context could be more of innovative AHA products and services to either provide

²⁴ <u>https://www.cnbc.com/2019/05/10/why-amazon-bought-pillpack-for-753-million-and-what-happens-next.html;</u> <u>https://homehealthcarenews.com/2019/02/best-buy-reaps-benefits-from-800-million-greatcall-acquisition/;</u> <u>https://www.bostonglobe.com/business/2014/01/24/care-com-raises-million-</u> ipo/N5navjOBBhUWRM1y0p0IBL/story.html

²⁵ <u>https://www.crunchbase.com/hub/europe-elder-care-companies</u>

²⁶ <u>https://www.crunchbase.com/hub/elder-care-companies</u>

²⁷ <u>https://sifted.eu/articles/europe-us-vc/</u>

²⁸ <u>https://sifted.eu/articles/europe-us-vc/</u>



more scale to health and care system or increase the cost efficiency. Additionally, funding is often provided for sectors where a market failure in terms of access to funding is detected. Apart from such direct funding of companies, **public tenders and public-private partnerships** can be seen as ways to provide funding for innovative start-ups. Tenders usually need a somewhat different structure to be suitable to fund innovation in a form of Pre-Commercial Procurement or Public Procurement of Innovative solutions. Each of the most relevant instruments is analysed separately in the sections below.

4.3.1 Grants

Grant funding from public authorities is an important source of finance for start-ups to realise their business activities and continue developing innovative products and solutions. Across the EU, grants are a catch-all term covering instruments to support research, development, innovation, and advancement of specific societal priorities, such as active and healthy ageing. They are usually based on the EU level funding and are announced via separate calls for proposals. Grants can be managed locally by national governments, possibly funded from structural funds such as European Regional Development Fund (ERDF) or European Social Fund (ESF), or they can take a form of direct EU finding managed directly by the European Commission e.g., via such programmes as Horizon 2020 which under the new EU funding period of 2021-2027 is called Horizon Europe. The main challenges universally recognized in terms of grant funding however is the generally stronger suitability to fund research and early-stage development, while the possibilities to finance commercialization efforts is usually much more limited.

An important type of grant funding partially addressing the limitations of typical grants on the EU level is **cascade funding**. It is a mechanism of the European Commission of allocating funds in order to support SMEs and start-ups in developing and implementing innovative solutions. It is an instrument within the Horizon Europe and provides financial support to third parties, offering significant opportunities for companies to accelerate the time to market of their innovative products, services, and processes. The main idea of cascade funding is to simplify the procedures of financing by allowing the projects, that are already financed by the EU, to run open calls for financing smaller projects. These open calls are usually competitive, have a European dimension and are generally aimed at:

- supporting pilots, demonstrations, and/or experiments on a specific innovative technology or framework (usually with the participation of start-ups or SMEs)
- supporting tech start-ups or scale-ups via acceleration, incubation, and mentoring programs (usually equity-free)
- integrating more participants into the project to extend its scope or to address specific tasks

Cascade funding is an opportunity with significant scope; for example, in the earlier Horizon 2020 the allocation was almost €800 million in cascade funding calls. It provides equity-free funding for start-ups and innovative SMEs, varying from €20 000 to €500 000, and participating in cascade funding calls is easier and less competitive than in other European funding programs.²⁹

²⁹ <u>https://civitta.com/financing/cascade-funding</u>



Table 6. Summary of grants, including cascade funding.

Criteria	Summary
Definition of the instrument	Grants are direct financial contributions from the public budget awarded by way of a donation to beneficiaries engaged in activities that serve the purpose described in a particular call for proposals. They are based on the costs actually incurred by the beneficiaries for carrying out the named activities, and the results of the activities remain the property of the beneficiaries.
	Grants in EU are usually subject to centralised management by the European Commission, either directly by its own departments or indirectly through EU agencies, executive agencies or national agencies.
	Cascade funding is a type of grant which is given to the innovators via open calls announced by already funded projects to simplify administrative processes. Often it comes in form of lump sum.
Main requirements / terms of readiness for attracting this instrument	Grant funding is usually intended for research and development i.e., for product development stages. Once product reaches commercialisation stage, the company becomes ineligible to receive funding for that product. Cascade funding usually focuses on higher TRLs than grants, but it
	varies depending on the call.
Current performance in AHA sector	Although grant calls for proposals are not usually narrowed down to AHA sector only, AHA start-ups are widely using grants as means to fund their product development stages. Overall, it is seen as one of the main types of funding for the sector.
Notable examples of instrument being used in AHA space	National structural fund programmes such as Intelektas or Eksperimentas in Lithuania; Horizon Europe in general is the main source of funding at EU level.
Assessment of the overall gap	A variety of programmes and opportunities available for start-ups on both national and EU level. While the programs are rarely dedicated solely to AHA or health applications more broadly, the instrument is seen as essential and main source of funding to the innovators in healthy ageing.

4.3.2 Tenders

Furthermore, **calls for tenders** are also launched by the European Commission, local and national governments, individual private and public organisations to award procurement contracts when needed to purchase services, supplies or works, representing potential funding opportunities for businesses if the



activities covered by the procurement contracts contribute to their specific development objectives. However, it needs to be said that tendering is a regulated and competitive bidding process that aims to identify the offerors proposing the best quality-price ratio. Because public procurement needs to adhere to high level of **transparency**, **equal treatment and non-discrimination** and **proportionality**, the administrative cost of most procurement processes tends to be quite substantial and could be a hindrance if the innovator lacks the financial strength or suitable resources to tackle the process and adhere to the disclosure requirements.

In order to crowd-in innovative providers, the award criteria can also integrate qualitative criteria, demand innovative solutions or insist on sustainable and socially inclusive approaches. In this context, an important type of tendering contracts for start-ups are **Pre-Commercial Procurement (PCP)** and **Public Procurement of Innovative solutions (PPI)** contracts.

- PCPs are used when there are no solutions available in the market and new R&D is needed to deliver innovative solutions for public sector needs. Public procurers in this case buy R&D results or services from several competing suppliers in parallel to compare the alternative solutions and to identify the best value for money that the market can deliver to address their needs. In this procurement process R&D is split into phases (solution design, prototyping, development and validation/testing of a first batch of products) with the number of competing suppliers being reduced after each phase.
- PPI is used when the public sector needs can be addressed by innovations that are already, or soon will be on the market and there is no need to perform new R&D. In PPI, public procurers use their purchasing power to act as early adopters of innovations that are not yet available on large scale commercial basis. In such a way, PPI can act as a facilitator to widely diffuse innovative solutions on the market.

Table	7.	Summary	of	tenders,	including	РСР	and	PPI.

Criteria	Summary			
Definition of the instrument	Tenders are the means by which public authorities, such as governments or local authorities, purchase work, goods or services from companies. As the most relevant for innovators, PCPs and PPIs are tenders focused towards purchasing an innovative solution for solving economical or societal issue.			
Main requirements / terms of readiness for attracting this instrument	In case of PCP: capacity to implement relevant R&D. In case of regular tenders and PPI: a fully developed product/service ready to be deployed.			
Current performance in AHA sector	Overall tenders are widely used instruments; however, it is hard to estimate how widespread is the use for AHA solutions. Based on qualitative assessment from the interview stage, the adoption of these methods in AHA does not seem to be substantial to be highlighted. ³⁰			

³⁰ None of the AHA stakeholders has expressed confidence that such types of procurement is at least a visible trend during the interviews



	From the demand perspective, PCPs and PPIs are inherently more risky types of procurement, and most of the public sector players are yet to develop the skills to structure and promote strong participants in such processes as well as manage the delivery in the context of much greater uncertainty
Notable examples of instrument being used in AHA space	A PCP was attempted in Lithuania by Kaunas City Polyclinic with the aim to acquire development of automatic risk identification and monitoring system for diabetes. However, procurement was suspended due to lack of participants; the fact is illustrative of the unused potential of such instruments and emphasises the need to promote such possibilities to start-ups.
Assessment of the overall gap	Tenders are well established instruments all over the EU, nevertheless innovation tenders are still relatively new and potential in this area remains underutilised.

4.3.3 Public-private partnerships

The public sector can also work in cooperation with start-ups to develop and scale-up AHA innovations, creating **public-private partnerships (PPP)**. It describes a government service or private business venture which is funded and operated through a partnership between the government and one or more private sector companies. Therefore, public-private partnerships could play a role of promoting development of innovative solutions by engaging with start-ups, SMEs, and aspiring entrepreneurs.

From the perspective of the public sector institutions, public-private partnerships can be used as a way to improve operational and cost efficiency in public services, introducing private sector technology and innovation into the public domain. An example of a structure suitable for start-ups are accelerator programmes based on public-private partnerships like the EIT KICs, already discussed in section 4.2.3.

Several other European programmes aim to improve the framework conditions for the development of start-ups and SMEs, including through internationalisation and access to finance. For instance, **Start-up Europe**, an initiative focused on digital technologies, is worth mentioning. It focuses on developing local and European ecosystems for entrepreneurship and has contributed to the creation of the Accelerator Assembly, a network for start-up accelerator programmes in Europe. It is led by private accelerators but aims to connect the entire acceleration community and welcomes publicly supported accelerators and public organisations dealing with accelerations services. The network offers dedicated events for start-ups and accelerators but also gathers and shares knowledge about trends and developments in the acceleration industry.



Table 8. Summary of public-private partnerships.

Criteria	Summary
Definition of the instrument	Public-private partnerships in the broadest sense are collaborations between government agencies and a private-sector companies that can be used to finance, build, and/or operate large-scale government projects including infrastructure but also to deploy services. The instruments could be directly used to deploy new and/or innovative services within the health and care systems. In the innovation space, a notable application of PPPs are collaborations between public and private actors to foster the innovation process itself.
Main requirements / terms of readiness for attracting this instrument	In case of deployment of services into public health and care systems, the private sector entity should already have a fully developed product/service ready to be deployed.
	In addition, due to sophisticated process of PPP structuring, the organization applying into PPP most likely needs to be at round A or B or higher and have sophisticated project management and financing capabilities.
	As from the standpoint of the innovator such applications as EIT KICc or Start-up Europe act as accelerator services, for relevance and applicability of these instruments see section 4.2.3.
Current performance in AHA sector	In 2020 the PPP transaction value in healthcare sector was only around $\notin 0.5$ billion, compared to the largest, transport sector, which accounted for $\notin 4.9$ billion. ³¹
Notable examples of instrument being used in AHA space	A PPP type health and care service relevant for healthy ageing is the Tiger Place Institute, developed at the University of Missouri in 2004 to create a cost-effective alternative to nursing home care. It uses ageing- in-place model offering integrated care coordination and healthcare services to older adults living in specially designed apartments or in their own homes. Tiger Place Institute's public and private stakeholders include the University of Missouri, AmeriCare, and the Cerner Corporation.
Assessment of the overall gap	Use of PPP structure to deploy services within the health and care system would require a very complex procurement process as in most cases the PPP model negotiation relies on agreeing the financials of the collaboration model based on multiple assumptions on return on capital, inflation levels, and risks related to various sources of cost. It is

³¹ <u>https://www.eib.org/attachments/epec/epec_market_update_2020_en.pdf</u>



a complex instrument, therefore, first needs to be well understood and championed from the side of the public authority (demand side).

It can be argued that deeper penetration of PPP structures to establish more regular, tried-and-tested services in the health and care system needs to precede the introduction of the more uncertain, innovative solutions. On the other hand, from the standpoint of a start-up, there is a limited opportunity to take a proactive role in using this instrument.

Based on these trends, the gap should be assessed as substantial if to measure against the potential, but it is likely that in terms of the action plan further promotion of this instrument needs to be preceded by other dependencies, such as deepening of the skillset within the public sector itself.

Overall, it can be said that the public funding landscape for start-ups in the EU is slowly expanding, having an increasing focus on innovative products and services. Although public funding opportunities are very competitive, there are several forms of funding and support available for start-ups with innovative products and services.

4.4 Blended funding

Blended funding refers to an undertaking that typically starts with public or philanthropic capital and is then blended with, getting a powerful boost from, private investment capital seeking both financial returns and the satisfaction of contributing to global solutions. Therefore, it implies the mixing of both public and private funds through a common investment scheme or deal, with each party using their expertise in a complementary way. Blended finance often attracts commercial capital towards businesses and projects that specifically contribute to sustainable development, which also includes initiatives on healthy ageing, providing financial returns to investors during the process. With an increasing focus on sustainability, initiatives on healthy ageing can ultimately be an integral part of sustainability driven investment strategies.

Blended funding has been traditionally used to attract and support private sector investors into targeted markets or opportunities by managing risks and reducing transaction costs. This mechanism can generally be classified as providing:

- technical assistance or grant funds to supplement the capacity of investees and lower transaction costs
- risk underwriting to protect the investor fully or partially against risk through appropriate risk mitigation
- market incentives, guaranteed payments contingent on performance of future pricing and/or payment in exchange for upfront investment in new or distressed markets

The investment gap for companies between an early-development stage and market uptake has become an issue, due to a scarcity of private investors willing to support high-risk businesses. The scale up and market uptake stage is of particular importance for start-ups in the healthy ageing sector where the



technology development tends to be less sophisticated while wide uptake of the products or solutions is instrumental to achieving the cost efficiency at the systemic level.

One of the most prominent EU level initiatives for the blended finance is the InvestEU program (previously – EFSI). The aim of the InvestEU fund is to mobilise public and private investment in the EU to help address the current investment gap in Europe. The Commission is proposing ≤ 15.2 billion to be earmarked for the InvestEU fund³².

The InvestEU fund is planned as an umbrella fund for a wide range of blended instruments, including loan and guarantee type solutions (managed by EIB) but also coming in a form of equity investments (form the beneficiary perspective) blended in terms of source from private, public and pan European sources (the fundamental principle of seeking crowding in of funding). Notably, the EU financial institutions (EIB and EIC) are recently re-focusing to create more financial instruments and platforms aimed to close funding gaps in specific industries or end application areas and this objective is directly applicable in case of the needs of AHA.

On a more micro level, blended finance for start-ups is targeted to provide extra support in the seed, preseed and series A stages. Such activities could include product/service development, trials, prototyping, validation, demonstration and testing in real-world conditions, as well as market replication. In order to stimulate investment for EU start-ups and SMEs, European Commission included a blended finance option into its **European Innovation Council (EIC) programme**. It supports companies in developing groundbreaking business ideas further into market-ready products, services or processes by financing advanced prototyping, validation, trials, demonstration, testing, certification, and commercialization. The EIC Fund provides capital in the form of equity or quasi-equity (which is blended with a grant component) to companies with potentially market-creating innovations, thereby contributing to bridging the gap between innovation and market take-up. The fund provides equity from 0.5 - 0.5 - 0.5 - 0.5 - 0.5 - 0.5funding, the program provides coaching and mentoring services. However, this programme is open to businesses in any sector, thus being very competitive. As a consequence, in order for AHA businesses to benefit from blended funding opportunities, specialised instruments for healthy ageing start-ups are needed.

Overall, blended financing is a relatively new form of funding made available for start-ups in the EU that have less options available from other private and public funding sources, and a possibility for financial instruments specifically for the AHA businesses would be in line with the objective of enabling the pan-EU scale-up of innovation in this sector.

³² <u>https://www.consilium.europa.eu/en/policies/investment-plan/strategic-investments-fund/</u>



Table 9. Summary of blended funding.

Criteria	Summary	
Definition of the instrument	Grant type instruments being combined with non-grant resources such as loans, equity and guarantees from development finance institutions of NPIs as well as commercial loans and investments in order to achieve a leveraged development impact.	
Main requirements / terms of readiness for attracting this instrument	Blended finance instruments can be used across all stages of development of an innovative entity (business); product or service in question should normally contribute to Sustainable Development Goals (SDGs) and it should be able, with the help of this intervention, to reach a development stage where public funds are no longer needed.	
Current performance in AHA sector	Currently, there are no blended finance instruments focused specifically on the AHA sector, but there are instruments oriented towards broader Digital Health sector, for example EIC Accelerator Challenge – Strategic Digital and Health Technologies. AHA start-ups also are able to participate in EIC Accelerator open calls, however as the instrument is very competitive the ultimate impact on healthy ageing sector might be limited	
Notable examples of instrument being used in AHA space	GlucoModicum, a start-up form Finland, has successfully secured full blended EIC Accelerator financing in 2021 for the development of the world's first needle-free continuous glucose monitor to prevent and manage diabetes at scale. ³³	
Assessment of the overall gap	Blended finance instruments are accessible for AHA start-ups, however there is a lack of specialised instruments focused exclusively on AHA sector	

It is important to note that the blended financing as an instrument is most aligned with the objectives of IN-4-AHA to form a long-term investment strategy which would leverage and blend funding sources from European, national and/or regional programmes or promotional banks as well as private investments and involve new players and partners. Therefore, exploring the blended finance options for applying in the healthy ageing sector is a clear priority, and further elaboration of a specific type of the instrument as well as action plan could be the next steps.

4.5 Long-term cost efficiency perspectives of innovation in health and care

Fundamentally, growing numbers of older people that increasingly rely on health and care services increase the pressure on these support systems. Therefore, the promise of innovative solutions to increase the efficiency and reduce the strain on these systems is of utmost importance.

³³ <u>https://glucomodicum.com/</u>



As one of the important development directions are **preventive solutions**, a likely source for costeffective investments in the AHA sector. Preventive approaches contribute to improvements in health outcomes at lower and more sustainable costs, while supporting universal health coverage. The Organisation for Economic Co-operation and Development predicts that, according to current trends, if nothing is done the cost of healthcare will double by 2050.³⁴ Evidence shows that a wide range of preventive approaches are cost-effective, including interventions that address the environmental and social determinants of health, build resilience, and promote healthy behaviours, as well as vaccination and screening.

At the same time, it is estimated that only 3% of the national health sector budget in Europe is currently spent on preventive measures, indicating a clear area of potential. To put into perspective, cardiovascular disease and cancer, both prominent health problems for older adults cost EU countries approximately \leq 169 billion and \leq 124 billion respectively each year.³⁵ Investing only a fraction of such budgets into preventive measures can significantly reduce the current costs of treatment and aftercare, making such investments clearly cost efficient.

We can illustrate the **interrelationships between the ultimate user experience and the cost efficiency to health care system by a real-life example.** For instance, the University of Siegen developed an iTV solution during their iStoppFalls research project for older adults which combined strength and balance training with a fall risk assessment function while also having an adaptive assistance functionality. It is a solution integrated with MS Kinect and GoogleTV that offers quantitative information on the frequency, duration and types of mobility activities undertaken by the older adult, as well as qualitative information on their balance. The system not only provides preventative exercises to stop falls, but it also provides useful information about balance functions and muscle power, all tailored to the capabilities of older adults living independently at home. Thus, potentially lowering the number of falls elderly people have, in addition to other health risks, contributes to lower medical and rehabilitation costs in the long-term, not to mention supporting the independent living for a longer period of time and possibly reducing the cost of care.

In order for the investments to deliver the cost-efficiency, however, enough attention is needed form public health and care providers themselves. As the sector is very diverse in terms of products, services and their applications, the long-term cost-efficiency of the investment is highly dependent on the exact set-ups within the public healthcare institutions and possibly requiring action to integrate with additional data sources and adapt the current service protocols and processes. Therefore, these institutions need to be very proactive in identifying the 'pain areas' in terms of what needs to be innovated so that the product or service is changed in a way that provides better efficiency and reduces the costs public health and care providers incur.

Based on the aspects discussed above, specific solutions need to be planned for in parallel to the efforts of scaling the AHA innovation; some of the proposals are summarized below.

³⁴ <u>https://www.euro.who.int/ data/assets/pdf_file/0009/278073/Case-Investing-Public-Health.pdf</u>

³⁵ <u>https://www.euro.who.int/__data/assets/pdf_file/0009/278073/Case-Investing-Public-Health.pdf</u>



Table 10. The long-term cost efficiency considerations.

The cost efficiency aspect	Potential implications to improving investment readiness
National health and care systems can receive significant cost improvements from AHA innovation	 For the national health and care system actors to consider playing a role of key investor into AHA innovation; In order to fund such innovations, to look for new ways to fund against the expected future efficiency improvements; this can be achieved in multiple ways, starting from PPP formats, increased borrowing but also through models similar to ESCO as applied in energy sector where the innovator is offering innovation and is being paid off from cost savings achieved.
AHA products and solutions, although bringing indirect efficiency improvement, fail to achieve significant penetration within the older population	 Use the reputation of national health and care system to endorse the most suitable tools and products and actively promote proper use; Provide co-funding opportunities via the national or private health insurance.
For products and solutions to achieve maximum impact, extensive tailoring is needed to account for the specific health and care system practices	 Health and care systems must create specialized units tasked with attracting innovation and deploying it within the systems; Some form of acceleration or sand boxes where the innovators can test the solutions in close to real-life environments are key; national health and care system representatives should be significantly involved into these processes.
Achieving the actual cost efficiency requires elaborate change management within the system	 Assign clear responsibilities for change management during deployment of innovations within the health and care system; Incentivize successful innovation, create best case examples and deepen the penetration.

4.6 Summary of the public and private funding sources available to AHA innovators

Public and private funding sources analysed have been mapped against product readiness levels, start-up development stages and technology readiness levels. It is important to note however the relative standing of these aspects is approximate, and for some innovators the stages will align differently in terms of technology readiness and overall business development stage. It is also considered that company maturity readiness framework is the main for establishing the recommendations (if compared to the technology readiness). When researching the subject and discussing the key gaps with the industry participants, it became very apparent that the main driver for success of AHA is adoption, as opposed to technological excellence, mainly because the success of most of AHA products and solutions is related to increasing uptake by the target users, at the same time the actual products or solutions are usually less sophisticated, especially if compared with other areas of life sciences relying on cutting edge research in physics,



genetics, bioscience and other fields. Therefore, the recommendations below are mostly focused on achieving higher market readiness of the solutions for the AHA market.

In the mapping provided, the evaluation of relative performance of each of the instruments is displayed, where (***) signifies strong and widely used instruments with adequate supply, while (*) is used to mark instruments that are to be used more widely or must be significantly expanded in terms of availability. Average evaluation of (**) signifies instruments with some traction, where further increase of availability would likely be beneficial. The visualization also summarizes main comments behind the evaluation, derived from the analysis of each instrument.

Figure 6. Summary of public and private sources available to AHA innovators mapped against technology and product readiness and start-up development stages.



Source: Compiled by authors.

If to summarize the current availability, the investment into AHA innovation is not very intensive in case of most of the funding instruments:

- Almost across all types of financial instruments suitable for AHA innovators, there are **not so many dedicated instruments in particular focused on healthy ageing**. While this is not necessarily lead to lack of financing, it does mean that the innovators will have to compete with peers from other fields for the limited access to financing.
- **Grant funding** is seen by innovators in the sector as especially important, as in most cases it is almost the only way to fund the pre-seed and seed stage of the development. However, it is important to note that grant funding is overall better suited to finance scientific research leading to commercially viable innovations. It is however, much rarer to find and apply grants available to finance commercialization of the products created.



- The strategic importance of healthy ageing is **not uniformly recognized across the national health and care systems across the EU**, and national level public funding and procurement is more at the level of selected examples at this stage. More attention, focus on innovation process from the side of the health and care systems, and opening up for innovative tenders is strongly advised.
- The private funding sources are especially limited, and to a large degree this stems from limited financial attractiveness of investment into AHA; most of attention should be on improving the attractiveness for private investors within the sector; some of the key challenges and suggested actions are explored in further sections.
- Focus on blended instruments and strengthening the funding from public sources, more emphasis on right types of acceleration and some of the promising public sources first seems to be the most likely order of priorities, before more active private investment, and especially in the forms of VC and angel investor activity can be expected in the sector.

It is important to note however that almost all stakeholders that provided feedback on current investor activity were describing the fundamental challenges that hold investors back and focused on recommendations to remove such barriers, rather than requesting just more funding to be attracted into the sector. It is also possible, that without structural ways to address some of the challenges any incentives from the EU or national policy makers will not create the crowding-in effect needed to accelerate the AHA innovation to a significant extent. Therefore, in further sections the emphasis is on these key reasons impacting performance of investors and funding instruments, and also on recommending clear and actionable solutions how these gaps could be mitigated. Lessons learnt from other projects are explored in section 5, and the investment readiness of the AHA sector was further analysed based on qualitative insights stemming from the interview phase, with the main findings presented in section 6 while the section 7 is dedicated to identifying main recommendations for the solutions to these gaps.



5. Previous projects and lessons learnt

Several previous projects focusing on technology and services for the elderly have assessed the current market situation, as well as its outlook for the future, and provided useful insight into the AHA innovations sector.

Innovation to Market (I2M), an initiative that was developed within the WE4AHA Coordination and Support Action with two specific aims in mind. Firstly, to define and describe the AHA market in Europe for innovative solutions, detecting investments (business opportunities) and identifying the gaps between demand and supply. Secondly, to co-design, co-develop and validate with the key stakeholders for AHA innovation and the European Commission an I2M plan to foster market uptake of AHA innovative solutions. The target groups identified as key I2M beneficiaries were public purchasers (regional/local public authorities and agencies) of innovative AHA solutions and developers, as well as suppliers of innovative AHA solutions (with a focus on SMEs and start-ups). The project concluded that there are significant gaps on the market on both the buyer and producer/provider side:

- Lack of relations between demand side and solution suppliers which leads to knowledge gaps and mismatch of the innovations available and needs of purchasers.
- Lack of visibility on the cost-efficiency of the innovative solutions.
- Lack of expertise on innovative financing models and mismatch of purchasing criteria.
- Lack of harmonisation of the EU market for AHA.

In order to address the identified gaps, an action plan was created that focused on steering innovation from the demand side by increasing competences and the professional ability of health organisations. Also, the project identified that more linkages between demand and supply side must be created, such as matchmaking and knowledge sharing.

Homes4Life, a project which set out to stimulate investment in age-friendly homes and improve opportunities for ageing well in place for the European population, by both defining and offering a holistic, positively framed long-term vision for inclusive housing in Europe and offering practical tools in the form of certification. The project pointed out that investing in the creation of age-friendly environments is one of the most effective approaches for responding to demographic ageing and increasing the Healthy Life Year indicator. In the scope of the project, they also investigated the European market for AHA innovations, such as age-friendly housing, and drew the following conclusions:

- There is a need for certification in various sectors on the market to stimulate investment into agefriendly innovations and eventually make age-friendliness a mainstream criterion for many products.
- There is a lack of understanding between the stakeholders of AHA innovations, increasing the need for new tools to bridge the gap and facilitate the transition between long-term vision and current practice.
- In order to foster both public and private investment in AHA innovations, the benefits for every stakeholder need to be explicitly stated.



 In order for an AHA innovation, such as age-friendly housing, to become a public policy, three aspects need to be considered: all relevant stakeholders must be aware of the issues that the innovation is trying to solve, appropriate tools and policy frameworks need to be in place, and all stakeholders need incentives appropriate to their needs and concern. Only then will it be possible for AHA innovations to scale.

Digital Health Europe, an EU-funded project that was set to provide a comprehensive, centralised support to the digital transformation of health and care (DTHC) priorities of the Digital Single Market. It aimed to support large-scale deployment of digital solutions for person-centred integrated care, facilitating the replication of impactful best practices through twinning actions. On a policy level, the project was set to support decision-makers with white papers, guidelines, and policy recommendations. Most previous EU research projects focus on the development of innovative technology but lack the time and means to ensure large-scale adoption across Europe. Within the scope of the project, Digital Health Europe aimed to fill this gap in order to ultimately advance the digital transformation of health and care. The following conclusions, relevant to this report, were made:

- In order to scale-up innovative solutions and transfer them across regions and countries, it is important to identify relevant, already successful, innovative solutions and establish the conditions for transferability and scaling-up of those solutions, using them as examples when transferring across regions and countries.
- It is essential to provide relevant evidence and know-how to health authorities, health providers, and field researchers, in order to increase their capacity to prepare investment strategies and access financing.
- The analysis and implementation of different evaluation approaches can optimise decisionmaking and boost investments that will ultimately facilitate the desired provision of innovative cost-effective health and care solutions.

Osiris project, a comprehensive market analysis, concluded in 2019, of the Silver Economy in the Baltic Sea countries³⁶. The initiative consisted of 13 direct partners and 8 associated partners from Latvia, Lithuania, Estonia, Denmark, Russia, and Finland representing the business, government, and academic actors of the Triple Helix model for economic growth and regional development. The project was set to strengthen all economic activities relevant to the needs of older adults, improve the capacity of innovation actors to apply smart specialisation approaches, and boost market uptake and scaling of AHA innovations in sectors like age-friendly living environments, health, safety, and leisure. The following conclusions, relevant to this report, were made:

- The Silver Economy faces a lack of funding in all of the Baltic Sea countries. There is little interest in AHA innovations by investors as the Silver Economy is deemed as unprofitable, mainly due to the low purchasing power of seniors. The low willingness to pay was identified as a major market barrier creating unhealthy risks for market players.
- It is widely believed that the Silver Economy will grow significantly in the next two decades. While the target market will grow in the near future along with the target group, it is estimated that this growth will not lead to a demand-led growth story for the region's Silver Economy.

³⁶ <u>https://www.osiris-smartsilvereconomy.eu/silver-economy-market-studies/</u>



- The investment risk of individual actors in this market is high as AHA service providers must create demand despite the users' reluctance to buy.
- The region needs ecosystem solutions in order to both understand and serve the target group, as well as start-ups and universities.

These previous studies have given insight into not only the shortcomings of the current market but also relevant information from different perspectives. Nevertheless, it was concluded that a more in-depth analysis is needed on the EU investment landscape for the AHA market, and the needs of stakeholders in order to identify the gaps that need to be overcome so that significant impact can be delivered.



6. Interviews

In order to develop research that would provide significant insight into the AHA market, in-depth interviews were carried out. In the preparation stage, semi-structured interview questionnaires were developed for the three respondent categories: investors, companies, and ecosystem facilitators. Three investors, one company and four ecosystem facilitators were interviewed to provide deeper insights, the list of interviewees can be found in Annex 2. Additionally, insights from a report compiled for the innovation project INFINITy, during which interviews with healthcare system experts and companies were conducted, were utilised.

The interviewees provided insights into what their experiences have been in the AHA sector and how they perceive its current investment landscape. Several common themes emerged during the interviews:

Table 11. Key takeaways regarding AHA sector from conducted interviews.

Aspect	Discussion
Market complexity	AHA market in the EU was widely deemed to be a difficult market to navigate in , not only for start-ups but also investors and facilitators, as it is still an emerging one, especially compared to the US market.
Fragmentation	The current EU market was also seen as being highly fragmented with several limitations preventing its rapid growth, mainly highlighting complex and individually regulated healthcare systems, inaccessibility of necessary data, and lack of Europe-wide support.
Slow development	It was also deemed a slow market in terms of the speed of adoption of innovative solutions, as well as in generating return on investment, those two aspects were seen as being highly interdependent.
Target segment specifics	Older population has increased price sensitivity, conservatism in decision- making, and lack of trust in innovative solutions, especially technology-based ones, if compared to other segments.

Several recommendations were made on the ways to improve the AHA sector and accelerate its development in the EU:

- The need for more involvement from governing and enabling bodies was often mentioned, whether that meant providing more funding opportunities specifically for AHA businesses, facilitating communication between different stakeholders in this sector, or creating initiatives for all ecosystem players, including older adults as the target user group, start-ups, investors, and facilitators, that would encourage participation in this market.
- The need for more preventative solutions was brought out as the current market focuses mainly on solving health problems, rather than trying to prevent them from happening altogether. This would enable even higher cost-efficiency for the health system in the long-term. This was seen as one of the key directions in which the market should grow in. However, it was noted that such a shift would require a significant re-thinking of the health and care system priorities.



7. In-depth insights into AHA investment ecosystem – identified gaps and solutions

Based on the secondary research and the interviews with ecosystem players, more detailed mapping of gaps and potential solutions within the current AHA investment ecosystem was performed against the objective of attracting investment to foster higher uptake of such innovative products. The map covers diverse aspects and requires proactivity from all involved stakeholders. The gaps and solutions are summarized in the visualised summary below, and further described in more detail in the discussion.

Figure 7. Summary of gaps and potential solutions to increase the investment readiness for scale-up of AHA.

	GAP	SOLUTION
1.	The AHA market is highly fragmented; national markets are isolated by national regulation and financing	1.1. Initiatives on both national and EU levels1.2. Innovators prepared to navigate the complexities
2.	Innovators lack understanding of their stakeholders	2.1. Government-backed sandboxes2.2. Comprehensive ways to engage with the stakeholders
3.	Stigma associated with getting old	3.1. Initiatives to change the attitudes via education and intergenerational contact3.2. A needs-based rather than aged-based solutions, shift from "healthy ageing" to "healthy living"
4.	Lack of business support for AHA start-ups in the early stages	4.1. Specialised accelerators and sandboxes for AHA businesses
5.	Lack of investor activity	5.1. Implementing initiatives that encourage investor activity in the AHA market5.2. Utilising the ESG movement to foster investment into the AHA market

Source: Compiled by authors.

Gap No. 1: The AHA market is deemed as being highly fragmented in the EU, causing less innovation and start-up activity on this market as well as challenges when trying to scale.

The highly fragmented EU market is one of the key challenges faced by solution providers. The current EU market is highly reliant on national approaches to financing that are not harmonized; different regulations and funding practices, cultures within the medical and wellness services, and language barriers that become important when approaching industry actors for market research, prototyping, piloting, and business development.

When looking at the legal frameworks across national European markets, it is evident that there are major differences in regulatory requirements between jurisdictions. There is an obvious lack of harmonized



processes across countries that would enable AHA innovations to enter new markets with ease. This is especially relevant for solutions that can be considered medical devices, as the regulatory system is even more complex in these cases. This means that companies' efforts to comply with legislative requirements are not only complicated but also require additional time and financial resources when scaling the business. This may, in turn, lead to delays in market entry, jeopardizing the early market capturing potential.

The additional barriers with the multitude of languages and cultures in a relatively small geographic zone contribute to unexpected delays when trying to enter and capture a bigger portion of the EU market. Every time the company wants to enter a new country in the EU, additional research needs to be conducted and modifications to the solution have to be made. There is also a need for additional analysis on each country's economy to not only understand the relevant laws and regulations, but also the national healthcare system and governmental support mechanisms as these vary greatly depending on the country.

Solution 1 to Gap No. 1: Initiatives on both national and EU levels.

As companies attempt to scale from one country to another, additional research and modifications need to be made to ensure that the innovative solution is appropriate for the target country. To ease the transition and ensure that the specific country characteristics are taken into account, more national initiatives that specifically support start-ups in the AHA market are needed. A great example of nurturing and supporting the entrepreneurs in this market comes from France, where the focus on supporting the AHA market was prioritized in the Silver Economy Roadmap already in 2013, as well as in 2016. France also passed a specific legislation to support the AHA market called *Adaptation de la Société au Vieillissement* (Adapting Society to Ageing)³⁷ and created a not-for-profit organisation, Silver Valley, in 2013 to foster the development and growth of AHA businesses in France. Silver valley brings together over 300 companies and has created a business incubator, a showroom, laboratories and training programs to support business, technology development and collaboration in this sector. Such initiatives should be adopted in all countries willing to promote the development of solutions for the AHA market.

Support for start-ups trying to scale across Europe needs to come from the EU level as well. To facilitate growth from one country to another, a pan-European system for information and advice on accessible health data, relevant regulations, and laws, as well as specifics on the healthcare systems and governmental support mechanisms available in each country could be a possible solution. This should be an EU-wide database that is not only compiled once but is continuously updated, this being especially important as the sector is constantly evolving. Once this information is available to start-ups, accessing different markets could become more resource-efficient and with a possibly higher chance of success. To facilitate and maintain such centralized knowledge base, a coordinating body is needed as well, tasked with fostering pan-European spread of solutions.

Solution 2 to Gap No. 1: Innovators should be better prepared to navigate the complexities.

In the context of such a fragmented EU market, companies should place a bigger emphasis on well-defined action plans and on ways to address sudden changes in legislation and requirements. This includes being proactive in the legislative domain to mitigate risks, and considering regulations and relevant laws already in the product development phase. A useful recommendation brought forward during the interviews

³⁷ <u>https://www.aarpinternational.org/the-journal/current-edition/journal-articles-blog/2019/01/menet</u>



includes deciding upon a target country already in the initial stages of creating the start-up. For instance, higher health expenditure per capita and the size of the addressable market are key drivers predicting the willingness to implement AHA innovations, which is why Germany, for example, would be a good market to start with. However, it needs to be said that these aspects mean that innovation will be much more limited in smaller EU markets. The only way such countries can mitigate this is by being very proactive in fostering the AHA market, as already described in Solution 1 above.

Additionally, to help companies develop and scale in the AHA market in the EU, a practical checklist was created for start-ups seeking to fund innovation in this sector. This can be found in Annex 3. As this report has provided insight on the investment landscape of the current AHA market, investigating the different funding options available and the actions that need to be taken to raise investment, this checklist provides a useful guide for start-ups navigating the sector.

Gap No. 2: Innovators lack understanding of their stakeholders.

There is a gap in the AHA sector where the demographics of solution developers and users are completely separate. This means that the usually young and active solution developers fail to properly understand the stakeholders, especially the older adults who are the users of the innovative solutions.

As the product or service is developed for the benefit of older adults, but often sold to intermediaries, such as home care providers, retirement homes and public sector institutions, there is a difficulty in communicating the product idea and its benefits to the necessary stakeholders properly, especially as those are usually different to each group. For instance, older adults are interested in improving their health and increasing independence, family members who often purchase the solution are interested in being able to monitor the health of the older adult more effectively and in a way that requires less micromanaging, and organisations engaged in the health and care system are interested in being more resource efficient and ensuring cost-effectiveness in the long-term. By just focusing on communicating the needs and benefits with one stakeholder group, adoption of the solution will likely be very slow. Such a multi-faceted sector requires a much more complex marketing solution. Focusing on one stakeholder group can ultimately lead to unnecessary innovations flooding the market, meaning only short-term success for the businesses and unfulfilled needs for the end-consumer.

Unclear understanding of stakeholders also often leads to an improper segmentation of the consumers. Defining and understanding the consumer is a significant challenge as older adults are a highly diverse group which means that start-ups directing their product to all older adults is usually way too ambiguous; no product will be fit for everyone across the entire population underpinning the Silver Economy. The needs, interests and capabilities of a 50-year-old and a 95-year-old are rarely the same, and often aren't the same for two 50-year-olds. This diversity is currently not reflected in the range of products and services developed.

Solution 1 to Gap No. 2: Government-backed sandboxes.

The responsibility of facilitating stakeholder relationships in this sector needs to be placed on governments that create those complexities via regulations and funding approaches. Governments could aid new entrants into the health sector by providing sandbox environments that enable the deployment and testing of the innovative solutions while creating the needed networks. These initiatives could provide start-ups with the necessary access to the relevant stakeholders who are motivated to actively engage with solution developers, ultimately ensuring that the company establishes relationships and makes the solution easily deployable with a robust commercialization approach. This could mean a more successful



market entry for the business, at the same time allowing for institutional stakeholders to deeply understand the potential benefits of the solutions, such as the cost-efficiency potential of the proposed product or service.

Solution 2 to Gap No. 2: Comprehensive ways to engage with the stakeholders.

In order to mitigate this gap, companies need to perform a comprehensive stakeholder analysis. The interests of the older adults need to remain in the centre of the solution, but the benefits to other stakeholders who have the power to purchase the solution should also be clearly communicated. This ensures that the product or service provides benefits to the older adult while also being purchased by large ecosystem players who can facilitate the adoption and scaling of the solution.

Additionally, more market research and better customer segmentation needs to be made for an AHA solution to be adopted by a specific target audience. It should also be considered that the older consumers are not a self-identifying group and do not typically define themselves by their age. Therefore, specifically targeting over 50s or older consumers with this messaging will fail to resonate with a large portion of the population, despite them objectively falling within those categories. Therefore, shifting towards the development of age inclusive products and services that focus on addressing specific needs is believed to be one of the solutions to reach wide scale adoption of an AHA innovation. In other words, shifting the focus of the product or service from being targeted specifically towards older adults to being aimed at the general public by solving a specific need, can be beneficial in the speed of adoption.

Gap No. 3: There is a stigma associated with getting old/the older generation.

There is a stigma related to growing older, often associated with negative attitudes and behaviours against older adults. Ageism, which is the common term for the stigma and discrimination related to ageing, is profound in today's society, perpetuating attitudes that older people are on the decline and unworthy of attention. This creates negative associations around the AHA market, making it less attractive to not only potential investors but also consumers who prefer not to partake in a market that further stigmatizes them; talents are also reluctant to join start-up teams developing solutions for this market.

Solution 1 to Gap No. 3: Initiatives to change the attitudes via education and intergenerational contact.

The role of governments and pan-European organisations is evident in tackling the stigma associated with older adults. Large scale anti-ageism interventions are an obvious priority, some potential examples of action including education and intergenerational contact. A study conducted in 2019 showed that interventions significantly reduced ageism outcomes related to attitudes, knowledge, and comfort toward older adults. Interventions that combined elements of both education and intergenerational contact had the largest effect on people's attitudes toward older adults. The study suggests that relatively low-cost, feasible interventions should be adopted as part of an international strategy to reduce ageism.³⁸

Solution 2 to Gap No. 3: A move towards needs-based solutions, rather than aged-based, shifting from healthy ageing to healthy living.

Another solution to steer away from the stigma associated with growing older and the negative prejudgments against older adults is to move towards needs-based rather than aged-based solutions. The objective could be to change the approach start-ups use to communicate their solution, focusing more on the problem that they solve, instead of targeting it only to the older adults. This brings forward the idea

³⁸ <u>https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6611108/</u>



of age inclusive solutions once again, such that solve the needs of the older adults while being aimed at the general public by focusing on a specific need, and shifts the notion of healthy ageing towards healthy living instead.

Gap No. 4: Lack of business support for AHA start-ups in the early stages.

Entrepreneurs in this market are mostly driven by a strong socially responsible ethos when trying to develop their innovative idea into a real product or service. As their focus is usually on the solution itself, they lack the necessary knowledge on how to navigate the business environment and manoeuvre in the start-up ecosystem. This is also relevant for marketing and customer development activities. Despite there being a need for more support on the operations side of the business, especially in the early stages, there is little of it available. Most of the available resources are too generic, not being of much use as the AHA market has more complexities in terms of stakeholders and the revenue models used. Additionally, support mechanisms, such as innovation grants and accelerators, mainly focus on providing aid for research and development (R&D) and little attention is placed on marketing, operations and customer development, the aspects venture capitalists usually want to see before they invest in a start-up.

Solution to Gap No. 4: Specialised accelerators and sandboxes for AHA businesses.

To help start-ups with business operations, customer development and advertising efforts, specialised accelerators and sandboxes could be an important solution. Creating accelerators specifically catering to the needs of AHA businesses give start-ups the relevant mentorship necessary to navigate the complex AHA business environment successfully. Additionally, specialised sandboxes could generate a system where companies are connected with potential stakeholders who can test out their solution, providing the first steps in developing a customer base. For instance, organisations like Tehnopol and Cluster Saúde de Galicia already have the resource available and have a track record in business support services, as well as a developed network of ecosystem stakeholders to facilitate the creation of such specialised sandboxes. It is important to note that public sector participation in both accelerators and sandboxes would be key in this case, defining the needs of the healthcare institutions and helping to navigate the complicated health and care system as national EU markets are driven by publicly funded and operated healthcare.

Gap No. 5: Lack of investor activity.

Mainstream investors are still hesitant about the AHA sector as they have a lack of experience with AHArelated businesses and low technical knowledge of healthy ageing solutions. Most investors continue investing in sectors that they are experienced in and where they can provide additional value to the company through knowledge sharing, mentoring, and networking. Thus, most investors do not personally relate to the AHA sector or know the specific trends on the market. This is especially challenging for startups looking for early-stage funding as they need to convince the investor with tangible evidence that the business idea has potential while looking for that support from the investors themselves.

Additionally, investors are reluctant to invest in the AHA market as the return on investment is slow compared to other sectors. The profit from an investment is not achieved quickly, therefore making it not that lucrative for investors, especially when comparing it to similar markets such as BioTech or HealthTech.

Solution 1 to Gap No. 5: Implementing initiatives that encourage investor activity in the AHA market.

To encourage more investor activity in the AHA market, accelerator programmes need to bridge the gap by integrating investors into the ecosystem through their programmes. This allows for investors to



participate in the ecosystem in a low-risk environment, building the market specific knowledge needed to confidently partake in this sector afterwards. This can provide the insight and experience that is currently missing for investors to feel confident entering the AHA market instead of merely observing it.

Additionally, EU could launch AHA centred investment platforms or other such dedicated financial instruments to clearly demonstrate the importance of the sector and encourage investor. This can help generate demand by lowering the risk of investment and providing a unified place for AHA-related transactions.

During the interviews, another solution to the lack of investor activity in this market was presented, specifically focused on venture capital organisations. It was proposed that a new venture capital model should be implemented to tackle the challenge of a slow return of investment in the AHA sector. This model combines several verticals that one venture capital firm has, such as FinTech, FoodTech, MedTech, etc., where each Limited Partner (LP) invests in the vertical of their preference, but the revenues will be combined and shared. Thus, spaces like AHA, which are slow and need more time to bring a return, get the investment and support needed, at the same time providing all LPs with the desired revenues in a short period of time by using the combined returns from all of the verticals. This way, the slower return of investment in the AHA market is mitigated, as the investors receive returns from other verticals while the AHA solution matures and brings in the return itself. However, it is important to note that this kind of obligatory pooling of investment would require significant changes in the current financial market structure and regulation, and is therefore not easy to implement.

Solution 2 to Gap No. 5: Utilising the ESG movement to foster investment into the AHA market.

The environmental, social and governance (ESG) criteria is gaining traction among companies, investors, and other stakeholders, especially as there is an overarching choice in EU to refocus the economy towards higher sustainability. As initiatives on healthy ageing could be considered part of sustainability driven investment strategies, it can be argued that with development of such strategies, AHA solutions will be facing higher demand from the investors' side. Therefore, firmly positioning healthy ageing as a sustainable investment could be a priority.

Additionally, impact investing models, such as the Social Impact Bond (SIB), can be utilised to drive investment into the AHA market, promoting well-being effectively and in a resource-wise way. In an SIB, institutional and private investors fund services that promote well-being and assume the risks associated with the provision of these services. Projects are given precise, measurable targets, which reflect the desired increase in well-being. The public sector only pays for results that are in line with the set targets. The public sector can use this tool to develop its procurement procedures, moving away from simply purchasing goods and services towards the acquisition of results and impact. Utilising impact investment opportunities is a great way to foster further investment into the AHA market.



Annexes

Annex 1 – Interview guidelines

Interviews with investors

- 1. Could you please give us a short overview of your investment background?
- 2. Are you currently investing (or would you invest) into active and healthy ageing related technologies or industries? Why yes or why not?
 - a. If yes: Could you give some examples of active and healthy ageing related technologies or companies you have invested in? Were they successful? What attracted you to these technologies or companies?
- 3. In your opinion, what are the most common shortcomings that start-ups looking for funding in the active and healthy ageing sector have?
- 4. What would be needed in order for you to invest in the active and healthy ageing sector more actively / start investing in the active and healthy ageing sector?
- 5. How do you see the investment landscape of the active and healthy ageing sector? What are some trends on the market you follow?
- 6. What differentiates the active and healthy ageing sector from other sectors for investors? What are some sector specific conditions that influence the investment decisions?
- 7. Do you see a funding gap in this sector? What are the main reasons for this gap? What do you think could be done by policy makers, social services, umbrella organizations and other stakeholders to reduce the funding gap?
- 8. Do you think the EU is a good place for active and healthy ageing related solutions / innovation? Why?

Interviews with companies

- 1. Could you please give us a short overview of your company what is the service/product you offer? How did the development process go? How successful have you been bringing your solution to the market?
- 2. How did you attract financing for your innovation? How did you fund your development process? What types of financing did you use? Was it easy / difficult to attract that financing? What could be done to improve the financing process?
 - If there were any private institutional investors How did the collaboration start?



- Are you aware of any public grants or other support measures specifically aimed at the active and healthy ageing sector?
- Are conventional public innovation grants (EIC, national innovation grants for SMEs) suitable for active and healthy ageing service providers? If not, then why?
- 3. Did you or do you have any mentors who have helped you in the process of attracting funding for your service/product?
- 4. Do you think the EU is a good place for developing active and healthy ageing related solutions / innovation? Why?
- 5. How do you see the investment landscape of the active and healthy ageing sector overall? What differentiates the active and healthy ageing sector from other sectors?
- 6. Do you see a funding gap in this sector? What are the main reasons for this gap? What do you think could be done by policy makers, social services, umbrella organizations and other stakeholders to reduce the funding gap?
- 7. From your experience, what kind of support structures are needed on the market for more active and healthy ageing innovations to be successful (accelerators, incubators etc.)?

Interviews with facilitators/policy makers

- 1. Can you please describe your experience with scaling-up active and healthy ageing solutions? What has gone well? What have been the challenges?
- 2. What are some good examples of active and healthy ageing innovation that have attracted funding successfully?
- 3. Do you think the EU is a good place for active and healthy ageing related solutions / innovation? Why?
- 4. Is there enough investor activity in regard to active and healthy ageing innovations? What are the major hurdles stopping investors from actively investing into this sector?
- 5. Do you see a funding gap in this sector? What are the main reasons for this gap? What do you think could be done by policy makers, national governments, drivers of national health, social services, umbrella organizations and other stakeholders to reduce the funding gap?
- 6. What do you see as the main reasons why many of the innovative active and healthy ageing solutions being developed during H2020 projects haven't been able to scale their solution on the market?



- 7. What differentiates the active and healthy ageing sector from other sectors in terms of scaling the technology, funding the development, and successfully entering the market?
- 8. From your experience, what kind of support structures are needed on the market for more active and healthy ageing innovations to be successful (accelerators, incubators etc.)? Some specific tools or programs?



Annex 2 – Interviewees

Interviewee category (investor, company, ecosystem facilitator)	Name	Represented organisation/project	Position	Date of the interview
Investor	Erki Mölder	Health Founders	Co-founder	01.10.2021
Investor	Andrus Oks	Tera Ventures	Co-founder	15.06.2021
Investor	Yael Benvenisti	Mediterranean Towers Ventures	CEO	16.12.2021
Ecosystem facilitator	Jon Switters	Funka Nu AB / WE4AHA	Project manager	15.09.2021
Ecosystem facilitator	Piret Hirv	Tehnopol / IN-4-AHA	HealthTech and Connected Health Cluster Manager	22.12.2021
Ecosystem facilitator	Liina Joller-Vahter	EIT Health / IN-4- AHA	Project manager	21.12.2021
Ecosystem facilitator	Jesper Grønbæk,	Health Tech Hub Copenhagen	Founder and CEO	10.01.2022
Company	lgnas Kamantauskas	Hello 100	Co-founder and CEO	13.01.2022
Report	Innovation Project Infinity – Initial Report			31.01.2019



Annex 3 – Checklist for start-ups preparing to raise investment

As the investment landscape for AHA is developing and more generalist private investors are looking to invest in AHA-related companies, the sector specific criteria for start-ups are quickly starting to disappear and AHA solutions are more and more being viewed as being part of the mainstream tech sectors.

Things the founders should consider before searching for the investor:

- Founders should realistically determine their financing needs and the basis for these
- The advantages and disadvantages brought by investors to the company in its present situation should be assessed in advance
- Founders must decide whether they are ready for equity dilution
- Founders should understand the way and the principles under which business angels, venture capital funds and other entities/organisations/programmes invest
- After taking care of the above, it is helpful to determine the ideal investor profile: What kind of investor is desired for the company? What know-how and networks are needed? How much of the investor's time is required?

Checklist – what founders should have ready before approaching investors

- **Establish a legal company**. You cannot give away shares of your business in exchange for investment unless you have a legal entity with shares.
- **Founders' Agreement** is a legally binding contract, usually in writing, that outlines the roles, rights, and responsibilities of each owner in a business. The agreement sets the terms if one founder decides to exit the business. Furthermore, it shows investors that you have a serious business.
- **Business plan:** you will need a detailed case for your business that includes market research, traction to date, financial forecasts as well as the amount of investment being sought and for what.
- **One pager:** prepare a short summary of what you do.
- **Pitch deck:** prepare two versions of it one that could be sent out as a reading material and other that you can present standing in front of an investor.
- Share capitalisation table will set out the structure of shares for your company before and after the investment. You may need to seek some help from a lawyer to help prepare your share capitalisation table (CAP table).

AHA sector specific things to consider:

- Long money needed: Today's active tech funding landscape and quick to market business models let early-stage investors expect that they can exit already after 4-5 years. However, the longer to market time and slower initial market traction means that the potential exit time for investors will be significantly longer and up to 10+ years. Even more so if the company is developing a hardware device or operates in the medical sector. There are investors who are willing to invest in such businesses with longer exit periods. When looking for investors the start-up should take this into account when looking at investor profiles.
- **Problem to be solved:** Is your product or service solving a clear real-world problem the user has or is it just a nice to have solution offering extra comfort? For applications aimed at the general



public, nice-to-have solutions can be very successful as there's clear willingness to pay for convenience. AHA market on the other hand is facing problems with customer adoption and willingness to pay. Therefore, customers are mostly interested in only solutions that solve a clear problem for them. For example, voice-first computing has been hyped for its potential for serving the elder community. However, as of yet very few solutions have emerged solving a real-life problem and most applications have been just nice to have convenience features which explains why there's limited market traction for the voice first computing among the elderly.

- **Technology use case and design:** while the user experience should focus on the needs of an older generation, neither the purpose nor the marketing of the product should solely feed into the elderly storyline. People are very quick to reject products or services that make them feel old and helpless. Similarly, seniors don't want to feel spied on even if it's by loved ones. This means that even though the product might solve a necessary problem for the person themself of their family member it still might be rejected if designed and marketed on the wrong premise.
- Business plan: Is it clear how you will make money with your invention? Who will pay for it? Does
 the business case need reimbursement or purchases by either public or private insurers or social
 service providers? If so, do you have any proof of willingness to pay from insurers or social service
 providers? Do you have a clear roadmap on how to achieve reimbursement or first purchases?
 Investors have pointed out that many start-ups are too reliant on the technology and don't turn
 much attention to how to get regulatory approval, and public sector financing if the business
 model requires it.
- **Reaching customers and users:** Is the payer and end-user of your solution the same. In many cases for age tech solutions the payer and end-user might be different. For example, the case described above where the insurance provider pays for the solution. Similarly the payer and user might be different if an adult child purchases a solution for their elderly parents. In this case investors want to see some kind of traction or feedback from both the payer and user to be sure that both stakeholders see the value of the solution.
- End-user testing and piloting: As in many cases neither the founder nor the potential investor are the target group for the product or service for the elderly then in order to assess market and product/service match. Many AHA investors have explicitly stated that they expect to talk to the potential end-users and first customers of the company as they themselves can't evaluate the product/service. This means that the company must have at least the first prototype of the service or product that can be tested by the end-users before approaching the investor.
- Marketing and sales channels: companies targeting the young or adult population leverage different social media channels for marketing and e-commerce channels for sales. However, this is significantly less effective for age-tech solutions and traditional media should be used to target the elderly customers. This means average customer acquisition cost per customer is significantly higher for age-tech companies.

Guidelines for venture capital due diligence process

During the investment negotiations Due Diligence (DD) is carried out by the investor to understand the investability of the company. It is used to verify information, expectations, and data about an investment. In the process of Due Diligence different documents (e.g., business plan, intellectual property) need to be provided. It is recommended to arrange the documents in a virtual data room (e.g., Google Drive) for more



convenient management. The data room structure (folders, documents) should match the structure of DD checklist.

There is no standard process for Due Diligence and most investors have defined their own process and criteria to assess the investment target. The depth and the format of Due Diligence differs from investor to investor. High level checklist of Due Diligence focus areas is presented below.

DD focus areas: what investors want to know and verify 1 Key risks - risk analysis Market opportunity – what is the perspective Financials - whether the founders have feet on the Management team - show co-operation and leadership 1223 ground Technology - prove that team knows what they are building Funding - how the founders will achieve their goals ۹ ଢ Product/Solution - prove that someone needs it ✓ Legal – critical issues Go-to-market strategy - what is the vision Deal terms - realistic returns for the investors Intellectual property - is there something to protect and is it Alignment - do the investors and founders see the future the ⋳ protected same wav il. Competition – current situation, entry Exit – how the investors will get out Focus areas can vary from investor to investor

Early-stage companies by their nature have little information to analyse and therefore Due Diligence might be centred around some key topics like:

- Team
- Market potential
- Contracts and agreements and legal risks
- Intellectual property (depending on the business)