The Silver Economy

ANNEXES

A study prepared for the European Commission DG Communications Networks, Content & Technology by:

technopolis group

OXFORD ECONOMICS
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Methodology

1.1 Estimating the potential size of the EU Silver Economy

1.1.1 Private Consumption

Analysis of private consumption of the Silver Economy was primarily based on Eurostat data, which details the value of consumption per adult equivalent based on the age of the primary reference person in the household. This was broken down into averages for a reference person aged 45 to 59 and 60 or over, with the former used for individuals aged 50 to 59.

Modelling the structure of household consumption utilised Eurostat survey evidence that breaks down consumption per households by the age of a reference person into 2-digit Classification of Individual Consumption According to Purpose (COICOP) definitions. This provided the age splits which are essential for this analysis, however the totals given by this survey data do not match exactly with estimates for the total based on national accounts estimates. All of these figures were therefore re-scaled based on the total estimates in 2010, using Oxford Economics’ internal data. The forecasted change in the distribution of consumption in this Oxford Economics data was then used to forecast forward the consumption distribution of different age groups.

The total average consumption of each individual within each product group was then estimated based on the growth of private consumption per capita, again based on Oxford Economics data.

Combining the average consumption per adult by age and the distribution of their consumption, we then analysed the total value of spending by individual for each year from 2015 to 2025. Population forecasts were taken from Oxford Economics data in order to estimate this total consumption.

In order to check whether these results were sensible for all countries, we compared the per-capita consumption per individual in the Silver Economy with the implied average consumption among the rest of the population. In a number of countries this showed that the consumption in the Silver Economy was being over-estimated as the implied consumption for the rest of the population was implausibly low. This was especially the case in Eastern-European countries not in the Euro zone, indicating issues where the Eurostat survey data had exchange rates been applied. Adjustments were made to ensure that the relationship between Silver Economy consumption and consumption in the rest of the economy was sensible in these countries.

The demand that this generated was then organised into different product groups. Supply and use tables, sourced from the OECD were then used to re-allocate the margins that exists in retail, wholesale and transport of manufactured goods, deduct a portion of tax and re Allocate imports around other EU countries and internationally.
1.1.2 Public expenditure

Analysis of public sector expenditure began by identifying the relevant categories of spending using Classification of the Functions of Government (COFOG) definitions. The groups of consumption that were judged to not be consumed individually and therefore excluded from this analysis were: general public services; defence; public order and safety; economic affairs; environmental protection and housing; and community amenities. In addition to this subgroups within recreation, culture and religion (broadcasting and publishing; and religious and other community services) and education (pre-primary and primary education; secondary education; education not definable by level; and subsidiary services to education) were also excluded. Finally, the decision was taken to discount unallocated and R&D expenditure in each spending category as it was less likely to be consumed.

The expenditure in each 2-digit COFOG expenditure classification is available in Eurostat data, giving the spending distribution by country. This was combined with Oxford Economics forecasts for public spending by country to estimate the total value of consumption by category for each country.

Quantifying the share of this expenditure that should be allocated to the Silver Economy utilised a range of data sources, detailed in Table 2 at the end of this section. The approach used in this considered the intensity of service use by age group in order to allocate a share to the Silver Economy and account for its changing influence over the forecast period.

These values were transformed to remove the share of public expenditure that comes in the form of financial transfers to individuals and is therefore included in private consumption. In order to calibrate this spending for inputs to the supply-chain element of the economic impact model, the portion of spending classified as intermediate consumption was identified. Both of these adjustments were possible using Eurostat data.

1.1.3 Economic impact model

The economic impact analysis primarily relied on a multi-country input-output model sourced from the OECD. This was-reshaped to focus on the 28 EU Member States, with the rest of the world analysed in an aggregate form.

This was used to estimate the gross output applied to each industry through the direct, indirect and induced effect. The gross value added that was analysed based on analysis of the input-output table. The employment that this generated was identified based on the productivity in the industry in each country, calculated based on Oxford Economics estimates and forecasts. Through this, the model generated estimates for the economic impact in each country through the direct, indirect and induced effect.

Table 1 Data sources

<table>
<thead>
<tr>
<th>Section</th>
<th>Data</th>
<th>Source</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Consumption</td>
<td>Mean consumption expenditure by age of the reference person [hbs_exp_t135]</td>
<td>Eurostat</td>
<td>Average consumption per age group in question</td>
</tr>
<tr>
<td></td>
<td>Structure of consumption expenditure by age</td>
<td>Eurostat</td>
<td></td>
</tr>
<tr>
<td>Section</td>
<td>Data</td>
<td>Source</td>
<td>Use</td>
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<tr>
<td>---------</td>
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<td>-----</td>
</tr>
<tr>
<td></td>
<td>of the reference person [hbs_str_t225]</td>
<td>Oxford Economics</td>
<td>Structure of consumption by age group</td>
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<tr>
<td></td>
<td>Consumer spending by product/service</td>
<td>Oxford Economics</td>
<td>Re-scaling total consumption</td>
</tr>
<tr>
<td></td>
<td>Population estimates and forecasts by age</td>
<td>Oxford Economics</td>
<td>Scaling per-capita estimates to reflect the while silver economy</td>
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<td></td>
<td>Private consumption expenditure</td>
<td>OECD</td>
<td>Analysing consumption growth and sense checking</td>
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<tr>
<td></td>
<td>Supply and use tables</td>
<td>Oxford Economics</td>
<td>Reallocating retail, wholesale and transport margins of manufactured goods; deductive taxes on products and production; accounting for import shares</td>
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<td>Public Expenditure</td>
<td>General government expenditure by function (COFOG) [gov_a_exp]</td>
<td>Eurostat</td>
<td>Public spending distribution</td>
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<td>Government consumption expenditure</td>
<td>Oxford Economics</td>
<td>Estimating total spending by expenditure category of the forecast period</td>
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<tr>
<td></td>
<td>Hospital days of in patients [hlth_co_hosday]</td>
<td>Eurostat</td>
<td>Allocating health service consumption to the silver economy</td>
</tr>
<tr>
<td></td>
<td>Students enrolled in tertiary education by education level, programme orientation, sex and age [educ_uoe_enrt02]</td>
<td>Eurostat</td>
<td>Allocating tertiary education consumption to the silver economy</td>
</tr>
<tr>
<td></td>
<td>Pupils enrolled in post-secondary, non-tertiary education by programme, orientation, sex and age [educ_uoe_enrs08]</td>
<td>European Commission</td>
<td>Allocating post-secondary, non-tertiary education consumption to the silver economy</td>
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<tr>
<td></td>
<td>European Cultural Values, European Commission, 2007</td>
<td>Eurostat</td>
<td>Allocating support for children element of social protection to the silver economy based on the number in different households</td>
</tr>
<tr>
<td></td>
<td>Household characteristics by age of the reference person [hbs_car_t314]</td>
<td>Eurostat</td>
<td>Identifying widowed persons for allocation of survival element of social protection to the silver economy</td>
</tr>
<tr>
<td></td>
<td>Population on 1 January by age, sex and legal marital status [demo_pjanmarsta]</td>
<td>Eurostat</td>
<td>Allocating social exclusion element of social protection to the silver economy</td>
</tr>
<tr>
<td></td>
<td>People at risk of poverty or social exclusion by age and sex [ilc_peps01]</td>
<td>Eurostat</td>
<td>Identifying share of spending categories accounted for non-transfer spending and intermediate consumption</td>
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<td></td>
<td>General government expenditure by function (COFOG) [gov_10a_exp]</td>
<td>Eurostat</td>
<td>Cross country economic impact modelling</td>
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<tr>
<td>Economic Impact</td>
<td>Inter-country, Input-Output table</td>
<td>OECD</td>
<td>Productivity calculations</td>
</tr>
<tr>
<td></td>
<td>GVA by industry by country</td>
<td>Oxford Economics</td>
<td>Productivity calculations</td>
</tr>
<tr>
<td></td>
<td>Employment by industry by country</td>
<td>Oxford Economics</td>
<td>Productivity calculations</td>
</tr>
</tbody>
</table>
1.2 Sensitivity analysis

The forecasts presented in this report were developed based on our in-house projections using our Global Economic Model (GEM), a globally integrated model that provides a rigorous and consistent structure for forecasting and scenario analysis. Central to these projections are our assumptions about demographic trends across the EU economies—in particular the growth rate of the population aged 50 and above—and the long-run GDP growth rate in each economy which will be highly influential in determining the sustainable growth rate of Silver Economy consumption per capita.

As part of our modelling, we have also conducted a sensitivity analysis by testing how the results would be affected by adopting an alternative set of assumptions, in this case, those contained within the EC’s 2015 Ageing Report.\(^1\)

Overall, the EC projections are modestly less optimistic with regard to future GDP growth. The EC’s forecast is for real GDP growth of 1.30% per year between 2015 and 2025 compared to the OE forecast for annual growth of 1.78% during this period. This is largely a function of projected stronger labour productivity growth with both organisations sharing a very similar outlook in terms of the future change in the size of the population of working-age. At the member state level, the OE forecast is for stronger growth in 21 of the 28 countries (the exceptions are Austria, Cyprus, Denmark, Italy, Luxembourg, Portugal, and Sweden).

Although the Ageing Report contains no projections directly on the growth rate of private or public consumption (the ultimate drivers of Silver Economy activity in our model), theoretically the long-run GDP growth rate is unlikely to diverge significantly from that of either private or public consumption. Therefore, it should provide a reasonable approximation as an alternative source for long-term growth in our model.

On this basis, we find that using the Ageing Report assumptions, in 2025 the Silver Economy would be €242b (or 4.2%) smaller than in our baseline forecast. At the country level, the biggest absolute discrepancy was in the UK, where we estimate that using the alternative assumptions would result in Silver Economy consumption being €87b lower in 2025 (11.2%). Although we have not run these alternative projections through our economic impact model, it is reasonable to assume that the impact on the size of the Silver Economy would be broadly proportionate. Therefore, we estimate that using these assumptions would have reduced the Silver Economy’s contribution to GDP in 2025 to €6.1 trillion, activity that would have supported 84.6 million jobs.

Table 2 Sensitivity analysis on country-level Silver Economy consumption

<table>
<thead>
<tr>
<th>Country</th>
<th>Absolute change (€b)</th>
<th>Proportionate change (%)</th>
</tr>
</thead>
</table>
| European Commission, 2015

\(^1\) European Commission, 2015
### Impact of adopting Ageing Report assumptions on Silver Economy consumption

<table>
<thead>
<tr>
<th>Country</th>
<th>Growth</th>
<th>Impact on Silver Economy consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>0.7</td>
<td>0.5%</td>
</tr>
<tr>
<td>Belgium</td>
<td>3.9</td>
<td>2.5%</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>-1.6</td>
<td>-7.3%</td>
</tr>
<tr>
<td>Croatia</td>
<td>-0.9</td>
<td>-4.7%</td>
</tr>
<tr>
<td>Cyprus</td>
<td>-0.3</td>
<td>-3.9%</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>-4.3</td>
<td>-6.9%</td>
</tr>
<tr>
<td>Denmark</td>
<td>3.8</td>
<td>4.5%</td>
</tr>
<tr>
<td>Estonia</td>
<td>-1.3</td>
<td>-15.3%</td>
</tr>
<tr>
<td>Finland</td>
<td>-3.8</td>
<td>-5.0%</td>
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<tr>
<td>France</td>
<td>-19.0</td>
<td>-2.3%</td>
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<tr>
<td>Germany</td>
<td>-44.2</td>
<td>-3.5%</td>
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<tr>
<td>Greece</td>
<td>-24.3</td>
<td>-24.9%</td>
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<td>Hungary</td>
<td>-1.0</td>
<td>-2.5%</td>
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<td>Ireland</td>
<td>-14.5</td>
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<td>Italy</td>
<td>18.2</td>
<td>2.7%</td>
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<td>Latvia</td>
<td>-2.4</td>
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<td>Lithuania</td>
<td>-4.1</td>
<td>-24.2%</td>
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<tr>
<td>Luxembourg</td>
<td>1.1</td>
<td>9.8%</td>
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<td>Malta</td>
<td>0.1</td>
<td>3.6%</td>
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<td>Netherlands</td>
<td>-16.1</td>
<td>-6.1%</td>
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<tr>
<td>Poland</td>
<td>-10.5</td>
<td>-5.3%</td>
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### Impact of adopting Ageing Report assumptions on Silver Economy consumption

<table>
<thead>
<tr>
<th>Country</th>
<th>Working-age population</th>
<th>Labour productivity</th>
<th>Real GDP</th>
<th>Working-age population</th>
<th>Labour productivity</th>
<th>Real GDP</th>
</tr>
</thead>
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<tr>
<td>Portugal</td>
<td>1.1</td>
<td>1.3%</td>
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<td></td>
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</tr>
<tr>
<td>Romania</td>
<td>-10.9</td>
<td>-13.2%</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Slovakia</td>
<td>-0.9</td>
<td>-0.9%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slovenia</td>
<td>-2.2</td>
<td>-13.2%</td>
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<tr>
<td>Spain</td>
<td>-26.7</td>
<td>-5.6%</td>
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<td>Sweden</td>
<td>4.9</td>
<td>3.1%</td>
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<td>United Kingdom</td>
<td>-87.2</td>
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<tr>
<td>EU28</td>
<td>-242.4</td>
<td>-4.2%</td>
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</table>

Source: Oxford Economics analysis

#### Table 3 Comparison of Oxford Economics baseline forecast with EC Ageing report forecast

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<tbody>
<tr>
<td></td>
<td>Working-age population</td>
<td>Labour productivity</td>
</tr>
<tr>
<td>Austria</td>
<td>0.07%</td>
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<tr>
<td>Belgium</td>
<td>0.04%</td>
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<td>Bulgaria</td>
<td>-1.29%</td>
<td>4.58%</td>
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<tr>
<td>Croatia</td>
<td>-0.82%</td>
<td>2.64%</td>
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<tr>
<td>Cyprus</td>
<td>-0.07%</td>
<td>1.83%</td>
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<td>-0.49%</td>
<td>3.01%</td>
</tr>
<tr>
<td>Denmark</td>
<td>-0.02%</td>
<td>1.67%</td>
</tr>
</tbody>
</table>

* Oxford Economics’ forecasts refer to projections that held at the time of modelling (June 2016) and do not reflect our current baseline view.
<table>
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</thead>
<tbody>
<tr>
<td></td>
<td>Working-age population</td>
<td>Labour productivity</td>
</tr>
<tr>
<td>Estonia</td>
<td>-0.63%</td>
<td>4.16%</td>
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<tr>
<td>Finland</td>
<td>-0.21%</td>
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<tr>
<td>France</td>
<td>-0.02%</td>
<td>1.56%</td>
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<td>Germany</td>
<td>-0.47%</td>
<td>1.76%</td>
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<td>Greece</td>
<td>-0.33%</td>
<td>2.63%</td>
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<td>Hungary</td>
<td>-0.70%</td>
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<td>-0.11%</td>
<td>1.10%</td>
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<td>-0.89%</td>
<td>4.62%</td>
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<td>-0.85%</td>
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<td>2.53%</td>
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<td>0.27%</td>
<td>1.65%</td>
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<td>------------------</td>
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<tr>
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<td>Working-age population</td>
<td>Labour productivity</td>
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</tr>
<tr>
<td>EU28</td>
<td>-0.28%</td>
<td>2.06%</td>
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</table>

Source: Oxford Economics analysis

1.3 An overview of the approach to policy mapping

Data collection for the policy mapping exercise included a review of publically available material, an open survey to the community and high level interviews with policy makers.

We have reviewed relevant policy initiatives across EU Member States and have identified a total of 78 policies that are related to the Silver Economy. The mapping of relevant planned and existing policy initiatives has provided detailed context analysis. Around 41% of the policy initiatives explicitly target the 50+ population and the remaining policy initiatives have a non-exclusive focus on the 50+ population. The majority of policy initiatives that are identified are national government initiatives (56, 72%), 14 (18%) of the policy initiatives are local government initiatives and we have also identified a small selection of industry led initiatives (8, 10%). The analysis has been conducted through desk research focusing on policy initiatives in each of the sectors referenced in Table 4.

High-level policies that directly or indirectly aim to exploit commercial opportunities through economic growth and the creation of jobs have been mapped. In many cases, the policy initiatives are related to innovation in Information and Communication Technologies (ICT) but other types of initiatives where the link is less evident – e.g. senior tourism – are also in scope of this mapping phase if they present opportunities for economic growth.

The mapping includes the relevant initiatives that link the changing demographics to economic development, including initiatives that seek to reduce the cost of public providers and generally enhance the quality of life for older people. For each policy initiative we have identified up to three expected impacts as is illustrated in Figure 1.
Policy initiatives are categorised according to the following criteria: with or without financial commitment and what drives the initiatives (the options for categorisation are as follows: national government, local government, industry and the year the initiatives were launched). The policy mapping covers a range of sectors that are outlined in the table and the results of the mapping is presented in the figure below.
### Table 4 Industry sectors

<table>
<thead>
<tr>
<th>Sectors of interest</th>
<th>Definitions (measures, products, services, solutions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health &amp; Care</td>
<td>Solutions to support prevention, therapy and care activities, as well as those assisting in personal hygiene, including telemedicine, telecare, mHealth, and robotics</td>
</tr>
<tr>
<td>Connectivity and social participation</td>
<td>Solutions relating to interpersonal communication and the organisation of daily living to avoid isolation</td>
</tr>
<tr>
<td>Entertainment, Culture &amp; Tourism</td>
<td>Solutions which enable recreation in leisure time and cultural activities, including religion and travelling</td>
</tr>
<tr>
<td>Living &amp; Building</td>
<td>Solutions supporting independent living in ‘smart homes’ or ‘adaptable housing’ as well as new ageing-friendly buildings, with integrated services and design features</td>
</tr>
<tr>
<td>Mobility &amp; Transport</td>
<td>Solutions that serve as transportation measures for persons and goods or offering travel information and navigation services</td>
</tr>
<tr>
<td>Safety &amp; Security</td>
<td>Solutions including home protection, surveillance or supporting older people in case of falls and personal emergencies</td>
</tr>
<tr>
<td>Physical &amp; Cognitive Abilities</td>
<td>solutions that support, train or enable physical, mental and social abilities, including sports and games</td>
</tr>
<tr>
<td>Work &amp; Training</td>
<td>solutions that utilise work-related experience, and learning new job specific skills through training, including accessible work environment and senior entrepreneurship.</td>
</tr>
<tr>
<td>Financial services</td>
<td>Solutions that support financial independence and protect financial security of older people</td>
</tr>
<tr>
<td>Food and nutrition</td>
<td>Solutions that relate to nutrition and diet adapted for older people’s needs</td>
</tr>
<tr>
<td>Other/multidisciplinary</td>
<td>Includes any other sector or overlapping sectors</td>
</tr>
</tbody>
</table>

### Table 5 Overview of high-level policy experts interviewed

<table>
<thead>
<tr>
<th>Policy initiative</th>
<th>Country</th>
<th>Interviewee</th>
<th>Affiliation and contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ireland Smart Ageing Exchange (ISAX)</td>
<td>Ireland</td>
<td>Anne Connolly</td>
<td>CEO of ISAX</td>
</tr>
<tr>
<td>Policy initiative</td>
<td>Country</td>
<td>Interviewee</td>
<td>Affiliation and contact</td>
</tr>
<tr>
<td>-------------------------------------------------------</td>
<td>------------</td>
<td>----------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Swedish Silver Economy strategy</td>
<td>Sweden</td>
<td>Karin Wendin, Kristina Mjörnell</td>
<td>SP Food and Bioscience, Business Area Manager The Built Environment SP</td>
</tr>
<tr>
<td>Silver Valley</td>
<td>France</td>
<td>Celine Schricke</td>
<td>RDI Manager</td>
</tr>
<tr>
<td>Active Ageing and Health Ageing Project</td>
<td>Italy</td>
<td>Claudio Lucifora</td>
<td>Università Cattolica in Milan (Labour Economics, Personnel Economics and Economics of Health)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Project coordinator: Healthy ageing and the labour market in the context of the project “Active ageing and Healthy Ageing”</td>
</tr>
<tr>
<td>Inno+ Catalogue (and Research2025)</td>
<td>Denmark</td>
<td>Jens Haisler, Britta Vegeberg</td>
<td>Research Policy Unit, Danish Agency for Science, Technology and Innovation (DASTI)</td>
</tr>
<tr>
<td>50pluswerkt (50plusworks)</td>
<td>The Netherlands</td>
<td>Betsie Gerrits</td>
<td>Programme manager 50pluswerkt, UWV (Employee Insurance Agency)</td>
</tr>
<tr>
<td>Flanders’ Care</td>
<td>Flanders</td>
<td>Carine Boonen</td>
<td>Co-ordinator of Flanders’ Care, Department of Welfare, Public Health and Family, Division of Policy Development</td>
</tr>
<tr>
<td>National Health Plan</td>
<td>Portugal</td>
<td>Rui Portugal</td>
<td>Grupo de Trabalho do Plano Nacional de Saúde</td>
</tr>
</tbody>
</table>

1.4 Process of stakeholder consultation

The stakeholder consultation consisted of three phases. As illustrated by means of Figure 3 below, we began the process with the ideation phase via the discuto platform. Next, we elaborated the most relevant unique ideas that were proposed. We then validated these elaborated ideas/cases using input from the stakeholder community and subsequently finalised the development of the 10 cases that provided the most promising opportunities for economic growth.
Figure 3 Process diagram for Silver Economy case development

Online ideation on driver and driven variables

Elaboration of cases

Validation of cases online

The online ideation process was the first step in developing the Silver Economy cases. It started on 20 September 2016 and ended on 17 October. The online ideation platform\(^3\) was advertised by the study team through the project website, twitter, LinkedIn group, contact list of umbrella organisations and key individuals. This effort was augmented by the DG CONNECT steering group through an update of the Silver Economy page on the Innovation Union website\(^4\), direct emailing of EIP AHA newsletter subscribers, across the European Commission DGs RTD, EAC, EMPL, GROW (building & tourism), JRC, SANTE, SecGen, ESTAT, ECFIN and TRADE. Other key channels included EIPonAHA Action Groups, EIT Health, Reference Sites, AAL\(^5\), and various industry associations.\(^6\) The study team provided clear instructions and examples on the online ideation platform to kick-start contributions. In total 95 ideas and 119 comments were proposed by the 1,032 registered participants, as shown in Table 6 below.

Table 6 Overview of input collected in the ideation phase

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed ideas</td>
<td>95</td>
<td>Some ideas overlap</td>
</tr>
<tr>
<td>Participants</td>
<td>1032</td>
<td></td>
</tr>
<tr>
<td>Comments</td>
<td>119</td>
<td>Includes clarification questions posed by Technopolis</td>
</tr>
</tbody>
</table>

\(^3\) https://www.discuto.io/en/consultation/12077
\(^4\) http://ec.europa.eu/research/innovation-union/index_en.cfm?pg=silvereconomy&section=active-healthy-ageing

\(^6\) European Automobile Manufacturers Association (Commercial Vehicle Technical Affair, Smart Mobility, Mobility & Sustainable Transport), Association for European Transport, European Skills Council Automotive Industry, European Furniture Industries Confederation, FoodDrinkEurope, European Industry for Security, European Tour Operators Association, the European Network for Accessible Tourism, European Economic and Social Committee, European Finch Alliance, European Creative Industries Alliance, DigitalEurope, BusinessEurope, European Small Business Alliance
The relevant ideas submitted were then assessed based on the following three criteria:

- Relevance to the population aged 50+
- Potential to create jobs and growth in Europe
- Need for the European Commission to develop supporting policy mix

Through this assessment, we identified 32 ideas that potentially responded to all three assessment criteria. Of these ideas, about half were very similar or overlapping, and as a result we identified 16 unique ideas.

Further discussions of these unique ideas by the team and our experts resulted in the development of 10 cases. The objective was to prioritise those areas where EU policy intervention will be most appropriate and/or needed. Also, we prioritised the ideas where there will be a likely demonstrable impact on the EU economy, ie in terms of potential growth and job creation. The resulting 10 cases are presented in the main text:

The 10 cases were presented online for validation, on the same platform already used in the ideation phase. The validation started on 9 November 2016 and ended on 4 December. Each case put up for validation consisted of a brief description of the opportunity, the barriers and market failures, the market prospects, challenges, the added value of EU action, existing or planned initiatives to build on, recommended EU policy actions and stakeholders. Each case was presented as one discussion, with a landing page displaying all cases with icons, as shown in the screenshot below.

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7 https://www.discuto.io/en/PAGE/smartsilvereconomy
To promote the validation phase, we contacted all participants from the ideation phase and advertised the platform on our project website, via twitter and our LinkedIn group. 130 individuals participated actively in the validation phase, supplying 137 comments which included additional initiatives and views on recommendations and other suggestions for additions to the cases. An overview of these results is presented in the table below. Based on this feedback and additional desk research, the cases were developed further.

**Table 7 Overview of input collected in the validation phase**

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants</td>
<td>130</td>
<td></td>
</tr>
<tr>
<td>Comments</td>
<td>137</td>
<td>Includes clarification questions posed by Technopolis</td>
</tr>
</tbody>
</table>
National and regional Silver Economy policy initiatives

1.5 Introduction

This chapter presents policy initiatives across EU Member States that are related to the Silver Economy. Silver Economy policy initiatives directly or indirectly aim to exploit commercial opportunities through economic growth and the creation of jobs thanks to the launch of new or improved (ICT-enabled) products and services and/or a longer active involvement of older adults in the professional environment. Silver Economy policy initiatives can also contribute to cost saving in the healthcare system thanks to better skills among the healthcare providers, more automated processes (telemonitoring, ehealth etc), and improved health and welfare and to longer independent living of the older adults. Finally, Silver Economy policy initiatives may yield a socio-cultural benefit (improved quality of life), see also Figure 1 in this Supplementary Material.

The analysis presented in this chapter is based on a mapping of relevant planned and existing policy initiatives where many explicitly target the 50+ population. For the majority of policy initiatives, Information and Communication Technologies (ICT) is important.

As illustrated in Figure 5, several EU member states have implemented national strategies in relation to the Silver Economy and several EU member states have regional strategies in relation to the Silver Economy.

*Figure 5 Examples of different levels of Silver Economy policy initiatives, in the EU*

The focus of a given policy initiative can be sector specific or can encompass multiple sectors. As illustrated in Figure 6, several EU member states have implemented a range of inter-related policy initiatives. There also exist sector specific policy initiatives in several EU member states.

The EU Silver Economy is related to a number of sectors, see Figure 7. The largest number of the policy initiatives are related to the sector Health & Care, (28% of the identified policy initiatives that are analysed, see also Figure 2 in this Supplementary Material). Other sectors
where there are a substantial number of policy initiatives are Work & Training, Living & Building, and Connectivity & Social participation. Other sectors relevant to the Silver Economy are Physical & Cognitive Abilities, Mobility & Transport, Food and nutrition, Entertainment, Culture & Tourism, Financial services, and Safety & Security.

Figure 6 Examples of sector focus of Silver Economy policy initiatives, in the EU

Industry sometimes drives Silver Economy policy initiatives and these policy initiatives can be broad in scope. For example, Myappisante\(^8\) is an app designed to distribute mobile applications and internet solutions for the health sector. It works by combining an ICT based platform, app and real life events, interaction between municipalities and local trading ecosystem to prevent frailty and isolation. Various relevant initiatives are driven by NGOs, associations and non-governmental organisations and research groups. This includes the work of the Vodafone Spain Foundation, which is a research non-profit that dedicates its activity to supporting and promoting ICT solutions for people with disabilities and older people through innovation and social projects. The foundation has activities for improving the use of smartphones by the elderly and apps that give information on the accessibility features of different activities. Moreover, the Ireland Smart Ageing Exchange (ISAX) is a

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\(^8\) http://www.myappisante.com/informations/qui-sommes-nous
new independent network working in multiple sectors, e.g. functional food, housing, health. The network receives government support. Other examples of these type of initiatives include the Portuguese Senior Tourism initiative, a weekly holiday programme that aims to combat the loneliness of the senior population and Net@vo, a Portuguese transdisciplinary educational initiative that focuses on intergenerational learning using audio-visual media and new technologies.

It should be noted that the EU is already pushing policy initiatives relevant to the Silver Economy. A review of relevant EU initiatives is compiled by the EC in its 2015 report Growing the European Silver Economy. Notable actions include the European Innovation Partnership on Active and Healthy Ageing (EIP-AHA) and, as detailed in the report, other initiatives that are pursued are the following:

- The potential for new markets and economic drivers such as renovation of building stock, including for independent living, and low-season (senior) tourism;
- The need for ensuring accessible, high-quality and sustainable long-term care systems and for promoting a life course and social investment approach to social protection systems and services;
- Stakeholder-driven innovation for active and healthy ageing through large scale innovation actions such as the European Innovation Partnership on Active and Healthy Ageing (EIP on AHA) and the Active and Assisted Living Joint Programme;
- New skills and entrepreneurship in relation to the needs of an ageing population, supported by a new Knowledge and Innovation Community on Healthy Living and Active Ageing under the European Institute of Technology;
- Smart specialisation and eligibility for regional funding has led 110 European regions to identify Active and Healthy Ageing as a smart specialisation priority;
- The accessibility, quality and financial sustainability of health and social care systems;
- Research and innovation in response to demographic change through H2020.

The report by the EC includes an inventory of ongoing and new Silver Economy related policy initiatives that includes initiatives of many Directorates-General (DG).

1.6 National Silver Economy strategies

1.6.1 Smart Ageing strategy - Ireland

Ireland has made an early commitment to meet the challenge to deliver inter-generational equity. It sees Smart Ageing as an opportunity rather than a crisis. Given the rapidly changing situation internationally, Ireland is implementing policies to ensure that Smart Ageing products and services provide a platform for new business creation, increased exports and employment.

The Irish response to this includes the formation of the Ireland Smart Ageing Exchange (ISAX) a new independent network – a ‘joined up approach’ to fast-tracking the R&D and

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commercialisation of solutions for the global Silver Economy. It is fundamentally an 'intense' network of industry, academia, investors and government agencies, developing and commercialising innovations for the global older consumer market.

The Irish National Positive Ageing Strategy is a Department of Jobs, Enterprise & Innovation initiative coordinated by Enterprise Ireland and IDA Ireland and Science Foundation Ireland. The Strategy sets out a vision for an age-friendly society through the achievement of four national goals: Participation, Health, Security, and Research and has led to a series of platforms providing smart ageing strategies. The Strategy is to be implemented under the broader Healthy Ireland framework, which sets out a vision to improve the health and wellbeing of the entire population of Ireland. It recognises that all sectors of society – government, businesses, voluntary groups, service providers, local authorities and the general public – have a part to play in creating an age-friendly society. The Strategy allocates lead responsibility for its Priority Action Areas to various Government Departments and agencies.

In particular, the Health sector represents significant opportunity for the Silver Economy in Ireland. There are a number of policies steering initiatives towards smart ageing via major research institutes such as The Irish Longitudinal study on Ageing (TILDA) and strong enterprise bases, for example, the Applied Research for Connected Health (ARCH). These initiatives are driven by a larger set of policies laid out in Ireland's National Positive Ageing Strategy.

Similarly, the Food & Nutrition sector has a strong initiative base with collaborative opportunities with research centres, innovative SMEs and large corporations, especially in the dairy sector that is well-connected across the entire food chain from improving resource efficiency, nutritional value to reducing food waste. Strategies such as Food Harvest 2020 and Foodwise 2025 steer the development of a smart food economy, with some focus on areas relating to the Silver Economy, although not exclusively. The Committee of Foodwise 2025 is tasked with considering employment creation opportunities within the sector and advising on measures that could deliver further jobs. According to the strategy: “Consumer products, ingredients or concepts that meet the consumer need in the marketplace in areas such as healthy ageing nutrition and sports will command a premium price and provide opportunities for new market development and these opportunities represent huge potential for this sector to contribute significantly to the future economic growth of the Irish economy” (pp. 35).

Areas, including Housing & Transport, especially linked to mobility and independent living, and Lifestyle products and services, including Tourism, may also successfully target older consumers and develop products and services based on current activities and further policy support. The People, Place and Policy Growing Tourism to 2025 makes a brief reference to the ageing population of Europe but establishes no explicit reference to the 50+ cohort.

Education and training, Financial services, and Connectivity and social participation may represent important sectors in terms of enabling and strengthening the Silver Economy in other industrial sectors.\textsuperscript{12} Although there is no specific education and training related initiative the government’s Innovation 2020: Excellence Talent Impact Report, is a key element of the Government’s overall jobs strategy, aimed at building a new economy based on exports and enterprise, and delivering full employment on a sustainable basis. Although focusing predominantly on the vision of Ireland becoming a Global Innovation Leader it provides strategies and initiatives that could easily be shaped to strengthen Ireland’s opportunities for employment, work and training in regards to the Silver Economy and an ageing population.

The Towards 2016 Partnership Agreement aims to achieve a dynamic, internationalised and participatory Irish society and economy, founded on a commitment to social justice, and economic development that is both environmentally sustainable and internationally competitive. Government and the Social Partners are agreed that realisation of this vision requires a longer-term framework, and development of a new social policy perspective, based on the lifecycle of the citizen. The key lifecycle stages are identified as: Children, People of Working Age, Older People, and People with Disabilities. With regards to older people, the agreement wishes to create an Ireland that supports, where necessary, older people to maintain their health and well-being, as well as to live active and full lives, in an independent way in their own homes and communities for as long as possible. Every older person would have adequate support to enable them to remain living independently in their own homes for as long as possible. This will involve access to good quality services in the community, including: health, education, transport, housing and security.

\textit{Table 4 Deep dive into the Ireland Smart Ageing Exchange}

\begin{tabular}{|l|p{14cm}|}
\hline
\textbf{Background to the strategy} & The Ireland Smart Ageing Exchange (ISAX) in a new independent network working in multiple sectors (e.g. functional food, housing, health). ISAX is to be a catalyst for accelerating and commercialising innovations that target the older consumer market. ISAX has set out a range of programmes: \\
\hline
An enterprise programme to help the 50+ launch their own business and to help support the launch of businesses that target the older consumer; \\
A design shop to provide a ‘voice of the consumer’ for market design and expertise; \\
A policy lab to better understand the market and to develop new solutions for complex challenges; \\
Test beds to trial new products and services. \\
ISAX was launched in May, 2015 as a non-for-profit organisation with support from the Irish government. ISAX’s role and purpose emerged from the 2013 convening of the Global Irish Economic Forum, which strongly endorsed the proposition that: “Ireland become a world leader for smart ageing innovations”. ISAX is a sector wide platform for cooperation, it offers organisations a better understanding of the silver economic market allowing them to tailor products and services to said market. \\
\hline
\textbf{Need or} & The goals and ambitions of ISAX are driven by the needs of older people, as well as economic interests in \\
\hline
\end{tabular}

\textsuperscript{12} \url{http://www.technopolis-group.com/?report=a-mapping-of-smart-ageing-activity-in-ireland-and-an-assessment-of-the-potential-smart-ageing-opportunity-areas}
opportunity

various sectors where partner organisations are involved. Currently ISAX has 36 members and aims to have 85 members by 2020. Members include industry (the biggest proportion of members), Higher Education Institutes, government agencies (Enterprise Ireland and IDA – Ireland, agency responsible for Foreign Direct Investment), research institutes and NGOs such as Age Friendly Ireland.

The member organisations pay an annual fee of €15k, which is an indicator of their interest in the silver economy. Having access members of community (i.e. older people) via the consumer insight programme, ISAX is able to link needs, including needs of the older and more frail members of society, with economic opportunity. Concretely, the ‘consumer insight’ programme offers opportunity for industry to run focus groups involving older people, and to learn about the attitudes and behaviours of older people via a survey.

<table>
<thead>
<tr>
<th>Barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>There are various barriers in each of the sectors that ISAX is working in. For example, ISAX is planning to launch a programme of wearable technology and sensors in the home with a target of 500 members of the community of older people but before ISAX can do so, they must overcome a series of data protection issues.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Enablers</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICT is seen as a ‘convergence space’ that links various sectors, e.g. health and smart homes, food and health.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Economic benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISAX has set ambitious targets for the next years.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Objective:</th>
<th>2020 target</th>
<th>2025 target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start-up companies</td>
<td>100 new smart ageing and mature entrepreneur led start-ups</td>
<td>200 new smart ageing and mature entrepreneur start-ups</td>
</tr>
<tr>
<td>Job creation</td>
<td>300 new silver economy jobs</td>
<td>1,200 new silver economy jobs</td>
</tr>
<tr>
<td>SMEs</td>
<td>30 smart ageing SMEs – progressed from ISAX SYOB Programmes</td>
<td>100 smart ageing SMEs</td>
</tr>
<tr>
<td>Foreign direct investment</td>
<td>15 new international companies into Ireland</td>
<td>25 international companies in Ireland</td>
</tr>
<tr>
<td>Investment finance</td>
<td>€1m dedicated investment funds</td>
<td>€5m pa dedicated investment funds</td>
</tr>
<tr>
<td>Intellectual property</td>
<td>50 registered trademarks/patents</td>
<td>250 registered trademarks/patents</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source: ISAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>If scaled up to the European level, ISAX would deliver substantial economic benefits across the Silver Economy.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Future direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISAX aims to grow internationally and Ireland is seen as a test bed site, placed in a supportive environment. Currently ISAX is recruiting more international members.</td>
</tr>
</tbody>
</table>

### 1.6.2 The French Silver Economy sectoral agreement

Established in December 2013, the French Silver Economy Sectoral Agreement was specifically designed to give France an eminent position in the world in regards to an ageing population and industrial policy. The French Silver Economy sector was recently restructured as part of the French sectoral policy agreements. While the global phenomenon of
ageing populations is a real opportunity in terms of growth and jobs the expected growth of the French GDP generated by the Silver Economy is only 0.25% per year\(^1\). 

The French Silver Economy gained concrete political existence in recent years, in particular in 2013 when the Silver Economy was identified as one of seven orientations to be developed in the report of the 2030 Innovation Commission\(^2\). The "Silver Economy" sector was established in April 2013 under the leadership of Arnaud Montebourg, Minister of Productive Revival, and Michèle Delaunay, Minister responsible for seniors and autonomy. In December 2013, an industry agreement involving a specific risk capital fund was signed with the government to develop and structure this economy. When drawing up this agreement, the intention was to structure the Silver Economy as an industrial activity, and create a market of significant size in order to promote the development of a French industry able to generate value, and gain international recognition.

Signed on 12 December 2013, the Silver Economy industry agreement is currently developing 49 actions along six lines\(^3\):

- Creating the conditions leading to a vast market for the Silver Economy;
- Promoting the development of a competitive offer from the Silver Economy;
- Exporting Silver Economy products;
- Improving professional skills of the Silver Economy players;
- Communicating favourably on seniors and promoting ‘Ageing Well’ to the general public and distributors;
- Creating innovations in the field of the Silver Economy.

The industry agreement includes the vast and heterogeneous scope of the Silver Economy\(^4\), which extends from the most advanced technologies as home automation and robotics, through the simplest technical aids and the full range of telecare services to housing, mobility, tourism, etc.

Programmes under the French Silver Economy sectoral agreement are:

- **SISA Funds** - the launch of the Silver Economy sectoral fund to be used to fund Innovative Services for Health and Autonomy (SISA) players. This fund will make its first closing for an amount exceeding € 40 million, with a target size of € 100 million. The SISA fund aims to participate in the equity funding of innovative SMEs in the Silver Economy, identified as key players in the growth of the sector. The fund is intended for innovative SMEs, which, by incorporating technological tools (connected devices, home automation, sensors, robotics etc.) and organizational innovation, will meet the needs of older citizens, including in particular prevention, information, home care and monitoring, as well as health and social support.

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13 http://www.silvereco.fr/silver-economy
15 http://www.entreprises.gouv.fr/politique-et-enjeux/la-silver-economy
• International meetings of the Silver Economy (Rencontres internationales de la Silver Economy). This event is organised by Business France to make the Silver Economy more attractive in France and abroad. These meetings bring opportunities to boost the international development of businesses, and allow them to get in touch with buyers and foreign investors. They also aim at gathering national and international players, so that they can get information exchange views, cooperate, and give rise to business leads.

• Labelling (Démarches de labellisation Silver Economie) This is about the introduction of labelling approaches and quality certification for products and services, based on a listing of these products and services and on decisive quality standards for buyers of the Silver Economy. This approach is being built in three stages:
  – The implementation of a specification and evaluation grids for labels, by type of products and services;
  – The development of regulations for the use of labels;
  – The labelling control of products and services.

• Forum of living labs (Forum des "Living Labs pour la Silver Autonomie" (LLSA)). This forum aims at bringing living labs together and generating at least 10 innovations per year in the Silver Economy field. This initiative was supposed to help in:
  – Creating an activity structure for the living labs network;
  – Setting up an information area and shared workspace;
  – Organising conferences at national level;
  – Facilitating access of living labs to major international events related to the Silver Economy

• Silver Surfer (call for projects). Silver Surfer is a new generation of calls launched in September 2015 by Eurasanté, with the support of the Nord Pas de Calais-Picardie region. The aim is to include final users in the process of creating innovative projects. The aim is to boost the ecosystem of digital start-ups in the region. By applying to the Silver Surfer call, 3 businesses have been recognized in February 2016 for the innovations offered to address the challenges of an ageing population.

• Designer in residence Initiative - Silver Valley. Implementation, within the Silver Valley cluster, of an adequate service offering, to train and raise awareness of its members on the need to set up an approach based on Design Management. The objectives of this Residence were:
  – To raise awareness on all aspects of design and its management;
  – To perform one or more design project(s) in cluster companies;
  – To draft possible development projects for new products and/or services;
  – To report the conclusions of the "Designer in Residence” campaign to a wide audience.

The French government put the Silver Economy on track at the national level, but the aim was also that Regions will expand the Silver Economy and its industry agreement in the territories, and develop local ecosystems. The industry agreement positions the regions as implementation tools of the Silver Economy in the territories with the setting up of regional, strategic industry committees. These objectives have not yet been achieved, firstly because
the National Industry Committee disappeared from 2013 to 2015, secondly because when this committee was reactivated, it was time for regional elections (delaying the decision process at the local level).

Normandy was declared the first Silver region in France in January 2014. Limousin-Aquitaine is a leader with, inter alia, the first Alzheimer village recently "awarded" to Dax, Ile de France has been praising the "Silver Valley" for some time, and Lorraine even signed an agreement with the German federal state of Saarland.

Table 8 Deep dive into the French Silver Valley

<table>
<thead>
<tr>
<th>Need or opportunity</th>
<th>The French silver economy sectoral agreement was implemented to create the right conditions to the development and the maturation of the Silver Economy. The objective was to mobilise all stakeholders around that sectoral agreement. The agreement was signed in April 2013 and on that occasion, nearly forty-or-so key stakeholders gathered around the same table. Each signatory committed to set up a number of actions. The main objective of this approach was to generate (more) dynamism in the Silver Economy. Silver valley is a non-profit organization created in 2010 as “Soliage” under the name “SOLIAGE”. The silver valley brand was launched at the same time the Silver economy sectoral agreement was put in place. Through SOLIAGE, the idea was to create a propitious ecosystem for the silver economy development. In recent year, the initiative attracted substantial interest from the private sector.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barriers</td>
<td>The assessment of the silver economy sectoral agreement had mixed results. The most important barrier was a lack of dynamics and coordination. There are many stakeholders that are involved and each of the stakeholders have made advances in the domain but, overall, all stakeholders have not been involved at the same level. The interest for silver economy clearly exists but the sector is still lacking of an effective coordination process. The silver economy sectoral agreement has been recently relaunched (in 2016), by Mr Macron, minister of economy, in order to re-mobilise the different stakeholders on specific actions. Various working groups have been implemented in order to organize at the national level the silver economy sector.</td>
</tr>
<tr>
<td>Enablers</td>
<td>ICT is an important enabler to the development to the silver economy. There are developments that are not technical innovations but often developments use technologies in an innovative way.</td>
</tr>
<tr>
<td>Economic benefits</td>
<td>Estimating the economic benefit of the silver economy is challenging. The sector developments are broad and involve a large number of enterprise. Developments is characterised by the diversity of the activities.</td>
</tr>
<tr>
<td>Case for EU involvement</td>
<td>In relation to the social challenges around the silver economy, the EU has a role to play. One of the roles for the EU is to steer developments in the Silver Economy beyond health and care. This approach is also taken in the French Silver Valley.</td>
</tr>
</tbody>
</table>

1.6.3 Silver Economy strategy in the making - Sweden

The Swedish government has initiated several investigations to explore opportunities and challenges in relation to an ageing population. Many of these investigations aim to review the possibilities and potential effects of a changed retirement system and the need for a well-functioning health care system and welfare technology in the future. A Swedish equivalent of the term “silver economy” is not specifically used but there is clear reference to the ageing demographic and its economic potential to Sweden in policy making. Some of the specific investigations initiated by the government targeting different areas in relation to an ageing population are presented below.

In 2011, the government decided to appoint a special investigator with the mandate to review the pension-related age limits and opportunities for people to work longer. Part of the investigation is presented in a report from 2012 titled “Longer life, longer working life.
Prerequisites and barriers for older people to work longer. Currently, the government is discussing the official lower age of retirement and it will probably be changed from 61 to 62 before the next governmental election in 2018. The enhanced tax credit for people over 65, introduced in 2007, is an example of an incentive that will encourage people to work longer.

In 2013, SP, the Technical Research Institute of Sweden, presented the national research agenda titled “An ageing population”, in which the three priority areas housing, nutrition and health are identified. The agenda was partly funded by Vinnova, Sweden’s innovation agency, and involved around 30 public and private organisations. The vision of the agenda is “For society and business, new approaches and constellations are needed to build sustainable, reliable and efficient systems and social structures, where aging people’s health and well-being in different situations, both social and medical, are in focus”. An increased well-being among the ageing population requires focus on many aspects such as prevention activities, comprehensive solutions based on the individual and putting the individual in focus in regards to their quality of life, autonomy, safety and security. The agenda summarise all these aspects and highlights welfare technology as a tool to take preventive actions and accomplish individual solutions.

The agenda was further developed by SP in collaboration with several Swedish top universities and university hospitals including the Ingvar Kamprad Design Centre at Lund University. The revised version of the agenda was published in September 2014 titled “Age 3.0 – Addressing the challenges coming with an Ageing Population” and include a fourth priority area, which is mobility. The term silver economy in relation to business opportunities is mentioned in the epilogue of the agenda: “The Swedish society needs to address the demographic change in innovative ways in order to turn it into opportunities. The so-called silver economy entails as much new business opportunities as safeguarding welfare as we know it. This strategic agenda aims to shape an age-friendly and sustainable society, with focus on individuals”.

In the agenda, it is stated that integrating groups of seniors with other groups of society, when new and innovative steps are taken, will be of high importance in the development process. Activities of importance mentioned are:

- Innovation infrastructure - providing access to different subsets of a population who can actively participate in test and validation as well as turning senior citizens into subjects (from being objects) in the innovation process;
- Arena promoting innovation management - need of organising multidisciplinary meetings;
- Think Tanks - in the form of workshops and getting together events where today and future are discussed among and between different generations and disciplines;
- Portfolio of programs/projects - the arena and the think tanks will facilitate the process of managing successful projects. The projects may be sorted in a set of programs to address different challenges or deal with different areas.

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17 Längre liv, längre arbetsliv (SOU 2012:28).
18 En åldrande befolkning - Slutrapportering av nationell strategisk forskningsagenda. SP Rapport: 2013:34.
The ambition was to establish a strategic innovation programme based on a holistic agenda in 2015. However, later it was suggested that the programme should be focussed on individual applications (nutrition, housing, security etc.) to satisfy national funding agency priorities, despite the challenges for business to exploit opportunities from separate initiatives.

Another government official investigation is titled “Homes to keep living in”, and aimed to review how to meet the need for age related homes adjusted to the need of the elderly, what the obstacles are and how the municipalities can meet the specific needs. The proposed actions focused on making it easier for older people to acquire adequate housing and to improve the local capacity to meet the specific needs of a growing ageing population. Both public and private landlords around the country, for example Stockholm Housing Agency, offer housing exclusively available for people older than 55, some also offer safe housing for people who are older than 75.

A result of another government commission is The senior guide which aims to give guidance, inspiration and knowledge on how municipalities and counties in collaboration with the non-profit sector can work to create the possibilities for an active and healthy ageing. The guide was launched in 2015 by the Public Health Agency of Sweden (accountable to the Ministry of Health and Social Affairs) as a continuation of a project initially commissioned to the Public Health Institute.

Forte has launched a call for programme grants within strategic areas 2016 (final date for applications was 31 May and final decisions will be made in November 2016). One of the five calls targets the strategic area "Aging population and health": The rationale behind this strategic area is that the demographics changes are creating “significant challenges and affect welfare policy and the design of the welfare system” but the strategy also recognises research and technology as opportunities to improve health. Important research areas identified by Forte include:

- Demographic research that can contribute to an increased understanding of how population composition changes;
- Research on welfare when the current workforce has to support more and more people live longer with chronic diseases;
- Research that can contribute to promoting older women and men's active and healthy aging. The area can include both the healthy aging and older peoples' active participation in society as well as elderly care and functional condition;
- Research on how elderly care should be designed so that the elderly in different phases of life, and with varying care needs can age while maintaining their independence and influence their everyday lives. The area may include new and effective efforts in elderly care, various housing and welfare technology.

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20 SOU 2015:85 Bostäder att bo kvar i.
21 https://bostad.stockholm.se/english/.
22 https://www.folkhalsomyndigheten.se/seniorguiden/.
Table 9 Deep dive into the Swedish Silver Economy strategy

| Background to the strategy | The agenda was implemented by Business Area Managers at SP who felt the need for a holistic approach towards securing a good life for the elderly. Vinnova launched a call for such national agendas and the focus was open. The background of the agenda consists of the previous work of the individuals involved, which during the project was developed together with internal and external partners. The previous work had been conducted within separate areas and no one had initiated the holistic approach. A conclusion of their previous work was the importance of proactive work instead of care or after care. And the flexibility of housing, for example planning to enable people to stay in their homes and how to adapt it when getting older. There are several examples of projects and initiatives that followed from the agenda but due to lack of a holistic approach among the funding agencies, the strategic innovation programme proposed is not (yet) implemented. On-going project examples are:  
- Fall prevention (in direct connection to the agenda);  
- Soft floors;  
- Food, nutrition, packaging and logistics (direct connection to the agenda);  
- “Rotationship” – private company focusing on expanding the experience and knowledge among health care staff to increase the holistic approach.  
The updated version of the agenda also aimed to form the basis EU-project applications. |
| Need or opportunity | The idea behind the policy initiative is to highlight the importance and need of a holistic approach to secure a good life of the elderly. The needs of older people that the policy initiative addresses encompass all aspects of life when planning for your retirement and life as an older person. |
| Barriers | The barriers and market failures that the policy initiative aims to help overcome include restricted/targeted funding, lack of flexible procurement. Previously, there has been no comprehensive approach to the issues that fall within the area. The focus has shifted to healthcare solutions rather than preventive measures. |
| Economic benefits | The types of economic benefits that exist include large business opportunities. For society as a whole, proactive work is seen as more beneficial. Flexible procurement regulations regarding coordinated services to the elderly for example would result in savings. Innovative solutions can be an outcome of cross-border/cross-function working. |
| Case for EU involvement | There would be a case for EU involvement if this is based on a holistic approach. The EU could help support by addressing different areas with the individual in focus in a cross-disciplinary function. |

1.7 Regional Silver Economy Strategies

1.7.1 A regional Silver Economy strategy - Spain

In Spain, policy and strategy for services related to senior people are the responsibility of the Secretary of State for Social Services and Equality, which is currently dependent on the Ministry of Health, Social Services and Equality. In practice, these are delegated to the Instituto de Mayores y Servicios Sociales (IMSERSO, Institute for the Elderly and Social Services). IMSERSO was created in 1978 and until 1997 focused on action targeting the elderly, disabled and asylum seekers, under a national remit. Since then it has been repeatedly streamlined and decentralised, with many of the competences being transferred or complemented by the different regional governments of the 17 Autonomous Communities in Spain. Currently, IMSERSO has different programmes focusing on the Promotion of Personal autonomy and care for people in situations of dependency, the Promotion of Active Ageing,

23 http://www.imserso.es/imserso_06/el_imserso/quienes_somos/index.htm
and the Programme of Innovation and Technical Support. These programmes mostly touch on issues of health and care, but also on improving mobility, the introduction of ICT solutions to extend independent living for old people, and in promoting internal tourism and economic activity of seniors\textsuperscript{24}. Imserso estimates that about 2.8 million people in Spain are in one way or another dependent of external help (needed in relation to ageing) in at least one aspect of their lives (Imserso, 2013).

In general, the different Regional Governments have also passed legislation through their autonomous Parliaments or Assemblies, setting the objectives and resources necessary to support the wellbeing and participation in society of their senior populations. Some of them, such as the Valencian\textsuperscript{25}, Basque\textsuperscript{26} and Andalusian\textsuperscript{27} Governments have also drafted strategies to promote active or healthy ageing. Most Regional Governments have a similar portfolio of programmes, which usually include\textsuperscript{28}:

- Tele-assistance;
- Support to mobility (including programmes of discounts in public transport and on-street car parks, and grants for the adaptation of private means of transportation);
- Grants to adapt housing, so that seniors can keep on living independently (this includes both refurbishing and specialised equipment or ICT solutions);
- Social tourism initiatives, that aim to maintain an active senior population while compensating for the seasonality of the tourism industry;
- Senior discount cards or schemes;
- Social centres, which can be public, private or a public-private partnership (usually in partnership with the philanthropic arm of banking foundations).

The availability of resources for these activities has been constrained due to the impact of the economic crisis, especially during 2009-2013. Some regional administrations partner with hospitals to leverage funds from ERDF, the European Innovation Partnership on Active and Healthy Ageing, and private foundations in order to maintain and enhance some of these initiatives, as well as to pilot new approaches that are more cost-effective to government (e.g. in the areas of tele-assistance and preventive diagnostics)\textsuperscript{29}.

Nationally, the main concerns in terms of demographic change in Spain seem to be the sustainability of the national pensions and health systems. The lack of resources has to some degree relegated other initiatives relating to social, economic participation, and addressing the digital divide to a secondary place. Local administrations, as well as private foundations (mostly related to banking and technology companies) have to some degree stepped in with a

\textsuperscript{24}http://www.imserso.es/imserso_06/el_imserso/informes_anuales/informe2015/index.htm
\textsuperscript{26}http://www.ogasun.ejgv.euskadi.eus/r51-catpub/es/k75aWebPublicacionesWar/k75aObtenerPublicacionDigitalServlet?R01HNoPortal=true&N_LIBR=051715&N_EDIC=0001&C_IDIOM=es&FORMATO=_.pdf
\textsuperscript{27}http://envejecimiento.csic.es/documentos/documentos/andalucia-libroblanco-01.pdf
\textsuperscript{29}http://ec.europa.eu/research/innovation-union/pdf/active-healthy-ageing/rs_catalogue.pdf
more modernised set of one-off activities or short programmes, focusing on these areas. In 2014, six autonomous communities with ageing and depopulation issues stressed the need for the central government to draft a national strategy on demographic change. This has to our knowledge not happened yet, although the issues are recognised in other policy domains. For example, the 2013–2020 Spanish Strategy for Science and Innovation mentions ‘health, demographic change and wellbeing’ as the first of the main societal challenges identified. The Spanish Research Council (CSIC) maintains an online portal on active ageing, with opinion articles and access to diverse policy intelligence tools (studies, statistical compilations and repository of social resources).

The Spanish State Council of Affairs for older people (Consejo Estatal de las Personas Mayores) aims to institutionalise cooperation and participation of elderly people, focusing on the definition, implementation and monitoring of care, social inclusion, and quality of life policies aimed at older people, as established within the competences of the Spanish Public Administration.

Examples of regional strategies include the following:

- The Basque Active Ageing Strategy 2015-2020 (Estrategia Vasca de Envejecimiento Activo 2015-2020) has been defined by the Department of Employment and Social Policies (Basque Government). The strategy is focused on adaptation to an ageing society (new governance model), anticipation and prevention for ageing better and friendly environments and participation in the construction of welfare society. The strategy is based on four basic principles: dignity, autonomy, participation and responsibility, and is divided into three areas, each with its overall objective that displays a series of "operational objectives" and a set of actions.

- A local Spanish government Health Plan 2013-2020 sets out the commitments of the Basque government in the area of Health & Care. It establishes directions for action for the entire health system over the coming years, to continue to provide users with a high-quality service and clinical safety and placing emphasis on three groups with specific needs: people with ill health, older individuals and children and young people, so that the system responds in the most suitable way to their different circumstances, requirements and priorities. One of the priority areas of this plan is:
healthy age. Active age is to be supported with interventions focused on maintaining individuals’ independence. Mechanisms are proposed for comprehensive patient assessment, interdisciplinary management, and ICT training, as well as encouraging volunteering and enabling people to remain in their own communities.

- Socio-sanitary Public-Private agreement in Extremadura – Spain, in Extremadura, the Socio-Sanitary concept remains associated with the provision of long-term or continuing care provided to people in a situation of dependency, chronic illness, or those who need both personal and health care at the same time. The Region of Extremadura decided to set up a system based on the definition of a coherent framework for social care model, in which the health and social sectors jointly assess the health and social needs of the citizens, and define the responsibilities and competences that every specific actor should assume. The program started in 2006 since its beginning a cost-effective analysis has been performed, showing that the public-private agreement reduced 75% the healthcare costs. This is basically because the regional healthcare system is very flexible providing discharge once the acute phase has passed. The benefits of the system included: providing a model of care that allocates resources and services according to three variables: degree of dependence, health burden and social support network; An economic cost tailored to the needs of care offered by the health system sustainability; Shared funding of social and health systems; Public-private tangible and synergistic collaboration; Optimized human resources and levels of care; The existence of a framework of social care that clearly defines the responsibilities of each level plan; Commitment and leadership of public action with the private care system in the joint definition of healthcare provision and; Areas of well-defined information to facilitate clear communication between the different levels of care.

- Estrategia envejecimiento activo Comunidad Valenciana, this Spanish regional ageing strategy aims to unify efforts to get citizens to age in an active and healthy, while seeking to provide health care and care necessary to improve the quality of life of older people.

- A local Spanish government initiative, Social Holidays for Elderly (organised by the Comunidad Valenciana) has as objective to offer seniors a holiday period in the area of Valancia. The initiative is intended as a social and cultural exchange with a program of activities designed for personal development and for the promotion of active aging. Another objective of the program is the maintenance and creation of employment in tourist areas during the low season.

1.7.2 A regional Silver Economy strategy - Flanders

The term “silver economy” (In Dutch: zilveren economie) is not widely used in the Flemish policy arena. It is only used in relation to EU policy and programmes. However, it is stated by the Flemish government that the economic importance of senior citizens is recognised, both as consumers of services and products and as productive members of society. In Flanders, policies are often made targeting specific groups of people, such as young people and senior citizens. As such, Flanders has a single integrated policy system in place for senior citizens (60+).

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37 Source: Flemish senior citizen policy plan 2010-2014 (Vlaams Ouderenbeleidsplan 2010 – 2014)
Flanders’ integrated and multi-sector strategic policy plans are outlined in the National senior citizen policy plans since 2004 (Nationaal ouderen beleids plan). The Flemish senior citizen policy plan for 2010-2014 outlines a comprehensive multidisciplinary plan for 2010-2014 divided into 8 themes, including diversity and discrimination, health sport and wellbeing, active and productive ageing, living and energy, mobility, accessibility and safety. The plan aims to contribute to the participation and development of all senior citizens, both individually and collectively. In the plans, ICT is mentioned as an instrument to improve housing for senior citizens (under the theme: living and energy’), and the economic importance of senior citizens is recognised as they can be productive members of the workforce (under the theme: active and productive ageing).

The significance of these plans seems to be growing due to the demographic changes. The plans for 2010-2014 aim to contribute to a warm society, resulting in a high degree of social protection, equal opportunities, an accessible, affordable, and high quality healthcare and services, and plenty of room for self-development of senior citizens.

Flanders’ Care38 1.0/2.0, is an initiative by the Flemish government that contributes to, amongst other, living and healthcare. This programme relates directly to the silver economy concept, as it aims to improve quality of healthcare by stimulating sustainable innovative entrepreneurship. Other examples of programmes are the creation of special housing,39 keeping employees of 50 years and older at work,40 and getting them to be more physically active.41

Part of the policies of the Flemish government require assistance and an active approach from provincial and local governments as well. Since the national senior citizen policy plan for 2010-2014, no new plan has been presented by the Flemish government. However, the Flemish senior citizen council, which plays an advisory role for the Flemish senior policy plans, has presented advice for the plans of 2015-2020.42 For example, advice is given on labour market policy for older workers, active cultural participation, and caregiving. Policy plans for 2015-2020 are expected to be released shortly seen as the concept plan has been made.

Table 7 Deep dive into Flanders Care

| Background to the strategy | Flanders’ Care was first implemented in 2010. It began as a measure to address what the government saw as a disparity between the products or procedures entrepreneurs wanted to introduce and what healthcare professionals in the sector actually wanted. As a result, the government started stimulating cross-pollination between the healthcare sector, entrepreneurs’ and their innovations. Furthermore, knowledge institutes and users were also encouraged to engage with the strategy and are viewed as important stakeholders. The basis of Flanders’ Care is the enabling of cross-pollination across these four groups as a platform for healthcare improvement. Early in 2014 (till 2019) it was decided that this initiative would continue as Flanders’ Care 2.0. In the Action Plan Flanders’ Care 2.0, there are now eight policy lines guiding what is needed for innovation in healthcare. Most importantly, Flanders Care now has a system of governance meaning its strategies are now addressed |

38 Source: http://www.flanderscare.be/nl/over-ons/missie
39 Source: http://www.meegroeiwonen.info
40 Source: http://www.dejuistestoel.be
41 Source: https://www.bloso.be/sportpromotie/campagnes/Pages/Sportelcampagne.aspx
42 Source: Advice 2016/3 on the design of the Flemish senior citizen policy plan 2015-2020 (Advies 2016/3 over het Ontwerp van het Vlaams ouderenbeleidsplan 2015-2020)
on a political level through civil servants. This means that the responsible ministers for the relevant domains meet, and the structure of civil servants has improved to accommodate Flanders’ Care. There is a steering committee with representatives of the highest political and executive level, where all important strategic decisions are made. The so-called ‘liaisons’ are responsible for linking the different policy domains. An advisory council advise the government and checks the policy actions. The council consists of 15 stakeholders and 3 representatives from the knowledge institutes. Furthermore, twice a year a large participatory platform is held with the above mentioned stakeholders.

The focus is on innovation in healthcare and the introduction of new innovations. They aim to (further) develop a number of subsidy channels, that mostly started during the previous government period. Examples are the ‘Demonstration projects’, the ‘Living labs for elderly care’ and many others, (Zorgproeftuinen). Flanders’ Care aims to cover the complete innovation cycle including implementation on the market afterwards; thus providing support every step of the way.

### Need or opportunity

The living labs are subsidised by the government. In it are testing panels comprised of senior citizens, who are asked to test new and innovative products. In this way, the entrepreneurs have an immediate availability of panels made up of their target consumers. There are two categories: 65+ and 80+. There are six different living labs that end in 2016 and 2017, but there are many follow-up initiatives already, among which there is interregional cooperation with the Netherlands.

### Barriers

Challenges cannot be solved with markets alone and integration is needed to prevent the fragmentation of initiatives that disappear out of the market again without ever being used to full potential.

Flanders care has overcome the main barriers (network failures), but at this point it is still very important to provide information on the strategy, as people are still not familiar with the existing initiatives and possibilities. At the moment, Flanders’ Care is working to renew their website in order to become more visible to all stakeholders and inform stakeholders about relevant initiatives that have already been launched.

### Enablers

**ICT** is the building block for secure and safe data sharing which is of great importance to this strategy.

### Economic benefits

The economic benefits of Flanders’ Care is that it helps avoid new initiatives of entrepreneurs from going bust as a result from launching innovations without assessing the demand side. In doing so, it creates an economic added value for companies.

This is a growing market especially in regards to ICT. E.g. for apps there are building blocks needed for sharing data, health data, and it should be safe and precise. On a federal level, there are also several projects for health apps which have a market value of several millions of Euros.

### Case for EU involvement

Although subsidies do help, EU involvement would probably be most effective through the engagement of more stakeholders as there are subsidies for similar projects such as AAL that already exist. Furthermore, upscaling in an EU wide policy is already in part being done e.g. EIP Active and Healthy Ageing is based on the stakeholders-model of Flanders’ Care.

There are however, barriers facing EU involvement. In Flanders it has been quite difficult to get all relevant stakeholders together, suggesting that this will not be easy at the European level. Especially because of the differences between eastern and western European countries, for example regarding life expectancy or quality indicators. On a European level, healthcare is not the responsibility of the EC, but it is essential that it is assessed. For example, patient data could be exchangeable across border and, to some extent. European directives have been implemented to integrate health care systems. This is an important breakthrough for upscaling, because of data sharing. Directives have also been implemented around international patient mobility, with the important condition that the patient is well informed. Furthermore, there are large differences in eg life expectancy across (eastern and western) Member States. A lot of projects are not just about extending life expectancy, but creating a better quality of life. The introduction of innovation often relates to high tech, but there is also room for improvement in well-being and health (although this relates more to health policy).

### A regional Silver Economy strategy - Germany

The German federal government has published separate strategies for addressing demographic changes and for increasing innovation, see Figure 8. At the federal level, innovation does not specifically look at how to stimulate the development of innovations for
older people although there are some initiatives that are worth mentioning. At the state level, policies exist that are relevant to the Silver Economy. Details on the national strategy document as well as policies of two states are presented below.

*Figure 8 Integration of Silver Economy in Germany at the state level*

The Federal German government has introduced the ‘Every Age Counts’ initiative to combat demographic changes through the strengthening of their social security systems. The strategy targets different aspects of the demographic change in Germany, including supporting families, independent living of senior citizens and measures for a working environment which is conducive to older employees. While there is no specific mention of economic opportunities, it is clear that there is an economic effect from keeping senior citizens in the workforce for longer. The main aims of the initiative include: promoting activity and the ability to live independently in old age; establishing the model of a caring society; enabling older people to remain a part of society and activating all generations’ potential for involvement; supporting healthy ageing and; ensuring high-quality, targeted care. As part of this scheme the Federal German Government will focus on the promotion of healthy and productive workplaces, with a focus on occupational health and safety. The partners in the Joint German Health and Safety Initiative, the federal and state governments and accident insurance funds, will improve occupational health and safety for employers and staff. In particular, the protection of health through the prevention and monitoring of work-related mental disorders will be addressed. The system will monitor health and productivity and plan objectives for the next five years to address any issues surrounding health and safety in the workplace. The initiative involves working with the 60+ to improve assisted workplaces. Projects which develop ICT solutions to achieve this are supported under this strategy.

The current (Federal) German innovation strategy is called “The new high-tech strategy – innovations for Germany”, and explicitly focuses on ICT for economic growth. It also mentions the demographic change; however, the focus is more on how it needs to be taken into account to ensure innovations – rather than what economic opportunities it presents. Under the umbrella of this strategy exists a research programme on optimising the interaction between humans and technology. The federal ministry is supporting the further development of human technology interaction with this programme, including innovative

solutions for assistance, such as smart homes, intelligent mobility and assisted care. There also is a focus on digital society, which is about technologies related to increasing integration and the ongoing trend of digitization that bring fundamental changes in all areas of life. The German government commissions reports on the situation of senior citizens in Germany in every legislative period. While this is a report rather than a strategy document, it represents a basis for the development of further strategy documents. The latest available report from 2010 states that the industrial perception of needs of senior citizens does not fully correspond to their actual needs. In consequence, there may be an untapped potential in this market, as products and services could be targeted better.

The 16 German states have a certain level of sovereignty, which includes matters of economic affairs and research, thus they may also have relevance to economic opportunities related to senior citizens. Two examples are the states of Baden-Württemberg and Rheinland-Pfalz, which both have put in place specific policies on senior citizens that explicitly include remarks on the economic opportunities which, senior citizens can represent. The two policy initiatives (Compass on policies for senior citizens in Baden-Württemberg and the Action plan of the state government regarding policy for senior citizens in Rheinland-Pfalz) have an exclusive focus on the 50+ population.

- Compass on policies for senior citizens in Baden-Württemberg – Germany, this policy document describes the overall policy of the state government of Baden-Württemberg regarding senior citizens. It identifies 6 priority areas: perception of old age, independent living, mobility, societal engagement, health, finances and security. In the last area, it specifically mentions senior citizens as consumers, and the opportunities that arise from this consumer group for companies.
  - Initiative Smart Home & Living Baden-Württemberg: In order to make better use of the potentials in the area of smart home & living, the initiative Smart Home & Living BW was founded in May 2014. The initiative’s aim is to create an innovation network into which all relevant actors are to be integrated. The initiative wants to enable companies in the federal state of Baden-Wuerttemberg to exploit the vast market potential, the economic chances and the developments in the area of smart home & living. The main areas are: identifying and connecting the key players in Baden-Wuerttemberg; collaboration and partnerships with regional initiatives and measures; demonstrating the possibilities of new technologies on the demand side; reducing market barriers and market entry barriers on the supply side; Developing and testing new business models; informing potential consumers and; networking with European and global partners.

- The Action plan of the state government Rheinland-Pfalz, Germany outlining policy for senior citizens aims to ensure that senior citizens live well. It is focused on 5 priority areas: independent living, mobility and health, security and quality of life, participation in society and intergenerational solidarity. The area ‘security and quality of life’ includes topic of senior citizens as consumers. This includes the opportunities for the local economy in terms of ICT in care and tourism.

44 http://www.bmfsfj.de/BMFSFJ/aeltere-menschen.did=164568.html
Amendments to the state building code of Baden-Württemberg, Germany were made to increase the number of flats available that are barrier-free. In houses which include more than two flats, the flats on the first floor and above need to be barrier-free. Via this change in regulation the regional government hopes to create more accessible housing which could benefit some of the less independent senior citizens in the region.

**Table 10 Deep dive into the German regional policy compass regarding senior citizens**

| Background to the strategy | After the 2011 state election, a coalition government for the state of Baden-Württemberg was formed between the green party and the social democratic party. The coalition agreement between the two parties included the aim to see ageing as an opportunity rather than as a burden, and to explore how the state as a whole could profit from this opportunity. Subsequently, a new department for senior citizens policy was formed at the Ministry of Social Affairs and Integration. This department was then given the assignment to develop a report, called policy compass, which expresses this change in perspective of seeing the potential rather than the deficits of a growing older population and describes specific actions to achieve this change. A novelty about the process of developing this report was the explicit inclusion of citizens’ opinions and concerns on the topic. To achieve this, four interactive sessions in different parts of the state were run which included experts and senior citizens. The input from these sessions was then included into the policy compass. The policy compass covers the following priority areas:  
- perception of old age  
- independent living  
- mobility  
- societal engagement  
- health  
- finances and security |
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<tr>
<td>Need or opportunity</td>
<td>The state government felt that a change in perception was needed towards seeing the demographic change as an opportunity rather than an issue, including seeing older people as an important consumer group. As many older people have a significant disposable income, this presents an important opportunity to tap into this market. In relation to this, there have been complaints from older people that products which are on offer are not functional for them. Therefore the market is currently not serving their needs.</td>
</tr>
<tr>
<td>Barriers</td>
<td>While solutions for suitable products and services for older people might be investigated in research projects, there is still a gap for bringing those solutions into practice. For AAL specifically, a further barrier identified is the lack of the knowledge of technicians (for example electricians) and architects about technologies, to respond to requests from informed customers and to suggest such solutions to customers who might benefit from them. In some cases, there is a general hesitance to use technical solutions which can come from older people themselves, or from others such as healthcare personnel.</td>
</tr>
<tr>
<td>Enablers</td>
<td>The policy compass covers a variety of aspects, and there are several topics for which ICT is an important factor. These include AAL, smart homes, home care solutions and online public transport information. An additional important enabling factor for this policy compass and its initiatives is the cooperation between different ministries. While the Ministry of Social Affairs and Integration was the leading ministry, other ministries are involved both in the strategy as well as specific initiatives. The Ministry of Economic Affairs strengthens the reach of the compass into industry, while the Ministry of Transport is involved especially in topics on mobility solutions for older people.</td>
</tr>
<tr>
<td>Economic benefits</td>
<td>Products and services for older people are a worldwide market, and Baden-Württemberg as a strong innovation region wants to take as much advantage of this market as it can by providing innovation and suitable products and services for older people.</td>
</tr>
<tr>
<td>Future direction</td>
<td>In terms of additional innovations, there is research funding by the state government being made available, such as through the innovation programme ‘technology and care’. In order to increase the acceptance, especially of technical solutions, the aim is to get older people in touch with ICT while they are still fit. Then they may have less inhibition to use ICT solutions when they need them later.</td>
</tr>
</tbody>
</table>
Staff from the department for policy regarding senior citizens has already been involved in the EU project CluStrat, which they found very helpful to connect with other European regions to drive this need forward. The EU could support the promotion of solutions for older people, as only if knowledge is spread can there be a market demand. This market demand will then in turn motivate businesses to provide more innovative products and services for older people. In addition, the fact that the EU is stressing the importance of the topic, in addition to the regional government, would give more weight to the regional initiatives. Another important point would be to provide funds not just for developing innovation for older people, but then also successfully bringing them to the market, and the EU could help in bridging this gap.

### 1.8 Inter-related Silver Economy Strategies

A range of policy initiatives are multidisciplinary in nature. These polices purposefully aim to connect or target different sectors. We have identified a set of policies that explicitly target older people; ICT plays a role in each of these policies.

- **The Dutch Transition Agenda living longer independently (Transitieagenda langer zelfstandig wonen)** is intended to encompass existing projects and trigger new projects. The agenda is organised at the local/municipal level. The main goal is to stimulate living longer independently by helping to develop new ways of thinking for actors such as civilians, local governments, housing associations, healthcare and entrepreneurs. The focus is on improved regional cooperation by organising local meetings, installing a motivating team, and spreading knowledge. Concretely, the agenda consists of offering various services: e.g. to adapt the home to the needs of older people, reaching out/catering for groceries, and social integration of older people. Also new homes are being built for the older people and the use of ICT/domotica to improve the independent living is being stimulated by the Dutch ministry. The build of various ‘houses of the future’ are being supported by the government.

- **The Portuguese National Action Plan for Inclusion (Plano nacional para a inclusão, PNAI)** is a building block for a European level social strategy. Its value comes from its ability to be a national instrument for the consolidation of Portuguese reinforcement of national cohesion policies. The National Plan not only meets the objectives of cohesion and social justice, but also enables the expression of such objectives through partnerships with other instruments such as the National Employment Plan and the Integrated Support Programme for Innovation. The Programme of Integrated Support for Elderly (Programa de apoio integrado ao idoso, PAII) was created by the Joint Order of July 1, 1994 of the Ministers of Health and Employment and Social Security under the action plan. This programme is characterized by a set of innovative measures that will contribute to improving the quality of life of older people, primarily at home and in their usual way of life. The programme is developed via projects at central and local level and is aimed at the over 65s.

- **Inno+ - the innovatie Denmark** covers specific and significant societal challenges, in which there is a potential for Denmark to create innovative solutions in the short or

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medium term. The INNO+ Catalogue contains six main thematic areas (innovative health solutions, innovative transport, environment and urban development, innovative food production and bio-economy, innovative production, innovative digital solutions, and innovative energy solutions), subdivided into a total of 21 focus areas. The focus areas target fields where Denmark has particular industrial and research strengths and capabilities that can contribute not only to finding solutions that address important Danish and global societal challenges, but also to creating growth and employment in Denmark. The INNO+ Catalogue is the result of an extensive process through which a wide range of stakeholders from industry and interest organisations, knowledge institutions, ministries and research councils, etc. have been involved in identifying the essential and most promising areas for strategic investments in innovation in Denmark. The link between ageing is made for the sectors heath and food production (see also the section on Food & Nutrition).

- Denmark as global supplier of nutritious and health-promoting food products: Global demand for nutritious and health-promoting foods is increasing in step with increasing prosperity, increasing population and a changing demographic composition characterised by a greater proportion of elderly and a greater number of people living with lifestyle diseases. A partnership is expected to develop nutritious and health-promoting foods that can prevent diseases. The aim is to strengthen exports to the growing global market, support healthy lifestyle and improve public health.

- Patient self-management of chronic disease: The demographic development, our lifestyle and longer life expectancy are expected to lead to an increased number of citizens with chronic diseases, particularly the elderly. There is a need to develop cost-effective solutions for treating people with a chronic disease - solutions that can also improve health and quality of life. The partnership is to create integrated telemedicine solutions that increase patient self-management, enhance the quality of treatment and contribute to reducing the number of days spent in hospital and outpatient treatment visits. New telemedicine solutions for people with a chronic disease can contribute to efficient resource utilisation in the healthcare sector and at the same time create new export opportunities and develop Denmark’s role as a test country for welfare technology.

- The Czech National Action Plan for Positive Ageing (NAP, 2013–2017) aims to contribute to the preparation for ageing in the Czech Republic (as part of the Government Resolution of the Czech Republic No. 108, dated 13 February 2013). The Action Plan builds on the experience of the previous National Programmes of the Preparation for Ageing, prepared from 2003 to 2012, set out to support the development of the society for people of all age groups, to overcome and change the present stereotype views of ageing and the old age, and to improve the position of seniors in the society. See also the deep dive presented in Table 12. The latest strategic document, (updated in 2014), is the National Action Plan for Positive Ageing for the Period 2013–2017. The strategy focuses on various topics related to the Silver Economy:
  - Ensuring and protecting human rights of the elderly;
  - Life-long learning;

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Employment of older workers and seniors;
Volunteering and intergenerational cooperation;
Higher-quality environment for seniors;
Healthy ageing;
Care for the elderly.

The Czech Ministry for Labour and Social Affairs is responsible for the implementation of the policy however, there is heavy involvement of other government departments which, is required as many of the policy measures outlined in the strategy spill over to domains of other ministries, such as Ministry of Education, Youth and Sports, Ministry of Health, Ministry of the Interior.

- The Polish Assumptions of Long-Term Senior Policy (2014-2020) is a framework document, which has been prepared as a system component of Government Programme for Social Participation of Senior Citizens for years 2012-2013. The policy and programme are aimed at senior citizens and inter-generational cooperation. The Realization of Programme was a base for creating a senior policy framework in Poland. The assumptions of the long-term policy define senior policy as all kind of actions during the whole life period including actions in the realm of professional and social activity as well as health, safe and self-reliance of senior citizens.49

There are several policies initiatives that do not explicitly target older people. It should be noted that some of these polices encompass broad policies that have supported programmes that explicitly target older people.

- The UK’s innovation agency (Technology Strategy Board, Innovate UK) acts as an umbrella for a number of silver economy and innovation related projects; ALIP (including DALLAS), the Catapult network, and the Intelligent Mobility Fund. Innovate UK is the trading name of the Technology Strategy Board (TSB), a business-led non-departmental public body established by Royal Charter and sponsored by the UK Department for Business, Innovation and Skills. The TSB have a strong business focus, driving growth by working with companies to de-risk, enable and support innovation, growth and job creation. In the past, the TSB has supported (e.g. via match funding) a range of large-scale projects related to the silver economy, e.g. ALIP, the Catapult network, and the Intelligent Mobility Fund which touch upon various economic sectors related to the silver economy. The original aim of the ALIP programme was to deliver projects that enable the development of assisted living technologies. Older people were to be assisted through the support and development of ICT based products and services, improving their independence and standard of living through the improvement and cost efficiency of areas such as health care and transportation. Although not all projects were explicitly engineered for older people, they present the possibility for wealth creation and economic growth led by industry and more efficient use of resources to address the requirements of an ageing population. For more details on the background and scalability of the ALIP see Table 11.

The impetus for use of technology around assisted living came from the health and social care agenda. Funding for telecare and social alarms came through the Preventative Technology Grant⁵⁰; a randomised control trial including telehealth was funded under the Whole System Demonstrator⁵¹; the Assisted Living Innovation Platform 2007 – 2015 and DALLAS (2012- 2015) were designed to address innovation, including new business models. Initiatives including 3millionlives was followed by Technology Enabled Care Services (TECS) which in turn has become subsumed in an overall digital health strategy led by NHS England e.g. Personalised Health and Care 2020.⁵²

- The Dutch Breakthrough Projects with ICT (Doorbraakprojecten met ICT) is an initiative launched by the Ministry of Economic Affairs. Government, industry and knowledge institutes collaborate and seek to realise breakthrough projects that increase the digitalisation of the Dutch economy and society. The goal is to enhance the competitiveness of Dutch business and to increase the application of ICT innovation in healthcare, education, energy, SMEs, and the Top Sectors (priority sectors in Dutch industrial policy). No all breakthrough projects are directly focused on the 50+ but, for example, the project Care & ICT⁵³ does. This project aims to improve the relation between older people living at home and care providers via an online platform.

- The Danish Council for Technology and Innovation (DCTI) was abolished in 2014 and many of their activities transferred to the Innovation Fund. The council’s work consisted of two parts. One was to advice the Minister of Science, Technology and Innovation about technology and innovation policy. The other was to administer the initiatives given to the council by the Minister. The objectives of the council were to promote the collaboration and dissemination of knowledge, innovation, development, diffusion, the flow and development of knowledge and technology based enterprises, innovation and input of capital and expertise for knowledge and technology based enterprises, international collaboration on the utilization of knowledge and technology⁵⁴. In 2006, the council published a strategy report⁵⁵ that intended to establish a basis for implementing research activities that actively address the challenges and opportunities of an ageing society. In the years 2010-2014, 12 innovation projects were launched under the umbrella of the DCTI that involved participation (and co-funding) of 40 businesses, 15 HEIs and several government institutions⁵⁶. There were three large projects: meeting places for elderly; preventative self-monitoring (i.e. "develop new commercial solutions..."); 'Add-ons to medicine cards' (support for elderly to take their medicine). The project is funded through by a grant from the Danish Agency for Science Technology and Innovation and requires co-funding from participants.
Background to the strategy

The Assisted Living Innovation Platform ran from 2007-2015. The original aim of the initiative was to make assisted living technology, essentially, telehealth and telecare, cheaper and better. The initiative came about following the Department of Health (DH) White Paper “Our Health, Our Care, Our Say.” It was positioned to complement the DH randomized control trial Whole System Demonstrator, and the Preventative Technology Grant. It also built on the collaborative research programmes of the then Department of Trade and Industry (DTI). It was originally envisaged as a £50M programme but the final joint expenditure, including inputs from other Government Departments e.g. Scottish Government and industry, took that to around £100M. It worked well in bringing together a number of players with one common goal in mind. Interested parties came from different Government Departments (principally DH and the then DTI), some of the devolved administrations (particularly Scotland), and some government agencies e.g. the Research Councils, industry, academia and the third sector e.g. Age UK, CarersUK. In addition to the usual projects of collaborative R&D (CR&D) ALIP also worked in standards, in complex social science research around business models, and launched a 100% funded large scale demonstrator programme – “Dallas” – Delivering Assisted Living Lifestyles at Scale. The CR&D projects were largely successful, reflecting the UK’s expertise particularly among SME participants. The social science projects were worthwhile but struggled to apply learning into the real world, despite having business expertise built in. It is too early to establish the overall outcomes of the Dallas programme, but it set out some significant milestones in some specific areas e.g. identity management. It may well have tried to address too many issues some of which were contradictory. The overall impact of the whole ALIP initiative was lessened by the changes in Department of Health from 2010.

Need or opportunity

The idea behind the initiative was that better use of technology could support people, particularly older adults with long term conditions to live independently in their own homes. The push factor was the ageing population and demands on health and care. The pull was improvements to technology and user experience of technology.

The original UK market sector was telecare and telehealth valued in 2006/7 – 2012 at around £100M and growing slowly. The actual target market definition changed during the Dallas programme and is now a wider digital health and wellbeing market. Current value is unknown but should be described by the Dallas evaluation when it is published.

Barriers

The market failures include: antiquated analogue telecare/social alarms devices, lack of scalability and economies of scale, absence of interoperability, both semantic and technical, limited use of standards, declining public sector budgets. Market fragmentation is significant. In the UK industry has to sell to around 350 different local authorities in England, numerous NHS health bodies (e.g. over 200 Clinical Commissioning Groups – CCGs in England, plus bodies in Scotland, Wales and Northern Ireland, and/or thousands of autonomous GP practices.

Economic benefits

The economic benefits are anticipated to be threefold. Wealth creation from industrial innovation, improved health and care for the individual, and better use of resources for the health and care system. Cost savings are not anticipated as the number of older adults with long term conditions grows.

The evaluation of the Dallas programme (outlining some of the economic benefits) is underway, although early reports from the Mi Liverpool Dallas group suggest a reduction on hospital admissions of 20% by their telehealth participants n=2,000.

As the scope of the ALIP programme changed and expanded wealth creation will be difficult to measure, as it was not benchmarked at the programme commenced and would need to be retrospectively estimated. Anecdotal evidence suggests some companies benefited significantly e.g. Docobo Ltd (SME) recorded their 1,000th sales of devices developed under the programme during 2015. Changes to the health and care system mean comparative data pre 2010 is no longer available.

Future direction

The ALIP and Dallas work is now part of the Health and Life Sciences group at InnovateUK. The Long Term Care Revolution is funding two projects with a budget of around £2M. Dallas continuity is also being

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57 http://www.kingsfund.org.uk/sites/files/kf/media/Kings%20Fund%20Dallas%20Lessons%20Final.pdf
58 http://www.moreindependent.co.uk/
59 Oral presentation on Dallas at TSA Conference 17 November 2015
60 https://connect.innovateuk.org/web/the-long-term-care-revolution/about-us
addressed by dhaca – the Digital Health and Care Alliance\(^6\) which is doing significant work in mobile health apps.

**Case for EU involvement**

The EU has committed significant funds to R&D and money from social/structural budgets in the space but to address the whole picture including e.g. standards and regulation in addition to significant and comparable further R&D etc. commitment would probably require a budget of Euro1B. A number of different DGs would need to be brought together to agree a joint programme of action.

Existing EU level R&D and social/structural funds deployments will have had these aims. The question is whether or not further investment and a wider brief would bring more radical change and a greater boost to the wider European economy.

The UK initiative arguably did not achieve its full potential because of the fragmented market, including the absence of joined up health and social care. Europe as a whole has even more disparate health and care systems and services. Achieving scalability would be an enormous challenge, bearing in mind that this is not looking to establish a new market where there is nothing at present in existence (e.g. mobile communications, broadband, the internet), but redefining an existing service whilst displacing it, within a constrained budget, without a working business model. A useful comparator would be the introduction of telehealth into the Veterans Association in the USA\(^6\) where there appears to be a much clearer business model.

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| Table 5 Deep dive into Inno+ Catalogue (and Research2025). |

| Background to the strategy | INNO+ was developed using a bottom up approach, information was taken from proposals submitted by stakeholders and used to create the strategy. A lot of proposals were received, and it was recommended that European developments should also be taken into account. It has been suggested that as an indirect result the concept of the ‘Silver Economy’ may have had an influence on INNO+’s development. However, it is not obvious whether or not it has played a central role. The INNO+ catalogue is similar to the ‘Research Catalogues’. There is a long tradition of these catalogues addressing societal issues faced in Denmark, including issues which relate to the Silver Economy and older adults. This commitment goes as far back as 2008 and the Research2015 Catalogue. These challenges include a human perspective (increasing wellbeing) and an economic perspective: retaining older people in the labour market, keep them healthy and out of the hospitals. Examples of reference to the Silver Economy in Danish Research Catalogues include a focus on helping older people manage staying in their own homes. A new Research2025 catalogue is expected to be published in April 2017. |
| Need or opportunity | Traditionally, Denmark have been strong in addressing challenging societal areas, with this experience and the potential market opportunities arising from facing these issues, the catalogues could open up potentially lucrative markets. Specific examples include IT solutions for ‘self-help for chronically ill’, and allowing people to stay in their own home instead of going to hospital, and nutritious food (as identified in INNO+). A regional specific example is South Denmark’s implementation of a project called ‘Patient at home’, which allows people to stay at home and therefore reduces pressures on hospitals. Politically, the aim is for the opportunities covered in the INNO+ catalogue to reach the market in 3-5 years. However, this is perhaps an ambitious target. |
| Barriers | There are several potential barriers to adopting new solutions:  
- Public demand for innovative solutions can be insufficient in areas where services are delivered primarily by public providers.  
- Regulation: For example, the adoption of ‘tele-medicine’ was complicated by the agreement between GPs and government which primarily allows GPs to claim fees for in-person consultations.  
Other challenges include the incorporation of public sector organisations in the development of new products and services, otherwise the solutions will not be adopted. For example, by allowing nurses to spend time participating in R&I projects. ‘Societal partnerships’ funded by Innovation Fund Denmark are not only university-business collaboration but include public sector organisations as well. |

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\(^6\) Dhaca.org.uk

\(^6\) [http://www.telehealth.va.gov/](http://www.telehealth.va.gov/)
| **Enablers** | In the health area, a basic research centre has been funded and much of the EU funding for research and innovation is focused on ICT. |
Health & care is a broad sector and encompasses a wide range of application and users relevant to the Silver Economy. Many EU member states are in the process of adopting or refining strategies that promote the Health & Care of older adults through initiatives that are applicable to the Silver Economy. Overall, the strategies aim to both reduce the costs of health care systems and to improve the health, independence and individual wellbeing of older adults. In regards to policymaking, these aims can often be characterised into subcategories healthy ageing, e-health and telecare. A number of these initiatives are outlined below:

- Our Health, Our Care, Our Say: a new direction for community services – UK, in January 2006 the Department of Health published Our Health, Our Care, Our Say: a new direction for community services. It was the seventh UK White Paper on health since 1997 and it charted a ‘fundamental shift’ in the composition of health reforms. Previously reforms had been aimed at the hospital sector, this white paper looked towards integrated solutions provided in local communities instead. The paper hopes to reduce health spending over the long term through preventive measures and new technologies promoting sustainable care as a hospital alternative. Eighty million pounds was allocated to local authorities between April 2006 and April 2008 for the purpose of setting up telecare innovations to support people to live independently in their own homes and reduce avoidable admissions to residential care (DH 2005). There was a keen focus on the ageing population and keeping individuals healthy as they age. The Partnerships for Older People Projects (POPPs) for example, was set up to provide evidence of how preventive measures can be successful in maintaining older adults’ health efficiently and cost effectively. This emphasis on enabling people to live well at home has been a constant in government policy, continuing in the White Paper ‘Building the National Care Service’ (DH, 2010), which promotes use of new technologies in

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housing and social care policy to give people the confidence that they are safe to stay in their own homes whatever their age or ability.

- 3millionlives – UK, is a national UK initiative developed in 2012 by the Department of Health in response to the estimated three million people who live with long-term health conditions and/or social care needs who the government believes could benefit from the use of telehealth and telecare services. It was implemented as part of a wider pattern of national reform aimed at making the NHS more responsive, efficient and accountable in its care giving. Initiatives such as 3millionlives are aimed at challenging unsustainable health and social costs in part by the increased integration of health and social services. 3millionlives was wound up in 2014 and replaced by Technology Enabled Care Services (TECS) that was subsequently subsumed into NHS England digital health strategy.

- The National programme care for the elderly (Nationaal Programma Ouderenzorg) – the Netherlands, is a large programme that helps to support and care for the vulnerable elderly. The programme, which falls under the Ministry of health, welfare and sport, is executed by ZonMw (a public agency that manages research programmes) and runs from 2008 to 2016. The quality of healthcare is improved through this initiative by innovative projects, regional collaboration, and keeping the elderly themselves involved. 83 projects and networks were financed with 80 million Euros between 2008-2013, and in 2014-2016, 9 million Euros is available for further elaboration.

- The National Centre for the Prevention and Management of Diseases (Centro nazionale per la prevenzione e il Controllo delle Malattie – CCM) – Italy, was established in 2004 by the Italian Ministry of Health with the main objective of active prevention through the promotion of healthy lifestyles. Through a relationship between the Ministry of Health and regional governments the National Centre facilitates the dissemination of health information and practices. On the issue of ageing and related sectors, 5 projects have been financed for a total of approximately 2 million Euros and are currently underway. These projects are: 1. Priority criteria for the care of elderly people affected by disabilities and multi-diseases. Implementation of the MAPLE system in Italy; 2. Optimization of the complete process of patient management on the territory: paradigms of taking charge and managing multi-disease through a platform of Integrated Care; 3. A paradigm of social and healthcare for the underprivileged population; 4. Experimentation of assistance paradigms for the prevention of complications of Alzheimer’s disease on the basis of the wider-ranging chronic care model put into place by ASP in Catanzaro; 5. Implementation in all Italian Regions of a monitoring system on the state of health of the elderly population, in particular those with disabilities, and on the quality of assistance and social and healthcare interventions put into place systems for the integration of medical care for chronically ill patients.

- National Health Plan (NHP) (2011-2016) – Portugal, the NHP is the health planning instrument and resource used to create the strategic guidelines for health gains in Portugal. The NHP aims to provide the framework necessary to create a strategic guideline that will maximise the achievement of the Portuguese health & care sector through sustainable, continuous and assessable means. One of the current challenges to the health & care sector is the transitioning demographic of Europe and therefore the goals and objectives of the sector are being recast in line with an ageing population. These goals include strengthening the ability of all health stakeholders; creating a collective
vision towards the development of the Health System and; promoting knowledge innovation and management, whilst gradually upgrading the Health System.66

- Health 2020 - National Strategy for Health Protection and Promotion and Disease Prevention – Czech Republic, the main objective of this strategy is to improve the health of the Czech population and reduce incidences of preventable diseases and premature deaths. Its main vision is to further develop the public health system, stabilize the system of disease prevention, health protection and promotion, and to kick-start efficient mechanisms to improve public health that will be sustainable in the long term. It would be impossible to accomplish the main objectives and priorities of the National Strategy without involvement of all components of public administration and the whole society, with specific emphasis on participation of communities and individuals. One of the key priority areas of the strategy is to address the demographic transformations of the Czech Republic. The strategy stresses that the increasingly aged population requires a new approach, one which promotes health through preventative measures. There is a critical acknowledgement that age specific focused strategies, are valuable for both the economy and society. The strategy hopes to provide appropriate funding to maintain health promotion and prevention programmes, including vaccination, to promote healthy ageing because early detection and treatment of diseases will allow health gains and independent living in older individuals.67

- The Estonian e-Health Strategy is based on principle that implementing ICT solutions in the health sector is a prerequisite for achieving Estonia’s health sector goals. The main focus areas of the strategy are setting the principles of gathering and handling health data, providing health services, further developing the health system. Estonia’s E-Health Strategy is an underlying document of ICT and health developments in the country and the strategy includes a call to focus on the needs and services of the elderly and frail as well as the needs of relatives68.

- The Croatian Ministry of Health for Health Care of the Elderly is involved with higher education institutes in the field of gerontology in the implementation of gerontology related activities.69 The types of activities include: studies on the future health needs and functional disabilities of the elderly, professional and methodological support, support for the implementation of individual Programmes of health measures and procedures in health protection of the elderly. This policy has a number of programme attached70.

The health & care sector is of a large scope and many Silver Economy related policies already exist in this sector. The importance of independent living, for example, has become widely recognised as a key means to reduce the burden and pressures on public health systems and this is reflected in EU member states’ policymaking. Through the implementation of support systems that allow cost saving in the healthcare system automated processes can be set up which ease the pressures on facilities and costs. An example of such products are those driven

66 http://1nj5ms2ll15hdgbg63mm7m55.wpengine.netdna-cdn.com/files/2013/12/vresumo-eng.pdf
69 http://www.stampar.hr/hr/centar-za-zdravstvenu-gerontologiju-referentni-centar-ministarstva-zdravlja
70 http://www.stampar.hr/hr/centar-za-zdravstvenu-gerontologiju-referentni-centar-ministarstva-zdravlja
by smart technologies allowing them to assist independent living, which may reduce the need for hospital based care. The development and capitalisation of these new solutions are reflected in policies throughout member states, eg the UK, Ireland, Netherlands, Flanders, Italy, Portugal and the Czech Republic. For example, the UK’s 3millionlives aims to use health technology to improve health services at a minimal cost and thereby recognises the potential technological developments offer to the growth of the economy. Further barriers will need to be removed and more financial stimulus will need to support development in these priority areas.

Table 8 Deep dive into the Portuguese National Health Plan (NHP)

| Background to the strategy | The Portuguese National Health Plan (NHP) has four strategic axes that address all age ranges, these are:  
- Citizenship in health: participation of the citizen in decision making related to healthcare policies;  
- Equity and access to health services: Proper distribution of the resources, and adapted programmes to fit all needs;  
- Health quality: ensure good quality of services and uniformity among the country;  
- Health policies: the implementation of policies targeting the promoting of good practices and the prevention of diseases etc.  
In regards to specifically relating to aging, the NHP has two main objectives for 2020:  
- Reduce premature mortality (under 70 years old) below 20% of the total mortality  
- Improve healthy quality of life of people aged 65+. This is measured under the European Core health indicators framework. The objective is to improve this indicator by 30%.  
Furthermore, a specific programme under the NHP will specifically target the support of healthy aging 65+ (Programa de envelhecimento ativo). This programme is currently not running as it is under development within the Health Ministry. |
| Need or opportunity | The situation in Portugal, in terms of the quality of life of people aged 65+ is reported to be worse than most other European countries. However, mortality rates are ranked at an average European level. Consequently, the NHP is directing its efforts towards the improvement of elderly quality of life. Two main areas where the NHP focuses its resources to achieve healthy aging are: mental health and musculoskeletal diseases. The improvement of occupational health and social networks is key in order to improve elderly well-being and life quality. |
| Enablers | ICT plays an important role in the programme, however the online and technological literacy level of the Portuguese elderly population is relatively low, and acts as a barrier to implement new tools. In that sense, ICT is used in more traditional means (e.g. launching specific awareness actions via television, radio so elder to allow elder people to adopt healthier behaviours and use healthcare services more rationally). The Portuguese healthcare system is congested and its use must be limited to real needs. Most people over 75 call for healthcare services in unnecessary conditions, consequently, a web-portal has been created by the health ministry “mysns.com” to enable people to follow up their medical profile and to facilitate good decision making and to increase self-care.  
The Portuguese government focuses more on making existing tools and technology more user-friendly rather than introducing new “complex” technologies. |
| Economic benefits | The NHP does not seek to reach or measure economic benefits. The NHP seeks to reach societal benefits above all. However, an improved utilisation of the healthcare system will bring cost savings. |
1.10 Connectivity and social participation

In the EU, the 50+ spend €125b per year in relation to Telephone equipment, Telephone services, and Audio-visual, photographic and information processing equipment, 39% of the total population’s spend (COICOP 2015)

There are several policy initiatives that touch upon Connectivity and social participation, several of these are multidisciplinary in nature and therefore bridge different sectors e.g. Health & Care and Living & Building.

The sector Connectivity and social participation is closely related to developing ICT solutions, services and products. There appears to be a renewed awareness of older people’s rights and a focus on social inclusion to improve the living conditions of all citizens via ICT enhanced products and services.

1.11 Entertainment, Culture & Tourism

In the EU, the 50+ spend €434b per year in relation to recreational and cultural products and services, including eating out and accommodation services, 39% of the total population’s spend (COICOP 2015)

There are some Silver Economy policy initiatives that relate to the Entertainment, Culture & Tourism sector, some of these are multidisciplinary in nature and are presented in the previous sections. Seen the size of the sector and the demand for entertainment, culture, and tourism by the older adults, there is scope to better support the sector.

As an example, the Turkish national government is working on the development of an old-age care system with the aim to increase the number of older tourists travelling to tourist destinations. The government is setting up a programme of training for care-givers and a compulsory health care insurance system that is compatible with that in EU member states. The policy initiative is explicitly targeted at the 50+ population.

There have been broader studies, related to policy initiatives that look at the ‘experience economy’ (defined as creative industries and experience industries such as sport and leisure and tourism) which is seen as a growing, competitive and innovative sector. However, it

71 Regional government of Southern Denmark launched the Good Life initiative which is similar in scope. This strategy establishes coherence and development potentials so that Southern Denmark becomes a more attractive, active and productive region where the good life can be lived – as a citizen and a business owner both.
seems that policy in this area has no specific focus on the 50+ population. As an example, we refer to the Danish ‘Growth through Experiences’ initiative, launched in 2008, which admittedly only has an indirect connection to the Silver Economy.

Also, there are various local initiatives that include a focus on older people. For example, the Italian Territorial Assistance Technological System (SISTAST), in collaboration with Regione Puglia, is aimed at developing an “augmented reality environment” through a pilot study dedicated to elderly or disabled people, in order to meet their natural need to socialize, communicate, learn, travel and get in touch with new cultures, traditions and places. The system seeks to increase accessibility of the surrounding environment, by helping travellers with special needs either in relation to their specific disability or in relation to the chosen destination, services, and scheduled activities; from travelling options (flight, train, car) to moving around and local transport (pedestrian areas, facilities for the disabled), to attractions and other facilities (hotels, museums, etc.). The aim is to ensure that the chosen destination and its features are fully available when travelling alone, with family or in a group, for leisure, business, study, religious or medical reasons. SISTAST is also designed to give users travel and safety information (all emergency calls are automatically linked to local services). The man-machine interfaces, designed for maximum simplicity, are user-friendly, non-intrusive and with the lowest impact in normal conditions, thanks to the type of probes and sensors developed. Individual users or groups can also access the requested assistance by calling an operator on their smartphone.

1.12 Living & Building

In the EU, the 50+ spend €36b per year in relation to housing maintenance and repairs, 49% of the total population’s spend (COICOP 2015)

Member states across the EU have begun to embrace the potential that the living & building sector presents to the Silver Economy and their economies in general. Through the cultivation and propagation of smart technologies and funding initiatives are being implemented which allow older people to remain for longer happily and independently in their own homes or non-hospital environments. In doing so countries are hoping to improve the cost effectiveness of care, whilst supporting independent living which will subsequently reduce the pressure and costs of an aged population on national care services. A number of illustrative policy initiatives are presented below.

- The AUPE Project - Participation and Urban Built Environment Change for Healthy Ageing – Portugal, is driven by the national Government with funding from the Portuguese national funding agency for science research and technology (FCT). This initiative is concerned with the role of urban built environment (UBE) in influencing health, independence and well-being of older people and with citizen engagement processes involved in fostering age-friendly, equitable and sustainable neighbourhoods in Portuguese cities. It consists of several interdependent studies which include the development of a UBE observational assessment tool for older adults in Portuguese
neighbourhoods and the development of case studies of methods for older adult’s participation in urban planning.

- Nordic Independent Living Challenge Awards of the five Nordic capital cities Copenhagen, Helsinki, Oslo, Reykjavik and Stockholm launched the Nordic Independent Living Challenge innovation competition together with Nordic Innovation in February 2015. The aim was to help elderly and disabled citizens to live more independently in their own homes, to increase their quality of life, and to create business opportunities for Nordic innovators. 415 ideas were submitted to the competition, and these have now been whittled down to five finalists competing for the main prize of 1m Norwegian Krone (approximately €108k). Nordic Innovation is working with successful and unsuccessful candidates to develop solutions to be adopted in the five cities.

- Danish Smart home technology initiatives - following reports by the Technological Institute for the Agency for Social Affairs, the Danish government carried out a project to demonstrate examples of the initiatives from local authorities that enable the use of smart home technology (e.g. subsidies). This data was collected with the aim to use it to estimate the potential for a national Smart Home Technology Strategy. It was concluded that it is too early to evaluate the costs and benefits of the technologies and that more evidence is needed. Among barriers to wider implementation of smart home technologies are: subsidies (standard costing) for public housing should be adapted so as not to hinder smart home technologies; legislation on surveillance, data registration and the use of force should be adapted and clearer guidelines for use of technologies and; standardisation of technical standards in Europe to ensure mutual compatibility between technologies and support commercial development.

- Social security system – Portugal, the architecture of the Portuguese Social Security System is defined in the Social Security Basic Law (Law No 4/2007 of 16 January). According to this law, Social Security ensures social protection through three systems that correspond to different levels of social protection, differing not only in how they are funded but also on the social protection arrangements granted, which reflects the influences of various models of social protection. The public component of the social security system covers, among others, the social protection system of citizenship that ensures social protection of universal nature (non-contributory) and is realized through three subsystems: Subsystem of solidarity: that ensures the payment of social benefits aimed at combating poverty and social exclusion; Family protection subsystem: which aims to offset the increased costs associated with the family and extending to certain social risks in the field of disability and dependence Subsystem of social action that ensures support for the most vulnerable groups (children, youth, disabled and elderly people and in situations of economic or social need, dysfunction or social exclusion). Under the umbrella of the social security system, is a programme for the expansion of social facilities network which, since 2009, supports the development and consolidation of the network of social facilities. This programme includes a focus on strengthening of domiciliary support services and day centres, promoting the conditions of independence of the elderly; increasing the number of places in nursing homes.

72 http://www.seg-social.pt/programa-de-alargamento-da-rede-de-equipamentos-sociais-pares
associated with greater dependence situations; integration of people with disabilities by increasing network Residential responses and Occupational Activity Centres.

- The Social Housing Strategy of the Czech Republic (2015 – 2025) identifies the main issues facing social housing in the Czech Republic and subsequently the measures needed to achieve equal and sustainable housing for all and reduce government costs due to inefficiencies. The main objectives of the Strategy are: define social housing in legislation; create register of social housing support for villages and cities in the area of social housing; change in housing allowances and social allowances; change in definition of social housing standards; increasing and widening of investment and non-investment support of social housing; allocate financial resources from EU structural funds for building, destroying or renovating of social housing stock and; preparation of legislation for social housing cooperatives creation and management. A previous government resolution developed under the Ministry for Labour and Social Affairs developed a conception that sought to promote the development of information and communication technologies and services of assisted living for older people and people with disabilities²³.

The construction of smart homes and assistive technologies promise the potential for huge contributions to economic growth and the wellbeing of older people. However, there is a clear need for more policies and financing instruments which would encourage and enable an increase of age friendly homes and age-friendly living and building products and services. Smart Homes are coming of age, with emerging markets for both smart homes (new buildings, with high levels of intelligence and home automation designed in from the outset) and smart home technologies (new building management or communications systems added to new build or retrofitted in existing). The European housing stock at the moment is not ready to support economical independent living over the life course. Renovations and updates are at a very low level (less than 3%²⁴). The European economy could be enriched by policies that allow the retrofitting, planning and design of age-friendly, ICT-enriched homes. Smart innovation policies are needed to bring down cost of age friendly renovations.

Currently most initiatives seem to be investigating and researching the impact of age-friendly ICT enriched homes on the wellbeing of older adults, in a holistic perspective, at home, city and community levels, for example the Danish Smart Home Technology Report. Ideally more policies in the living & building sector need to support cross-sectoral innovation processes that align construction, ICT, health and socio-cultural benefits. In order to support strategies for the cost-efficient roll out of age-friendly smart housing solutions in various market segments across Europe. These solutions will enable products and services which can reduce health based costs and increase independence and older adults’ general capabilities.

The evolution of technologies centring around sensing, networking and communication has resulted in the emergence of smart environments which can be transposed into living and working environments to assist daily living, care and recreation. Through the provision of mechanical and digital services smart or adapted homes aim to enhance the quality of life within the home allowing residents to live more independently and comfortably. The above initiatives embody the potential for these technologies to be implemented into homes and provide ICT based solutions.

²⁴ Source: Renovate Europe (www.renovate-europe.eu)
1.13 Mobility & Transport

In the EU, the 50+ spend €401b per year in relation to purchase of vehicles, personal transport running costs, and non-personal transport services, 38% of the total population’s spend (COICOP 2015).

In the space of Mobility & transport, several policy initiatives do not exclusively focus on the needs of older people. The relevance of technologies to aid the mobility and independence of older people is clear. Through the creation of new transport technologies and structures new transportation technologies can meet the needs of older individuals whilst sustaining economic growth through the development of new products and services. Two example are presented below.

The Autonomous Vehicles initiative, led by the UK government was launched because of the recognition of the potential benefits of driverless and automated vehicle technologies, particularly the potential to improve road safety and reduce casualties. The summary report and action plan of the report recognises that older people (amongst other) may be judged unfit to drive\(^75\). In this respect, the initiative may contribute to eventually improving the mobility of older people and therefore their capacity. The UK government consequently seeks to support and facilitate the development and introduction of autonomous technologies and has conducted a detailed review of existing legislation to understand the regulatory situation with regards to the testing of these technologies and the viability and barriers for their introduction to the UK, the document containing this information is: The Pathway to Driverless Cars. It identifies a number of actions that the UK government will take to prepare for autonomous technology, including the publication of a Code of Practice to promote safety during the testing phase and a timetable for clarification as well as necessary changes to legislation to allow these technologies to come to market.\(^76\)

The Irish Green Way initiative was established to stimulate economic growth and employment in the green economy. The Green Way is a collaborative cluster, recognized by government as a convergence of knowledge, expertise and experience, which is stimulating transformational change for the Irish cleantech sector through deployment of best practice clean technology solutions. Living labs directed by. The Green Way represents a unique ‘deployment platform’ for global cleantech companies seeking to trial and commercialise their technologies on a municipal scale. By virtue of incorporating two of the largest local authorities in Ireland, an international airport campus, two major academic institutions and two significant residential communities in Swords and Ballymun, the Green Way can offer indigenous and multinational companies opportunities to deploy technologies ranging from LED street lighting to electric vehicles and from thermal storage technology to water

management. They aim to connect organisations that have developed clean technology products and solutions (in energy, waste, water) with growth opportunities.

There also exist initiatives related to Mobility & Transport that do have an exclusive focus on older people. One example is the (Irish) Age Friendly City programme, launched by Age friendly Ireland. This programme is organized under the umbrella of the WHO Global Network of Age-friendly Cities and Communities network. The aim of the programme is to create the kinds of communities in which older people live autonomous and valued lives and covers Outdoor Spaces and Buildings, Housing, Social Participation, Transportation, Respect and Social Inclusion, Civic Participation and Employment, Communication and Information, Community Support and Health Services (thus extending beyond Mobility & Transport). The social relevance of the initiative is presented more prominently than economic relevance.

1.14 Physical & Cognitive Abilities

Physical & cognitive abilities contain initiatives that support, train or enable physical, mental and social abilities, including sports and games. Although many member states have adopted Silver Economy related policies in recent years that help to improve an older persons physical and cognitive abilities, in general, many are often sustained through wider programmes that are relevant to other sectors, such as the health & care sector. Initiatives do however, tend to have strategies at the project level which focus explicitly on the physical or cognitive abilities of older adults. For example, the Italian CONN-AGE is part of the wider PRIN initiative and deals directly with cognitive abilities and the functionality of older adult's brains.

The CONN-AGE Project – Italy, CONN-AGE is a PRIN research project funded by the Italian Ministry of Education, University and Research (MIUR) in 2012 and is still in progress. The project aims to develop a database of dynamic and functional brain connectivity both in the healthy aging and in chronic/diffuse/progressive (i.e. Alzheimer) and acute/localized/non-progressive (i.e. stroke) diseases of the central nervous system. In order to reach this goal, several different technologies dealing with brain function will be integrated (i.e. fMRI, EEG, TMS-EEG) in order to define the relationships between the structural and dynamically time-varying linkages of neuronal assemblies in resting-state conditions as well as during task performances. By means of this knowledge not only prognostication for functional recovery will be implemented, but also innovative rehabilitation procedures both for sensorimotor and cognitive deficits will be developed. This project is coordinated by the Catholic University Faculty of Medicine in Rome, universities of Chieti, Milan, Sapienza-Rome; foreign collaborators include the University of Madison (US) and the University of Bern in Switzerland.

ICT based solutions offer efficient and effective ways of training ones mental and physical capabilities, in particular for individuals who are restricted due to age or ability. For example, CONN-AGE Italy is implementing innovative ICT technologies to monitor and rehabilitate brain functions to help understand cognitive deficits and provide effective solutions to maintaining a high level of brain functionality.

Other examples of projects relating to this sector include: The Alzheimer’s Project: Train the Brain; SIGLA and; Memory: the narrative laboratory. All of these projects aim to contribute
in the long term to the physical & cognitive abilities of older adults in the hope of sustaining their active engagement with society and the economy.

### 1.15 Work & Training

| €27b | In the EU, the 50+ spend €27b per year in relation to education, 28% of the total population’s spend (COICOP 2015) |

The focus of some policy initiatives in the area of Work & Training initiatives is on lifelong learning, the focus of others is on keeping older people long(er) active in the workforce. Lifelong learning strategies include the following:

- **Estonian Lifelong Learning Strategy 2020**, part of the Estonian Education policy, looks at adult education and re-specialization topics\(^77\). Improvement of ICT skills among the group of people with outdated professional skills is under focus in Estonian Information Society Development Plan 2013-2020 which largely supports similar aims as the Lifelong Learning Strategy 2020 among the elderly\(^78\). In this case, ICT plays an obvious role when it comes to support for the development of online lifelong learning opportunities: improving ICT skills in the group of low qualification or with outdated professional skills, and improving the knowledge base of ICT sector employment opportunities.

- **The Czech Strategic Plan of the Third-Age University Association**, which aims to ensure the quality of the Third-Age University courses and their provision in the Czech Republic. Some countries have dedicated action plans to increase the employment of older people, directly contributing to the wellbeing and financial security of the older people, and to tap into the older people skill-set with the aim of increasing overall economic activity, productivity and growth:

  - **The Action plan 55 plus works** (Actieplan 55pluswerkt), launched in 2013 and, rebranded in 2014 as ‘Action plan 50 plus works’ is a Dutch policy which aims to support older people in finding employment. Recruitment agencies, together with the employee insurance agency (UWV), helped 22,500 unemployed older people find jobs. Some 39 million Euros was spent on networking meetings and inspiration days and an additional 28 million Euros was spent on schooling vouchers and placement bonuses\(^79\). This policy will be replaced by ‘Perspective for 50 plus’ (Perspectief voor vijftigplussers), which will be launched in 2017, in a slightly improved form, and a slightly broader focus on the employer. There will also be a campaign to improve the image of the 50+ people in the work space. 68 million Euros is made available for the plan.

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\(^78\) https://www.mkm.ee/sites/default/files/elfinder/article_files/eesti_infouhiskonna_arengukava.pdf
\(^79\) https://www.rijksoverheid.nl/documenten/kamerstukken/2014/06/25/kamerbrief-evaluatie-actieplan-uwv-55pluswerkt
• The UK Fuller Working Lives - Framework for Action provides a framework within which all the key players, prospective employees, the employer, government, etc. can contribute to some of the overarching policy objectives mentioned above: e.g. a more productive labour market, and increased economic activity.

• The Italian nationally funded (by the Ministry of Labour) programme “Pari” (meaning equal), is a programme that is implemented on a regional basis and aims to encourage re-entry into the workplace. The 50+ population is specifically targeted although the programme is not exclusive to this population group. The programme leverages territorial networks (through the Employment Service system) to support and facilitate the matching of companies and workers.

• The local government in South East Bulgaria (organized by the Association for promoting homebased work) has a policy to promote homebased work for elderly women - temporary or permanent.

• The Estonian Welfare Development Plan 2016-2023 is a multidimensional plan which, supports participation of the elderly in the labour market and employment, preventing economic difficulties and supporting independent livelihood as decreasing the gender inequalities of the elderly.80 This Welfare Development Plan builds on the 2013 an Active Ageing Development Plan. This policy aimed at social inclusion, active learning opportunities, happy and long work life, healthy lives and wellbeing of the elderly. The measures foreseen included monitoring and contributing to strategic policy framework, evaluation of the existing policies and legislation from the perspective of all age groups, ensuring information exchange among various age groups, ensuring that the state budget is made keeping all age groups in mind, ensuring socio-economic data about all age groups to ensure informed decision making, and improving the visibility of the topic in the society. This policy was not ratified on the government level as in 2014 a need emerged to create a common ground for formulating policies of different social areas, such as work, equal treatment, social protection, and gender equality.

Many of the identified Work & Training related policy initiatives are specifically targeted towards the 50+. All of the abovementioned policy initiatives have some long-term vision to support economic growth via the longer active involvement of older adults in the professional environment. An additional focus for some of the polices is to deliver a socio-cultural benefit and an improved quality of life for the older citizen.

Table 12 Deep dive into the Czech National Action Plan for Positive Ageing for the Period 2013–2017

<table>
<thead>
<tr>
<th>Background to the strategy</th>
<th>The Czech National Action Plan for Positive Ageing is administered by the Ministry for Labour and Social Affairs of the Czech Republic (MLSA). A mix of factors invoked the National Action Plan. The Plan follows from a political and administrative decision and therefore was demand driven.</th>
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<tbody>
<tr>
<td>Need or opportunity</td>
<td>The strategy addresses the following needs of older people: well-being, socialisation, better health services, higher labour market prospects (tackling age discrimination)</td>
</tr>
<tr>
<td>Barriers</td>
<td>The strategy supports the low numbers of economically active seniors. The strategy is primarily looking at the society as a whole and the main objective is to improve the quality of lives of seniors by talking about age discrimination. The types of barriers that have to be overcome are labour market barriers, social housing</td>
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problems, poverty of older people, and issues related to low connectivity of the older people.

<table>
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<tr>
<th>Enablers</th>
<th>MLSA is discussing the implementation of several measures:</th>
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<td></td>
<td>• Free Internet access for older people (in relation Work &amp; Training and also to Connectivity and social participation)</td>
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<td></td>
<td>• Smart security systems for older people in their homes, i.e. chips and sensors placed in homes that can alert security agencies if anything happens to the older person and/or the household</td>
</tr>
<tr>
<td>Economic benefits</td>
<td>The main economic benefit is that of an increase the numbers of older people (i.e. those that have reached the retirement age) active in the labour market</td>
</tr>
<tr>
<td>Future direction</td>
<td>MLSA plans to update the Plan next year but wants to modify the Plan significantly so that it focuses on fewer priorities than is currently the case. This concentration should allow MLSA to gather enough capacities and resources to implement programmes.</td>
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<tr>
<td></td>
<td>MLSA aims to better tackle seniors’ poverty, early retirements and the overall passivity of retired people (low socialisation). Also, in other directions, MLSA is planning for the following:</td>
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<td></td>
<td>• Introduction of a long-term nursing benefit (inspired by Austria)</td>
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<td></td>
<td>• Reform of social housing in order to provide more and higher quality of lease housing</td>
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<td></td>
<td>• Reform in the education system, health system, Urban Planning, social services and law enforcement (in relation to discrimination)</td>
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<tr>
<td>Case for EU involvement</td>
<td>The EU could help support the sector developments via a communitarian programme. The main stakeholders of such a new EU level policy would be Governments, business associations, trade unions and NGOs. In the Czech Republic, the social partners of MLSA in this field are also the Seniors’ Council (“Rada seniors”) and the Seniors’ Association (“Svaz důchodců”) and some (Christian) charities.</td>
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<td></td>
<td>The strategy can be used to boost the European economy if it tackles the rights needs in Member States however, following the experience of the Czech republic, it is important to look at labour market issues from a wider societal perspective, not just from an economic-growth point of view.</td>
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<th>Table 6 Deep dive into 50pluswerkt (50plusworks)</th>
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<tbody>
<tr>
<td>Background to the strategy</td>
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Table 6 Deep dive into 50pluswerkt (50plusworks)
group are invited. On these inspiration days, they are given all sorts of workshops. Next to people in the 50+ age group looking for work, there are also about 100-150 employers are also invited who get workshops as well. The workshops finish with a networking drink.

Beyond this, there are two new instruments that have been introduced as part of the strategy:

- Educational vouchers: people in the target group can receive a compensation of max. 1000 Euros for training/education. The educational vouchers were not used much initially with the original target group of 55+, but since 50+ is the target group, it has been going well. So far, more than 17,000 schooling vouchers have been used.

- There is a deal with employment agencies, that comes down to them putting in extra effort to get 50+ people a job. The agencies receive a bonus that becomes higher when the 50+ people work for a longer period of time. The ambitious goal set by the employment agencies is a bit high, 22,000 people in three years' time, but it will probably still be around 18,000-19,000.

**Need or opportunity**

Employees are in all sectors, but of specific interest are the employment agencies as they strongly relate to the focus group of the initiatives. This is because 27% of people 50 years or older on unemployment benefits (Dutch: WW-uitkering) will find a job via employment agencies.

**Barriers**

A large barrier is the fear that older people fall ill quicker than younger employees. Although not necessarily true there is an issue that when older individuals do get sick, there is a greater chance that they will stay sick for a longer period. In particular SMEs do not want to take these risks, which is understandable. Possibly, a sort of no-risk policy will be introduced in the future.

UWV used a mass media campaign (mostly radio commercials and online ads) to get the employer to start inviting 50+ y/o jobseekers, as these jobseekers have knowledge, experience, are flexible, don’t have young kids, and contrary to what is thought are not sick more often than younger people. UWV has tried to combat these prejudices although there has been a lot of contact with employers there has not been significant change in their sentiments and culture so far.

**Enablers**

Most services of UWV are offered online, webinars for example, are organised sometimes, and much of the communication is via ICT solutions.

**Economic benefits**

An obvious economic benefit is getting increased numbers of older adults to go to work. As older individuals have the highest rates of unemployment benefits for the longest period of time getting these people to go to work can make a big difference to the economy, in particular eradicating the socially undesirable impacts of a large group of people not participating in the workforce.

**Case for EU involvement**

It is not entirely clear how EU legislation could help, for example, quotas could cause negative reactions as people seeking employment should be judged by their abilities not the need to meet demographic quotas, such as age.

In regards to funding however, there is room for EU involvement for example, to support people in a way that can allow them to benefit from the same chances that younger jobseekers get. For instance, people can have outdated education and could be benefitted by compensation for new training/education.

### 1.16 Financial services

In the EU, the 50+ spend €205b per year in relation to social protection, insurance, and financial services, 38% of the total population’s spend (COICOP 2015)
Financial services relate to any initiative that enables solutions that support older adult’s financial independence and/or protect financial security of older people. Leading examples of national policies in this sector are:

- **Consumer awareness for senior citizens** – Spain, several local consumer organisations have prepared short courses and training materials on how to spot scams and false claims aimed at senior citizens.

- **Social credits for the older people** (Italian Ministry of Social Policies) – Italy. In the 2006 – 2008 period the Ministry of Social Policies worked at providing a system of “social credits” to be obtained by older persons not properly as compensation for their activities addressed to the community, but rather as a social acknowledgement of it. Social credits should also include goods and services which older people would usually purchase (e.g. transportation, food etc.). For the planning and implementation of these activities, voluntary and charity associations, already relying on the social engagement of older people, should be involved, also by means of agreements with local authorities and public service providers. These interventions will be framed within the system of social services in accordance with the reform of social assistance (Law 328, 2000).

- **14th month pension** (National prevention plan 2007) – Italy. In 2007 an increase of low-level pensions became operative. This increase was implemented through the introduction of an additional tax-free sum – the so-called “fourteenth month pension”. The fourteenth month pension is a variable amount based on the period of contribution and is to be paid to all social-security retirees aged 64 years and over, with an annual income below a pre-set threshold (which in 2007 was of €8,500 Euros, i.e. 1.5 times the minimum treatment of the Pension Fund for Subordinate Employees of the National Social Security Institute - INPS).

The policies presented above explicitly target older people but, for the most part, only indirectly stimulate the economy. Therefore, the relevance of these policies to the Silver Economy is tenuous at points but the above examples provide a clear framework for systems with the potential to aid older adults whilst facilitating or encouraging economic growth.

### 1.17 Food and nutrition

| €445b | In the EU, the 50+ spend €445b per year in relation to food and non-alcoholic beverages, 46% of the total populations spend (COICOP 2015) |

In Denmark, some public-private partnerships have been funded to address issues like healthy ageing and food products. Such themes are often identified through a consultative process including the research sector and other stakeholders.

Inno+ - the innovatie Denmark: The INNO+ Catalogue contains six main thematic areas, one of which addresses Food & Nutrition. Global demand for nutritious and health-promoting foods is increasing in step with increasing prosperity, increasing population and the ageing
demographic who are proportionately more likely to suffer from lifestyle diseases. A partnership is expected to develop nutritious and health-promoting foods that can prevent diseases. The aim is to strengthen exports to the growing global market, to support healthy lifestyle and to improve public health. Examples of funded initiatives, currently funded by the Innovation Fund, include:

- Denmark as global supplier of nutritious and health-promoting food products: Global demand for nutritious and health-promoting foods is increasing in step with increasing prosperity, increasing population and a changing demographic composition characterised by a greater proportion of elderly and a greater number of people living with lifestyle diseases. A partnership is expected to develop nutritious and health-promoting foods that can prevent diseases. The aim is to strengthen exports to the growing global market, support healthy lifestyle and improve public health.

- Patient self-management of chronic disease: The demographic development, our lifestyle and longer life expectancy are expected to lead to an increased number of citizens with chronic diseases, particularly the elderly. There is a need to develop cost-effective solutions for treating people with a chronic disease - solutions that can also improve health and quality of life. The partnership is to create integrated telemedicine solutions that increase patient self-management, enhance the quality of treatment and contribute to reducing the number of days spent in hospital and outpatient treatment visits. New telemedicine solutions for people with a chronic disease can contribute to efficient resource utilisation in the healthcare sector and at the same time create new export opportunities and develop Denmark’s role as a test country for welfare technology.

The Danish initiative, Food in Later Life identifies older people as a target group for the food industry. The Danish Food and Drink Federation (an independent business organisation within the Confederation of Danish Industries) published a report to inspire its members to adapt communication and marketing strategies to appeal to older consumers, defined as 50/60 to 65 year-olds. The report presents the results of a survey comparing two groups of consumers: Women 20-45 years old and 60-65 years old. It is argued that older women are willing to pay extra for products that are of high quality, environmentally friendly and healthy. The report recommended the older generations as an economically sustainable target group.

Moreover, Nordea-fonden, Denmark, is a commercial foundation that allocates funds to support non-profit, public and charitable purposes. In 2016, their aim is to donate DKK 560 million (approximately €64m) to support activities which promote good living in Denmark. Their focus is on health & nutrition, exercise, culture and nature.

The identified Food & Nutrition related policies show a clear potential to target the 50+ and the Silver Economy. All of the above policy initiatives have long term visions of supporting economic growth via strengthening the food and nutrition industries. Moreover, the examples from Ireland, for example, the Food Strategy 2020, amongst other objectives, seeks to enhance Ireland’s economic productivity and competitiveness through initiatives that facilitates the exportation and marketing of food products specifically relevant to an older population.
Additionally, the ability of eating well (to sustain healthy-living) promises an improved quality of life for older citizens. In particular, policies such as Food in Later Life, focus on developing nutritious and health-promoting foods that can prevent or reduce lifestyle and general diseases thus supporting healthy living and reducing health care costs.
5 Catalogue of business cases

5.1 Overview and approach

This chapter provides an overview of ten business case studies of (potential) solutions for older people, which have been identified through (i) desk research, (ii) an online ideation phase in which stakeholders active in the community proposed ideas for cases, (iii) the selection of the most relevant ideas, (iv) the elaboration of the ideas by the project team, and (v) an online validation process. Details on this process can be found in Section 1.4 of this Supplementary Material.

The selection includes sector-specific ideas and horizontal or cross-cutting cases, which are not specific to a sector. The sector-specific cases are the following:

- **Connected health** – develop the market of mHealth devices such as neurological, cardiac, and apnea and sleep monitors and the mHealth services market that looks, amongst other, at prevention, diagnostic, monitoring, and wellbeing, with a view to better diagnosis, better prescription of medicines, and to decrease in adverse drug reactions, and other health needs of the older population
- **Robotics and games** – develop the robotics market to help unburden the jobs of caregivers and assist the older and more frail population and integrate robotics with the gaming sector, to allow the 50+ to interact with robotics in a fun and interactive way
- **Silver tourism** – improve the EU tourism offer to the needs of the 50+ population, offering more comprehensive tourism packages, e.g. including mHealth and promoting off-season tourism
- **Integrated care services and improved connectivity** - spread the diffusion and integration of ICT technologies for healthcare monitoring in private homes that are user-friendly for older people, help overcome social isolation and improve efficiencies in the care sector
- **Development of an age-friendly built environment**, including smart home solutions – support the innovation and smarter new build and retro-fit home environments, with a view to empowering an ageing population to live more meaningful, independent, connected lives with dignity and autonomy
- **Knowledge for an active and healthy lifestyle** - support the integrated development of tools/apps for data analytics that support a healthy and active lifestyle and promote the development of globally competitive products including wearable technologies, functional foods and personalised nutrition and preventative medicine
- **Age-friendly universities** – promote age-friendly universities and age-friendly further education with the objective of increasing the employability of the older adult by retraining, increasing the offer of universities, contributing to jobs and growth in the education sector, and/or contributing to a longer active life-style of the older adult
- Driverless cars – support actions to bring driverless cars and public transport to market that can help to increase the mobility of older people who tend to travel less frequently and are more socially isolated

The horizontal cases are:

- Olderpreneur – encourage and support actions for older people to set up viable businesses with the objective to keep older people active and engaged in society, provide older people with opportunity to earn income later in life, increase jobs and growth by supporting new business developments, and increase the opportunity for older people to work on product and service solutions tailored to the needs of older people

- Interactive platform to fast-track product and service development – develop an interactive platform connecting people that are working on developing new solutions with older people that want to support and/or invest in business development and share experience with the younger generation or be involved in test-bed activity.

As illustrated by means of Figure 9, there are various (technological) challenges that deter market development, i.e. finance and insurance, technological standards, degree of interoperability of solutions, issues around data security and solutions for data analytics/data mining, other technological issues, and barriers as a result of (lack of) ICT training to primary-secondary and tertiary end-users as well as providers. These technological challenges are (for the most) pervasive across all of the cases.

*Figure 9 Overview of challenges for market development*
Figure 10 shows that, in some cases, solutions for the older people have not yet reached a market breakthrough but it is expected that this could happen in the next 5-10 years. Technological progress in the case of robotics is advancing rapidly. The first robots that can interact with people in a fun and user friendly way are already been launched on the market for personal use – e.g. see Pepper in Japan81. Driverless cars are a developing market, with many car companies preparing to launch cars in the next few years and by 2025, autos with autonomous vehicle features are expected to capture around 12%-13% of the new car market82 and by 2035, autos with autonomous vehicle features are expected to capture 25% of the new car market.

The degree of which older people participate in higher education and the degree to which older people spend on higher education varies considerably across the EU. There are various good examples of an educational offer to older people (e.g. in Ireland, Germany, and the Netherlands) and overall, as a result of the ageing population and associated need for re-skilling, the market potential in the sector is substantial. The degree to which the solutions for older people will breakthrough and become more mainstream is also dependent on social aspects, in particular in the case of age friendly universities and robotics and games – see also Table 13 which presents figures on market size.

The other cases have reached a market breakthrough and the solutions are used at different rates and degrees. There is potential for further (technological) development and better targeting to older people. This also applies to the case of Silver tourism.

Table 13  Indication of market size, by business case*

<table>
<thead>
<tr>
<th></th>
<th>Niche</th>
<th>Breakthrough</th>
<th>Mainstream</th>
<th>Mature</th>
<th>Decline</th>
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<tbody>
<tr>
<td>Connected health</td>
<td>By 2020 the size of the <strong>global</strong> connected health market will be close to €58.7b (US$61b), comprising of €1.9b (US$2b) for the online prescriptions market, €13.5b (US$14b) for the mHealth devices market, and €43.3b (US$45b) for the mHealth services market83.</td>
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<tr>
<td>Robotics and games</td>
<td>The <strong>European</strong> market for robots and other devices assisting older people is estimated to be worth about €13m in 2016.85 It is likely that this market will further grow, in part due to technological developments.</td>
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<tr>
<td><strong>Silver tourism</strong></td>
<td>European tourists aged 65+ spend on average €55 per day and €66b per year, 16% of total tourism expenditure in the EU28. Globally, the 50+ population spend €109b (£120bn) 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.</td>
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<td><strong>Integrated care services and improved connectivity</strong></td>
<td>The global market for ICT solutions for healthcare monitoring in private homes is expected to grow from nearly €10.7b ($11.3b) in 2016 to roughly €31.5 ($33.1b) by 2021.</td>
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<tr>
<td><strong>Development of an age-friendly built environment, including smart home solutions</strong></td>
<td>Total construction output in the EU in 2015 was €1,2414b, 8.5% of GDP. Jobs in construction in the EU amount to 8.6% of total employment. 49% of construction activity is in relation to rehabilitation and maintenance (27.7%) and new building (21.3%) (FICE, 2016). The global smart homes market is predicted to amount to €55.8b ($58b) by 2020. The size of the EU smart home market is predicted to amount to €15.5b by 2019, &quot;with 50 million Western European homes having installed smart home technology&quot;.</td>
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<tr>
<td><strong>Knowledge for an active and healthy lifestyle</strong></td>
<td>The global wearable technology market could grow from €28.9b ($30b) in 2016 to over €38.5b ($40b) in 2018 to over €96.2b ($100b) by 2026, which includes the following products: Smartwatches, Fitness trackers, Smart eyewear, Smart clothing, Medical devices, and other infotainment devices.</td>
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<td><strong>Age-friendly universities</strong></td>
<td>The global value of the connected education market could be as high as €431b ($446b) by 2020, comprising of primary, secondary (€63.7b ($66b)), higher and tertiary (€197.9b ($205)), and the business, corporate, vocational e-learning market (€167.9b ($174)). The estimated spend on higher education for older people ranges from €2m, in relation to spending on specific modules in some EU countries (eg in the Czech Republic) to more than €200m in relation to enrolment in full time education programmes in the UK.</td>
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<tr>
<td><strong>Driverless cars</strong></td>
<td>The global market for fully and partially autonomous vehicles is expected to leap from about €38.5b ($42b) in 2025 to nearly €70.5b ($77b) in 2035.</td>
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</table>

* For assumptions and further details behind these forecasts, please see the cited references.

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86 http://ec.europa.eu/eurostat/documents/3885521/7664322/4-26092016-AP-EN.pdf/3e703f73-072023f2-67f2-073a82672371
88 http://www.bccresearch.com/market-research/healthcare/telemedicine-technologies-global-markets-report-hlc014h.html
91 http://www.idtechex.com/research/reports/wearable-technology-2016-2026-000483.asp
92 http://pwcmegatrends.co.uk/mylifeconnected/education.html
5.2 Connected health

5.2.1 The opportunity

5.2.1.1 Brief description

Older people have a potentially longer medical history and a higher likelihood of several illnesses at once, which all need to be taken into account when treating a patient. Some older people may also not be able to express their health status, for example because of dementia. In addition, older people may receive care in different setups such as hospitals and care homes. The lack of interoperability of the health care system hinders the prevention and treatment of illnesses. Electronic and mobile health solutions could help increase the quality of care for older people and chronically ill (older) people. Objectives include:

- The development of integrated and personalised health and care for older people
- The development of a digital patient record
- Increase digital skills for carers
- Increased efficiency in the health system
- Improve prevention of chronic illnesses

Benefits to older people include: better diagnosis, better prescription of medicines, decrease in adverse drug reactions.

There is substantial interest in promoting connected health across Europe, with many member states running national programmes concerned with the digitisation of health and social care. This kind of transformation clearly has the potential to deliver health gains for older people, and others, and improve the productivity and efficiency of national healthcare systems. Connected health initiatives are also delivering direct economic benefits through the procurement of a range of goods and services, from organisational design consultancy through to ICT.

System-wide innovation is challenging by definition, so while there is substantial and growing activity in this space, the rate of progress remains quite modest in many countries and older citizens are not so far consuming healthcare in radically different ways or altering spending patterns.

There is evidence of faster progress in several narrower domains, with new companies launching software apps to improve people’s access to primary care services. There are examples of charged, subscription-based services. These new-generation healthcare providers are beginning to submit to inspections by national regulators, to check basic compliance with the law and to more generally test the extent to which they are safe, effective, caring and well-managed.

NHS England has a network of digital innovation hubs and centres of excellence working with entrepreneurs and businesses on the development of new, innovative solutions that may ultimately be purchased by primary and secondary healthcare providers nationally and internationally. The NHS is also working to create a useable healthcare apps library that will inspect apps and wearables with a view to allowing approved systems access to our own
medical records. There are other initiatives encouraging bottom-up innovation as a means by which to get around some of the challenges of system-wide reform, as well as using other policy levers (e.g. certification) to overcome other barriers (e.g. access to medical records) and help markets emerge and work more efficiently.

5.2.1.2 Barriers and market failures

- The acceptability of electronic and mobile health solutions by both practitioners and patients can be a barrier. Carers are often human centred, not technology orientated. By professional intuition, they will spend time on acquiring new skills to enhance the relationship with their patients.

- The lack of platforms for health and care based on open standards is regarded as one of the most significant market barriers within the ICT industry. Having common standards and interoperable solutions can bring new business models and market opportunities for cost-effective solutions that can enhance quality of life and open a new and big market to health device providers and producers. Issues of data protection/security, information governance and privacy will also need to be addressed.

- The interdependency of skills levels of carers and elderly have a limiting impact on digital skills development of carers. In 2012, 63% of citizens between 65 and 74 years old had never used the internet, and 57% of citizens had even never used a computer (Growing the Silver Economy, European Commission). In order to increase the number of skilled elderly, carers are needed that help with the integration of these technologies in people’s lives. However, carers are also still largely under-skilled, forming a major barrier for the uptake of these technologies.

- Prime financers for elderly care are health insurance companies. Many of these signal high ambitions where it concerns expectations about digitalisation and welfare and health support of elderly. These ambitions materialise in short term subsidies or loans for health organisations for pilots. Training and continuous professional development of personnel has to be paid from regular fees.

5.2.1.3 Market prospects – size, growth trends and scalability

PWC predicts that by 2020 the size of the global connected health market will be close to €58.7b ($61b), comprising of €1.9b ($2b) for the online prescriptions market, €13.5b ($14b) for the mHealth devices market (blood glucose meter, BP monitors, pulse oximetry, neurological monitoring, cardiac monitors, apnea and sleep monitor, wearable fitness sensor94, heart rate monitor), and €43.3b ($45b) for the mHealth services market (prevention, diagnostic, monitoring, wellbeing, treatment)95.

mHealth devices and services will be particularly relevant to support the health care and wellbeing of the 50+ population. It is expected that in 2060, the ratio of people in the EU that are aged 65 or above compared to the people aged 15-64 will be 50.1%, compared to 27.8% in 2015. In relation, the number of people above 65 that will need care will increase and it is expected that the largest increase in age-related public expenditure will come from

94 Wearable fitness sensors are also part of the business case on knowledge for an active and healthy lifestyle
95 http://pwcmegatrends.co.uk/mylifecconnected/health.html
healthcare and long-term care spending, which together will be around two percentage point of GDP: health care +0.9pp. and long-term care +1.1pp (EC, 2015). Many EU countries face pressure to maintain health care financially sustainable in the coming years. In 2015, the net deficit across all EU28 countries stood at 2.4% of GDP (Eurostat). This creates a clear rationale for investments that have potential to boost the efficiency of healthcare provision.

Healthcare consumption varies with age. Eurostat data reveals that, across countries for which there is data, individuals aged 50+ accounted for 69% of all in-patient hospital days in 2013, despite being only 39% of the population. (for individuals aged 60+ this is 55% and 25%). The figure below shows the average length of stay in the hospital for various countries, by age group. The in-patient average length of stay in a hospital increases by age, where people aged 50-54, on average, stay 7.3 days per year in the hospital and people aged 90-94 years on average stay 11 days. However, this does not apply to all counties, e.g. in Germany the oldest generations stay an average fewer days in hospital. The average length of stay also differs across country and is higher in Hungary, Czech Republic, and Finland and is lowest in Norway, Turkey, Denmark and Sweden.


[^97]: Data is for all causes of diseases (A00-Z99) excluding V00-Y98.
There is substantial variation across EU countries on the degree to which solutions have been introduced that can increase the efficiency in the health and care system and solutions that enable older people to stay longer at home. For example, many general practitioners have adopted the use of electronic networks to exchange medical patient data with other healthcare providers and professionals and to transfer prescriptions to pharmacists – see Figure 12. In various Northern European countries, i.e. Denmark, Estonia, Iceland, Finland, Norway, Sweden and also the Netherlands and Spain a larger proportion of GPs have adopted such electronic networks. In other countries the adoption of electronic networks is lagging behind.
As a recent study stipulates\textsuperscript{98}, medical devices, in particular the screens that enable carers and patient to monitor what is happening, have not shown any major improvement in the past 20 years. Whereas patients have learned to appreciate the usability of intuitive mobile applications and devices at home, while ‘under care’, they cannot do without intensive training. The development and deployment of these new user friendly devices opens up new markets for suppliers and for carers. Another interesting view that stems from innovation studies on active ageing\textsuperscript{99} indicates that new opportunities can open up when suppliers approach older people as active and self-esteem actors in their living environment.

### 5.2.2 Challenges - identified need for action

Access to information about digital technologies and services for elderly people needs urgent improvement. Health information exchange platforms and electronic health records systems should be enhanced in order to support the process of integrating health and social care and a more active participation of patients. A shift towards Personal Health Record systems is urgently needed\textsuperscript{100}.

Carers in formal health care are primarily trained at vocational level; their skills for digital information retrieval are often relatively low. In informal care the situation is mixed; some informal carers may develop effective search strategies, sometimes assisted by younger people in their social network. Others, in particular the informal carers who are themselves

\textsuperscript{98} Gupta Strategists: No place like home. An analysis of the growing movement away from hospitals towards providing medical care for patients in their own homes. Ophemert, The Netherlands, 2016.


\textsuperscript{100} EIP on Aha, Brussels, 2016. European Innovation Partnership on Active and Healthy Ageing (EIP on AHA): (draft) Blueprint digital transformation of health and care for the ageing society.
older, might have limited access to digital services\textsuperscript{101}. Today, ICT enabled tools are part of everyday life like never before. However, the same cannot be claimed concerning health literacy, despite the recognition that health literacy is a determinant factor in improving public health outcomes.

Fundamental changes in the labour market for care and related digital skills development lie ahead which need urgent priority in terms of short term training. Estimates on the economic value of unpaid informal care in EU Member States range from 50 to 90\% of the overall costs of “formal” long-term care provision\textsuperscript{102}. With a predicted shortage of up to 2 million health workers and 20 million care workers in the EU by 2025, the care workforce presents a challenge for the optimum organisation and quality of health and care delivery across the EU\textsuperscript{103}.

Crucial for productive interactions between connected care, be it personal health records or tele monitoring services, is the availability of trustworthy apps and devices, including the accessibility via trusted portals. The Assessment Guidelines of the Working Group on mHealth\textsuperscript{4} are an important contribution in this context\textsuperscript{104}.

5.2.3 Added value of EU action

Regarding the low level of digital skills among carers that were trained in vocational education, focus could be on technologies that support and stimulate their practice based learning styles, for instance on web based video and tele consultation and on ambient sensor networks.

Where national markets or public service systems are in the short run too small to boost innovations and related skills development, thematic coalitions of health service providers could be promoted that jointly develop learning content and digital learning services.

5.2.4 Existing or planned initiatives to build on

Current activities of DG CNECT targeting digital innovation for health and social care in ageing well include research and innovation under Horizon 2020-Societal Challenge 1 (€550m), the Active and Assisted Living Programme with Member States, the new EIT-KIC on healthy living and active ageing, the European Innovation Partnership on Active and Healthy Ageing (EIP on AHA) co-managed with DG SANTE and DG RTD, the eHealth Action Plan, the Joint Programming Initiative with Member States on More Years –Better Lives and the EU Silver Economy strategy.

The ERDF has also funded projects in relation to connected health, enabling, for example research and innovation and test beds in hospitals and social communities (ie as in the region Marche, Italy). Moreover, various projects are funded under Horizon2020 that are looking at

\textsuperscript{101} Eurocarers, 2016. European Association working for Cares. Promoting the needs and added value of informal carers at EU level.
\textsuperscript{102} Ibid, 14.
\textsuperscript{103} EIP on Aha, Brussels, 2016. European Innovation Partnership on Active and Healthy Ageing (EIP on AHA): (draft) Blueprint digital transformation of health and care for the ageing society.
content technologies and information management, e.g. multimodal (vocal, facial and gestural) communication and the automatic translation of public health information and to improve access to national health administrations\textsuperscript{105}

Connected care and related initiatives and pilots in integrated care are manifold and numerous. There are various EU Framework Projects that have a focus on information management and ICT for digital content\textsuperscript{106}. Digital patient records are for example piloted in the English NHS Rotherham Foundation Trust\textsuperscript{107}.

Significant work has been carried out in digital Innovation for ageing well and the silver economy (Carers+ and Grand coalition for digital skills) that support the creation of a new recognised digital skills framework for carers linked to the action on "Advancing Digital Skills"\textsuperscript{108}.

Adoption and further development of digital skills for carers is embedded in the national vocational education systems and its curriculum redesign of which the opportunities could be adopted more widely by health employers and organizations for informal carers. Similarly, alliances of health services and IT companies are driving this important service development forward\textsuperscript{109}.

5.2.5 **Recommended EU policy actions**

The EU can provide support by removing barriers through policy actions at EU level and by leveraging national policy. An urgent action is to assist formal and informal carers in finding their way across the scattered landscape of evolving digital skills offerings. EU policy-makers could support pilot projects for electronic and mobile health in different European regions, this way systems can be developed which work for the whole of Europe. New/improved legislation may help address the data security and data protection, information governance and privacy issues.

5.2.5.1 **Key stakeholders**

Key stakeholders include national governments, regional and local authorities, health insurance companies, health organisations, vocational training organisations and e-learning suppliers, and informal carers.

5.2.6 **Technological and social readiness**

An important change that lies ahead concerns the way that digital services and related carer skills are developed and delivered. To date, most health care technology companies deliver products and services to institutions, mainly to hospitals that adopt new systems as part of their overall system, including training of carers and maintenance. In the new markets in the


\textsuperscript{107} http://www.therotherhamft.nhs.uk/Electronic_Patient_Record/EPR_Frequently_Asked_Questions/


\textsuperscript{109} EIP on Aha, Brussels, 2016. European Innovation Partnership on Active and Healthy Ageing (EIP on AHA): (draft) Blueprint digital transformation of health and care for the ageing society.
silver economy, these companies will have to transform into consumer technology suppliers. This transformation concerns several fundamental aspects that also open new labour and skills development opportunities for carers.

Readiness to adopt connected health solutions is dependent on the digital skills of health carers. Recently, a European Committee on Digital Skills for Health Professional stressed that current training programmes are not customised, and not suited for health professionals. One of the recommendations is: “Mandatory tailored training programs on digital skills for health professionals should be established in Europe. These programs should aim to train health professionals according to their occupation, their needs for digital skills, their frequency of using digital technology, their competence in digital skills etc.”\textsuperscript{110}. If stakeholders embrace this recommendation, the economic opportunities of training providers increase, while the introduction of connected health may increase, especially when users/clients of health services also possess the required digital skills (e.g. self-monitoring).

In all European national health systems, steps are being taken to enhance the coordination of care. High expectations are related to centralisation of patient data, be it in centralised and/or interoperable systems, in patient records at hospitals or in personal health records. Besides business objectives to lower cost of health admin, it is expected that centralisation of patient data will stimulate cooperation in chains and networks of carers, which is an important driver for reflection and learning in practice. Another expectation concerning centralisation of digital patient data is that it will accelerate the shift from hospital care towards care at home\textsuperscript{111}. The assumption is that doctors, and their management, make use of risk management systems, based on big data applications, that inform them if a patient could be sent home (earlier) for further recovery or treatment at home.

Related to this expectation about home care is the assumption that digital records and digital health services will enable close tele monitoring, which minimizes the risks for patients. There are still some technological hurdles here as well as challenges around data security and data analytics.

5.3 Robotics and games

5.3.1 The opportunity

5.3.1.1 Brief description

Next to the physical aspect, health is impacted by mental/cognitive well-being as well. Given increasing pressure on the health-care system, efficiency becomes more important. Because of this, human contact between carers and older people becomes more constrained, and as the 50+ cohort will increase in the future, this problem will grow. In order to reduce feelings of loneliness and isolation we can look to innovative ways to assist. Robotics and games can contribute, and extend the period of living at home for older people.

\textsuperscript{110} http://www.healthparliament.eu/documents/10184/0/EHP_PAPERS_2016_DigitalSkillsForHealthProfessionals_SCHERM.pdf/e07b3d9-e762-4f66-934d-d23e65d17a

\textsuperscript{111} Gupta Strategists: No place like home. An analysis of the growing movement away from hospitals towards providing medical care for patients in their own homes. Ophemert, The Netherlands, 2016.
Robots have become increasingly able to interact with people in their environment. Currently, several researchers are working on robots that can provide companionship to older people. The idea is that robots can reduce feelings of loneliness and isolation that many older people face. Next to companionship, robots can also provide help with simple tasks or give instructions and could call emergency services when needed. They can also assist in, for example, physiotherapeutic exercises and medication compliance (the right medicine at the right time). The idea is to link the development in the robotics industry with the development of cognitive training games for older people that are designed to improve memory. This means that the robot would be set up to support the continued independent living of the older adult. There is an opportunity for both the robotics and the gaming industry to have a greater focus on the needs and interests of older people and to work together with the objective to develop products that help reduce loneliness, that have mental health benefits and are fun.

Examples of developments include the companion robot called Alice, developed by researchers from the Free University of Amsterdam and research group SELEMCA and the StartUp (university spin-off of Humboldt Universität) RetroBrain that creates therapeutic video games. The EU FP7 project MOBISERV has developed prototype companion robots that work within a larger, smart home system, and cost around €15,000 each, with the expectation that the price would be halved for early production models and would fall quickly with higher volumes. The target market is older people and their families and care givers, and is particularly relevant in modern societies where families are increasingly widely distributed (the number of single households is large and increasing rapidly) and wider community support is also less readily available.

The ENRICHME (Enabling Robot and assisted living environment for Independent Care and Health Monitoring of the Older people) project, a consortium of 10 partners from six different EU countries, looks at tackling the progressive decline of cognitive capacity among the older people proposing an integrated platform for AAL with a mobile service robot for long-term human monitoring and interaction. The evaluation of the system takes place in two AAL home labs and three older people housing facilities. Another example of a European project is the RAMCIP (Robotic Assistant for MCI Patients at home), which aims to perform R&D on real robotic solutions for assistive robots for the older people and those suffering from MCI and dementia.

These are just some examples of recent developments in the field. The benefits of these robots are manifold, ranging from improved health from reduced loneliness and improved well-being, through to lower burdens on healthcare systems. The manufacture and servicing of these robots will also give a boost to European industry, albeit it is entirely possible that a very great part of the value added will be imported from China, Japan, the US and elsewhere. Some stumbling blocks are not so much the technology, but perceptions and price: the

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113 Source: https://memore.de
114 Source: http://www.mobiserv.info
115 Source: http://www.enrichme.eu/wordpress/
116 Source: http://www.ramcip-project.eu/ramcip/
former is being eroded through demonstrators and even movies, while the latter is improving as a result of more general advances in the price-performance and reliability of ICT systems. However, it is not clear how easy it will be to attract the attention and the investment of older people more generally, and there does appear to be a need for further interim solutions and policy initiatives in order to accelerate developments and bootstrap markets.

There is also widespread interest in the role that digital games can play in helping to maintain the cognitive functions of older adults and there is some evidence that playing (online) games helps with the performance of everyday tasks and navigating public transport. What is less often commented upon is the large and growing numbers of older people that are ‘gamers.’ Most developers are targeting younger people rather than older gamers, with their latest products, but US market research suggests that around 30% of over 50s are regular gamers (as compared with 97% for the under 20s) and that there is substantial untapped potential in this market segment. The possibilities of integrating gaming / fun interactions as part of companion robotics could be explored further.

5.3.1.2 Barriers and market failures

Although the first companion robots point to a promising future, there are several barriers for companion robotics and games to be able to become a success. In this section, we sum up the most important ones:

- At the moment, to be used by the older people in practice, robots still require further development. And the evidence that both robotics and games improve health outcomes of the older people is scarce. Without convincing evidence, it is difficult for companion robots and games to really catch on.

- As robotics rely on the Internet of Things, privacy and data security are important factors to take into account. Who will be able to access produced data, and are owners fully aware of security and privacy risks? How can they be mitigated?

- Both gaming technology and robotics are generally developed by young people, and most companies in the relevant sector are youth oriented. How can high tech companies understand an older person as a client? There is likely still an information gap about the games and functions older people prefer and on how to market them.

- As technology and digitalisation advanced rapidly in the last few decades, connectivity between the lived realities of generations is missing.

- Social acceptance in general. For example, in advanced Asian countries such as Japan, the social acceptance to have interactions with robotics and games is much higher. In European countries the social acceptance is still limited. The question for European societies is whether we want to address feelings of loneliness and isolation and possibly improve mental health with technology.

- Regulatory issues prevent the convergence of technologies and industries such as health, gaming and entertainment.

• Liability is a barrier as well. Robotics will be able to make certain decisions autonomously. The question in these cases is who is responsible for failure? Furthermore, who is in charge of the robot? The developer, user or caregiver? It is even more complicated in the case of shared decision-making, as both human and machine make decisions that influence each other.

• A market failure is that costs of robots are too high to be sold on a large scale. The technologies are still expensive and many technologies are not yet cost-effective. A question is whether health insurances are willing to pay for robots and gaming devices. Furthermore, next to the purchase costs, the costs of ownership might be high as well. For example, data security and software updates can be pricy.

• There also issues around integrating robotics in the build environment and integration may be easier in purpose build apartments, care homes and bungalows than family homes that have several flights of stairs.

Thus, several barriers regarding development, privacy and privacy regulation compatibility, security, marketing, attitudes, regulation and costs are still to be overcome.

5.3.1.3 Market prospects – size, growth trends and scalability

Robotics are part of cyber-physical systems (CPS): intelligent robotic systems that are linked with the Internet of Things, or technical systems of networked computers, robots and artificial intelligence that interact with the physical world. CPS for people with impairments or disabilities will be a growing market for high-tech applications. At the moment, the use of robotics, and CPS in general is still limited, partially because there is a wide gap between demands and current technical capabilities and high costs of CPS. These problems will likely be solved in the future, and improved products will appear, also creating new skilled jobs for development, maintenance, and repair of robotics.\(^{118}\)

Robotics contribute to assisted living. Assisted living is based on the idea that people want to stay socially engaged, independent and away from hospitals or care homes. It includes concept such as the use of sensors, mobility aids, gaming and robotics. Globally, the assisted living market is very large. According to the CEO of a company developing assistive robotics (Giraff Technologies AB), the EU market for robots and other devices assisting the older population is estimated to reach €13b by 2016\(^{119}\). The market in the US is relatively larger, in the U.S. in 2011, €39m ($41b) was spent on assistive technology. In Europe, there still is low consumer awareness and there are low product adoption rates, but they are expected to change quickly in the near future.\(^{120}\) It is likely that this market will further grow, in part due to technological developments. Other, related, concepts such as smart homes will give a further impulse to the market.

Furthermore, companion robots and games to train the brain, for example, can be used in the daily lives of younger people as well, further improving market perspectives. Not only for the

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older people technologies could reduce feelings of isolation or help stimulate thinking with games. If robots become more sophisticated, they could also provide more general assistance in household tasks.

Robotics will help unburden the jobs of caregivers, as robots could help older people with tasks caregivers perform now and can help a caregiver with a task where currently two caregivers are needed, e.g. helping an older adult to get in and out of bath. It is however unlikely that humans will not be necessary in the future, as technology can only augment human care. At the same time, robots can enable human caregivers to concentrate more on certain elements of their jobs.

The gaming industry itself is a very large market, and new apps and interactive games for the older people will help the market to grow further. The development of robots can lead to a new product type for the older people, and with that, a new market. Ageing of people in EU countries makes an interesting market for both games and robots, leading to the creation of new jobs as well, for example in design, production, sales, maintenance and repair.

The first robots that can interact with people in a fun and user friendly way are already been launched on the market for personal use – e.g. see Pepper in Japan.21

5.3.2 Challenges - identified need for action

The opportunity here is to further develop and commercialise robotics and games that improve the lives of older people. In order to do so, there are several needs for action. The market is in its early phase and needs a push. Needed action for industry is to:

- Challenge (gaming) industry to view older people as a target market and develop games for older people, linking health, benefits, and fun, thus improving cognitive skills and mobility of the older people
- Stimulate the robotics and gaming industry to collaborate in developing products that help reduce loneliness and stimulate cognition
- Create specific programmes for robotics and games for the older people, attracting international firms to EU countries
- Coordinate activities across research, industry, health care organisations and older people to co-design robotics and games and ensure maximum economic and social benefits of it.
- Establish training programmes for designers and entrepreneurs

A significant challenge is public perception. Demonstrations and movies help to promote acceptance, but it is not known how easy or difficult it will be to get attention of older people. In order to further stimulate acceptance and use among the general public and the users specifically, the following actions need to be taken:

- Promote further awareness of the concept of companion robots and games for older people among the general public, and specifically the older people, healthcare organisations and insurers.

• Expand living lab projects in order to demonstrate the feasibility of companion robots.
• Establish training programmes for users.

An important issue to be aware of is autonomy and independence. As a robot can analyse one’s behaviour, it can also predict future behaviour. When the user is thinking of harming itself or others, should the robot warn someone or not? 122

5.3.3 Added value of EU action
The EU already plays a role in robot projects such as ENRICHME. As there are still many barriers and challenges for robots and games for the older people, the EU could play an important role in taking these problems away. The EU can promote awareness, create attractive programmes for international firms and investors for linking robots and games, and could bring different sectors closer together.

To ensure that Europe can be an active and competitive player in the field, it is also important to seek opportunities to learn from international best practices (e.g. Asian and US companies) and push for a collective EU industrial action.

5.3.4 Existing or planned initiatives to build on
Interesting existing initiatives are those such as Join-in, supported by the Ambient Assisted Living Joint Programme. 123 The project is for older citizens overcoming barriers by joining fun activities. Join-In developed a comprehensive social networking platform for older people citizens to encourage and support communication and socialising in older people. It includes examples such as video exercises that allow older people to perform age-specific exercises and Memofix, a computer game for older generations that enhances cognitive abilities and facilitates socialising.

Furthermore, there are many robotics projects, a few of which are described in the first section of this case study. Connecting these projects with projects such as the one above could create real synergies between robotics and gaming.

5.3.5 Recommended EU policy actions
In relation to robotics and games, EU policy actions can add value on several issues:

• Industry can be challenged to develop games that are tailored to the older people and combine physical and brain training, to improve cognitive capabilities. Living labs can be stimulated, where older people can test games, robots and were marketing to reach the older people can be improved.
• Identify options to label interactive games/robotics as age-friendly and or ‘therapeutic’.
• The EC can promote public awareness with campaigns, platforms, web forums, et cetera. Not just awareness, but discussion can be promoted too in order to stimulate thinking about the topic. For example, discussion on whether the robot and gaming technologies

123 Source: http://www.helmholtz-muenchen.de/en/join-in/home)
are a good solution to loneliness, isolation, and reduced cognitive abilities could lead to new insights.

- Future policies need to incorporate robotics, on the level non-, semi- and fully autonomous robotics. Standardisation is required so that robotics can interact with each other correctly, and to ensure certain quality standards. Standardisation could greatly help in strengthening international collaboration. As the creation of customised services and technologies for older people will soon be necessary, this opportunity should not be missed by EU industry.

- Legislation is needed with regards to privacy, as robotics can store data about their users and share these data with caregivers, users and other systems. This information can be of very private nature, such as medical information and the camera filming the user. The protection of the produced data should be taken into account as well. Action is needed regarding ownership and access to data.\textsuperscript{124}

- The EU can further fund projects such as the ENRICHME project, and focusing on the link between robotics and gaming.

- Bridge with international players and related initiatives in the field to facilitate technical cooperation and speed-up market penetration

5.3.5.1 Key stakeholders

Key stakeholders include the robotics and gaming industry (specifically R&D and design), science healthcare specialists, insurance companies and the users and their friends and families. The jobs of healthcare providers could change significantly. At the moment, there are no key players yet, as we are in early stages of combining robots and games.

The market for companion robots and gaming has the potential to grow into a huge market, affecting jobs of healthcare professionals in many ways. Furthermore, policymakers will play an important role in addressing political, legal, environmental and ethical issues. Bringing experts, healthcare professionals, industry, users and policymakers together is an essential start. Both EU and international industrial players, such as the Future Center Alliance in Japan, are relevant.

5.3.6 Technological and social readiness

Companion robotics are being introduced to market however, currently, the technology is costly. It is expected, that within the next few years these types of solutions will come to market as mainstream technology priced accordingly

5.4 Silver Tourism

5.4.1 The opportunity

5.4.1.1 Brief description

Tourism is a major source of revenue for many EU countries and statistics show a growing number of international tourists coming to Europe, with an increasing proportion of those

\textsuperscript{124} Atkinson, Dorr, Clark, Clancey, & Wilks, 2015
being 50+. There is increasing focus on visitor ‘experience’ and niche markets and the cohort aged 50 and older is one of the most active demographics in travel and leisure. The rise of the middle classes, especially in China and India, means that inbound international tourism is expected to continue to grow strongly. While there are substantial differences in the interests and needs of the over 50s, research has identified some common demand patterns of this group: luxury trips and cruises, extended visits to family and friends, wellness and recreation, milestone tourism celebrating special occasions and medical / health tourism (including for rheuma and dermatology), etc.

Europe’s tourism industry is addressing this demographic trend through its packaging of services, however, there remain many parts of the industry that have not yet recognised the commercial opportunity, or are seeking to address these increasingly important segments through simple marketing campaigns, without a more fundamental review of their offer. The slow progress within the industry around the particular demands of older tourists may dampen demand and people may choose to travel less or only travel to the tourist destinations that have understood the opportunity. Collective action here could very well encourage older Europeans to spend more on travel and encourage older international visitors to choose Europe over other possible global destinations.

The EU could develop a more comprehensive and robust view of the needs and expectations of older tourists, European and international, in order to help the industry to move forward. An EU silver tourism roadmap could help address the need for an improved infrastructure, accessible transport (across borders), age-friendly hotels and inclusive ICT solutions. It could also include the provision of medical care during travel and at destination. Selective use of mHealth (mobile health solutions and devices) could address these challenges and better integrate person-centred care. Holiday packages and tours that overcome these and other barriers to mobility can be promoted. Opportunities exist to increase the inclusiveness and customisation of transport systems, ICTs, food, housing, and the accessibility to knowledge and training from both the supply and demand side.

5.4.1.2 Barriers and market failures

There are a number of barriers and market failures that inhibit older people to travel more and to new destinations. The industry is still adapting to the interests, needs and expectations of the older and the frailer consumer. The 50+ tourism industry is a broad market segment that combines people that are fit, healthy and active with people that are frailer and require more support. This raises a number of questions for the tourism industry. To what extent should the tourism industry cater for both young and old, healthy and frail, and for people with early onset of dementia? There is a need for greater awareness of the opportunities and how to best adapt the supply to the needs and expectations of the older adult. For example, as people become older they more often need greater support to overcome mobility obstacles, and the tourism industry should cater for this need across the supply chain.

The European Commission 2014 report “Europe, the best destination for Seniors”, outlines that improving knowledge about the 50+ population would allow the European tourism sector to better respond to the growing demand. This would help address a number of barriers such as: lack of information, general travel and organizational conditions, age
discrimination, health care and emergencies, accessibility, travel insurances, financial reasons and lack of attractive and professionalised supply\textsuperscript{125}.

To overcome market fragmentation, there is a need for improved coordination between regions and countries. Klimczuk (2015) identifies at least five models of regional silver economies based on policy delivery (i.e. based on inter-regional coordination, combined action of municipal and regional bodies, partnership of regional agencies with municipalities, led by land policies at governmental level, regions and stakeholders driven)\textsuperscript{126}. This is also accompanied by a missing integration between travel and mobility services with a cross-regional and cross-border function.

There is a need for a more supportive infrastructure, including transport infrastructure. A lack of infrastructure is particularly problematic in regions that seek to grow the 50+ tourism sector, but do not have adequate facilities to respond to their necessities and to improve the travellers’ experience\textsuperscript{127}.

5.4.1.3 Market prospects – size, growth trends and scalability

Almost 30\% of the EU27 population will be 65 years old or older by 2060 (data from Eurostat). There is an increase of 60+ tourists of approximately 3\% points over the last 20 years (2014 data), global level. Today, older adults in Europe tend to spend more money for travelling, tend to make longer trips, and prefer package trips, accounting for 30 \% of all European tourism expenditure on package trips (Eurostat, data from 2012)\textsuperscript{128}. European tourists aged 65+ spend on average €53 per day and €66b per year, 16\% of total tourism expenditure in the EU28 (Eurostat, 2016)\textsuperscript{129} As illustrated by the figure below, countries where spending on tourism by the 65+ is highest are Germany (€20,649m) and France (€15,770m). There also is substantial variation across countries on the proportion spend on domestic travel vs on travel abroad.

Promoting Europe as a tourist destination involves attracting tourists from outside the EU to travel to one or more European countries. It is estimated that globally, the 50+ population spend €109b (£120b) 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\textsuperscript{130} (World Travel Monitor, 2013).

\begin{footnotesize}
\begin{enumerate}
\item European Commission (2014), Europe, the best destination for seniors”, Draft Report
\item Eurostat (2012). Ageing and tourism in the European Union. Statistics in Focus
\item https://ec.europa.eu/research/innovation-union/pdf/active-healthy-ageing/merrill.pdf
\end{enumerate}
\end{footnotesize}
Older tourists (65+) contributed significantly to the tourism sector during the economic downturn in 2006-2011 and counterbalanced the drop in tourism by all the other age groups. Unlike e.g. families with young children, older adults have the time and flexibility to travel outside peak seasons. An increase in older adults travelling during off-peak seasons can contribute to the competitiveness of the tourism sector, boost jobs and economic growth in the EU and would contribute to balancing jobs and growth in the tourism sector throughout the year. The 2014 Action Plan of the European Commission Draft Report on “Europe, the best destination for seniors”, aims to increase the volume of cross-border trips undertaken by older adults during the low and medium seasons in all EU Member States by 10%, by 2020. Our economic analysis shows that, compared to their younger peers, the older people spend more on recreation and culture, perhaps reflecting greater available leisure time. Therefore, Silver Tourism could involve:

- Attract investment and improve the business environment;
- Increase joint promotion, particularly towards key third-countries and the internalisation of tourism for SMEs;
- Support tourism digitalization and innovation uptake by tourism businesses;
- Improve skills and competences to provide the industry with the skills they need and to improve the quality of jobs.

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131 European Parliamentary Research Service (2015), Tourism and the European Union, in-depth analysis
133 Workshop “Towards an age-friendly tourism - Opportunities for the low-medium season” - Minutes & Main Conclusions
5.4.2 Challenges - identified need for action

Across the EU, just under half (47.1%) of the EU’s population aged 65 and over participate in tourism, which is lower than the participation rate for the population aged 15 years and over (60.0%) (Eurostat, 2013). Across EU member states there is substantial variation in the participation rate of older adults and relatively more older adults go on holiday in Denmark (where 4 out of 5 of the older people participate in tourism) Finland, the Netherlands, Germany, France, Luxembourg, Ireland and the United Kingdom that in the Southern, Eastern and Baltic EU Member States.

One of the challenges to tap into the potential is linked to the existing mismatch between supply and (potential) demand. In fact, the tourism sector of the 50+ age group remains limited and fragmented, especially when looking at the aspect of mobility, which is often not designed according to the needs of older adults. The latter aspect is amplified when looking at cross-border tourism and testified by the fact that approximately 41% of European citizens in the 28 Member States have never travelled outside their national borders, and the big majority of older adults undertake exclusively domestic trips. Coordinated actions at European level, involving public administrations, industry and civil society to facilitating and promoting travel for older adults between European countries and also from third countries to Europe, could change this trend and increase the productive use of tourism infrastructures and resources. Altogether, increased coordination with regards to product and service development, including accessibility, quality, promotion, and business models can stimulate the uptake of more age-friendly tourism offering, with expected positive returns on productivity, job creation, SMEs growth and competiveness.

The use of ICTs in tourism could help increase knowledge, training improve processes such as bookings and e-ticketing, and e-commerce.

5.4.3 Added value of EU action

The EC is already supporting the tourism sector via several initiatives. In 2010, a Communication on tourism identified the extension of the tourism season as an important priority action. The European Union plays an important role in improving knowledge sharing and thereby addressing some of the main barriers in the silver tourism sector. This goes in line with the legal mandate of the Lisbon Treaty (art 195), pointing at the positive effects of the exchange of best practices and knowledge sharing. Moreover, an EU-led action contributes to reduce the current fragmentation of the 50+ tourism market. The European Union should also tap into the existent actions undertaken in other sectors and areas. Initiatives aimed at the uptake of ICT solutions and business models, technology schooling

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136 Eurostat (2012), Ageing and tourism in the European Union, Statistics in Focus
for the silver economy sector, and self-assessment tools for SMEs and businesses have the potential to be applied to the silver tourism sector139140.

5.4.4 Existing or planned initiatives to build on

There are various initiatives in the field of silver economy tourism and some are supported by the EC and others are initiated by Member States or Regions. European-led initiatives include:

- The COME-IN! project, to promote a transnational route of accessible museums. The project will also stimulate integration with other services, such as transportation, accommodation, leisure and facilities, that will also represent an opportunity for business at local and transnational level.

- The CALYPSO initiative141, (2009-11 / 17 EU and 2 candidate countries) aiming at enabling underprivileged citizens to travel during low-season, and facilitating the matchmaking between the tourism industry, Member States, regions, and NGOs. A platform (e-calypso142) has been set up to match intermediary segments of the supply and demand in social tourism, based on the preliminary findings of the program. The funds allocated by the EU for Calypso between 2009-2011 were €1-1.5 million per year and for 2012, €450 000. The funding came, under the 2007-13 financial framework, from the Entrepreneurship and Innovation Programme (EIP), and since 2014, from the Programme for the Competitiveness of Enterprises and SMEs (COSME).

- The “Senior Tourism Initiative” (Pilot launched in 2012), to enhance tourism for the older adults, and more specifically in off-season.

- The AAL Programme and the Technolage143 Project, on business models of ICT solutions in an ageing context. The project wants to come up with clear business and financing models related to ICT and ageing, and is therefore relevant for the identification of such models in the tourism sector.

- The initiative Low-Medium Season Tourism Initiative Board (EULTIB), an informal ad-hoc group set-up on an ad-hoc basis for the period 2015-2016 to support the Commission with expertise on low-medium season tourism144.

- SMEs COSME program, including funding for facilitating EU transnational tourism flows for older adults and young people in the low and medium seasons145.

A non-exhaustive list of Member States and Regions-led initiatives include several initiatives taken to boost tourism for older adults in Ireland146, and Spain147, and Portugal, with the

139 Transversal actions can be: the Initiative on Age friendly homes lunched in March 2016, or the ongoing work on ‘Blueprint on Digital innovation for Europe’s ageing society in the 21st Century’.


141 www.ecalypso.eu

142 www.ecalypso.eu

143 http://www.aal-europe.eu/technolage-final-study/

144 http://ec.europa.eu/growth/sectors/tourism/offfer/seniors-youth_en

145 https://ec.europa.eu/easme/node/55
Senior Tourism Initiative to combat loneliness of the 50+ population. Regarding the regional dimension, strategic cooperation can be envisaged with the support from DG REGIO on tourism activities in the field of transnational/cross-border cooperation programs, and looking at macro-regions strategies, through, for example ERDF funding. Tourage: Developing Senior Tourism in Remote Regions, is an example of project co-financed by the ERDF148, with the objective of enhancing regional economies by the means of 50+ tourism by means of increasing network capacities and by exchanging good practices. Another example of inter-regional network of relevance is The Silver Economy Network of European Regions149: a joint initiative of European regions initiated by the region of North Rhine-Westphalia (Germany), to address 50+ citizens as target group for the development of European cultural tourism.

5.4.5 Recommended EU policy actions

In line with the existing mission of the EC as outlined in the Communication “Europe, the world’s No 1 tourist destination a new political framework for tourism in Europe”, the related initiative “Europe, the best destination for seniors”, and the Committee of Regions150 existing and new actions should be supported via an integrated approach that embraced positive change in the age-friendly tourism sector: building on developments in e.g. the transport sector, rural and urban planning, and health care.

Recommended EU policy action includes:

- Promote of off-season tourism to the older adult;
- Support the development of innovative and high quality care holiday packages using mHealth and integrated personal care that target the frailer adult;
- Share best practices and exchange of knowledge, enable the development of common platforms, etc. and continue to support the initiatives that have been inaugurated in recent years;
- Contribute to train and re-skill (older adults) to increase the offer and quality of care in target tourist destinations;
- Continue to work cross-sector to improve connectivity and accessibility for older people, including transport and access to facilities;
- Support and continue the ongoing work on accessibility standards at European level, following the standardisation requests by the European Commission, as it will also support the future implementation of legislation (European Accessibility Act);

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147 http://www.europeansiortourism.eu
148 http://www.tourage.eu/
149 http://www.silvereconomy-europe.org/
150 http://media.wix.com/ugd/98eb81_be5d4953e3e447289821583b9838faa6.pdf
• Promote the age-friendly label.

5.4.5.1 Key stakeholders
Key stakeholders include large and small companies operating in the tourist sector, transport sector (e.g. aviation companies, maritime transport/cruise, bus and rail transport), as well as others sectors adjacent to the tourism industry such as the food industry. Stakeholder also include national and regional government, transport and planning departments, design teams, research institutes, local community organization, etc. The European Innovation Partnership on Active and Healthy Ageing151 is an important stakeholder that supports standardization bodies to meet and to develop strategic roadmaps for scaling-up innovative solutions. ENAT - the European Network for Accessible Tourism NGO - has many members who are active in this area. Members include several National Tourist Boards, Regional Boards and Destination Management Organisations152 ENAT manages together with EWORX S.A. the European Accessible Tourism Register153, on behalf of the European Commission.

5.4.6 Technological and social readiness
The tourism industry is a growing sector in the 50+ market segment. To enable more frail people to travel, age-friendly hotels, inclusive ICT solutions, and a selective use of mHealth can contribute to uplift the sector, even during low seasons. There still exist some technological and social hurdles around the implementation of mHealth. Intermediary organisations need to be assured they have the skills in house to introduce more technology in their tourism offer.

5.5 Integrated care services and improved connectivity

5.5.1 The opportunity

5.5.1.1 Brief description
There is a need for a more widespread diffusion and integration of technologies that are user-friendly for older people and help overcome social isolation. A number of digital platform technologies exist that allow fostering a creative support system and interaction of older people with a community connecting formal (nurses, pharmacies) and informal care givers (family and friends). Applications can connect older adults to caregivers and social services via an online platform in a more flexible way. Family and care givers may contribute to the provision and installation of the care service. The EU project INTEGRATE154 has performed several case studies that showed that compared to usual care, integrated care results in better access to health services, holistic assessment of health and social needs, a multidisciplinary care approach, better orientation to carers and patients, a clearer process and care objectives and indicators for evaluation, central coordination and improved formal and informal communication among health professionals and patients. The objectives include:

151 https://ec.europa.eu/eip/ageing/home_en
152 www.accessibletourism.org
153 https://pantou.org/
154 http://projectintegrate.eu/
• Improving integrated care services, including emergency care services
• Promoting health for active ageing and quality of life, including healthy nutrition
• Strengthen the training of health professionals, informal carers in the prevention/recovery of health, including for example oral health, recovery from minor illnesses, mobility
• Improve the digital skills for carers
• Improve social connectivity - to prevent social isolation - of older people, including older people living in rural areas

5.5.1.2 Barriers and market failures
Today, several digital services for older people exist that are provided via applications and web platforms. Even though these services can provide socio-cultural and economic benefits, they are not widely used. Barriers include the following.

• Implementing these services/technologies in existing work streams. The health systems that are currently used were not designed for the use of these new services and technologies. Health systems need to be redesigned in such a way that these new services and technologies can be embedded in the system. The services need to be linked with social and long-term care to ensure care services are coordinated and informed.

• A lack of interoperability is hindering the national- and EU-scale rollout of integrated care services. Differing standards, health systems and regulatory frameworks across the EU hinder the implementation of these solutions and limit the scaling up of these solutions. This also makes it difficult to assess the impact of the individual initiatives such as their socio-economic benefits. Furthermore, the ability of EU-countries to learn from best practice solutions is hindered by the incompatibility of the different solutions, with a fragmented market as a result.

• The ICT skills of care workers and older people in the EU is limited. In 2012, 63% of citizens between 65 and 74 years old had never used the internet, and 57% of citizens had never used a computer. In order to increase the number of older people that feel comfortable with interactive platforms, carers are needed that help with the integration of these technologies in people’s lives. However, some carers are under-skilled in this respect, forming a major barrier for the uptake of these technologies. A promising change has taken place with the introduction of the tablet, with the result that more older people are getting used to this new technology and applications.

• Lack of user centred/user-friendly design is a substantial barrier to widespread adaptation. Simple design can overcome the needs for updating cares/end-user’s ICT skills in many cases.

• Despite various examples where the introduction of ICT solutions for healthcare monitoring in private homes has improved efficiency of care services, the adaptation of such integrated care services is piecemeal. In some cases, adaptation may be blocked by

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155 Interim Study Technopolis Group (2016)
156 Fiche Growing the Silver Economy, European Commission
structural barriers in the health care funding system. For example, such constrains exist when a reduction in visits to care professionals leads to a reduction of income to care providers. Moreover, community care structures do not always have the funds to invest in telecare solutions because e.g. any gains from a reduction in the duration of hospital stays are not transferrable/redeemable by the community services.

- Finally, data protection is being addressed by the General Data Protection Regulation (GPPR), EU 2016/679, which strengthens data protection requirements but places additional requirements on data users.\footnote{ec.europa.eu/justice/data-protection/reform/index_en.htm}

5.5.1.3 Market prospects – size, growth trends and scalability

It is expected that by 2060, the ratio of people in the EU that are aged 65 or above compared to the people aged 15-64 will be 50.1\% (compared to 27.8\% in 2015). The result is that about two people will be working for every person aged above 65 years. Correspondingly, the number of people above 65 that will need care will also increase, and it is expected that the largest increase in age-related public expenditure will come from healthcare and long-term care spending, which together will be around two percentage points of GDP (health care: +0.9pp., long-term care: +1.1pp.).\footnote{European Commission (2015). The 2015 Ageing Report, Economic and Budgetary Projections for the 28 EU Member States (2013 – 2060). Retrieved from: http://ec.europa.eu/economy_finance/publications/european_economy/2015/pdf/eec3_en.pdf}

Data from a European survey suggests that 7\% of people aged 50+ provide care (e.g. for older people or disabled relatives) on a daily basis, compared with 5\% of people under 50.\footnote{Eurofound (2014), Work preferences after 50, Publications Office of the European Union, Luxembourg. http://www.eurofound.europa.eu/sites/default/files/ef_publication/field_ef_document/ef1403en.pdf}

Moreover, the data also suggests that 21\% of the 50+ that work and also care for older or disabled people on a daily basis struggle with work–life balance problems.\footnote{Eurofound (2014), Work preferences after 50, Publications Office of the European Union, Luxembourg. http://www.eurofound.europa.eu/sites/default/files/ef_publication/field_ef_document/ef1403en.pdf}

The ageing population poses a risk for the sustainability of health care financing and quality of care. The increased longevity increases the long-term demand for services and the amount of healthcare spending. A substantial proportion of healthcare costs are indirectly financed by the working population, through social security contributions, although there are wide differences across the financial models of health care systems in different EU countries. The current fiscal positions of a lot of European countries – with the net deficit across all EU28 countries at 2.4\% of GDP\footnote{Eurostat, 2015} makes it difficult to absorb increases in health care costs.

Integrated care could help in ensuring the sustainability of public finances, since better integration of support provided by professional caregivers and family members may increase information sharing and improve the effectiveness and efficiency of care. Following the EC (2016), the “introduction of ICT and telemedicine alone is expected to improve the efficiency of health care by 20\%”. The global market for ICT solutions for healthcare

monitoring in private homes is expected to grow from nearly €10.7b ($11.3b) in 2016 to roughly €31.5b ($33.1b) by 2021 (BCC, 2016). In an earlier report, it was predicted that in 2018, 19m people worldwide will be connected to some form of professional remote monitoring, as opposed to 3m people in 2013.

Evidence for improved efficiency of care services by introduction of technology is mixed, but the experience of the Scottish Health Programme, showed that the distribution of telecare services to 44,000 people, reduced the number of emergency admissions to hospital of 8,700 patients and admissions to residential care of 3,800 patients. The telecare services also made it possible to speed up 2,500 hospital discharges.

5.5.2 Challenges - identified need for action
An ageing society not only increases pressure on care providers but is also related to a lack of participation in society and increased loneliness. Loneliness negatively affects mental and physical health.

Promising opportunities include the integration of information and communication technologies (ICT) in health care products and services that alleviate the pressure on the health care system. New services make it possible to offer remote care and monitoring, which makes it easier for older people to live independently for a longer period of time. These services also change the focus from treatment to prevention.

Several services exist, for example apps and mobile services that send reminders for the intake of medicines or that support administration and decision-making. Furthermore, a number of these services such as web platforms give patients a more central role in the management of their care. This way, the frontier of care management is brought into people’s homes. Web platforms make it possible to integrate all kinds of services, such as monitoring, communication, content and data flows between the older people, care professionals and also family and friends. This way, not only the physical but also the mental well-being of the older people is improved. Furthermore, the change towards increasing the provision of care in a patients’ home reduces the need for (more costly) residential care.

Installation of these ICT services does come with several obstacles. First of all, people using these services need to have sufficient ICT-skills to use them. In particular, the carers that provide services on the platform need to have the necessary skills. Furthermore, organisations that provide services have to integrate this into their organisation structure and way of working, increasing interoperability.

While there are several solutions available and slowly being implemented in primary care (e.g. the installation of tools with the building of a new nursing home, integration of GPs and pharmacists), integrated care is still missing in hospitals and between specialists and general practitioners. Some stakeholders find that it has been customary to operate independently in hospitals, something that is difficult to change.

[^63]: http://www.bccresearch.com/market-research/healthcare/telemedicine-technologies-global-markets-report-hlc014h.html
5.5.3 Added value of EU action

The EC can continue to play an important role in making these service available to a wider audience and in engaging more stakeholders. There are still several barriers at the European level, that could be overcome.

First, web platforms provide the opportunity to integrate all kinds of services in one place, where a customer can both enjoy communication with close relatives and get in contact with care providers about medicines and disease management. In order to make this possible, interoperability of the different European healthcare systems is necessary. The UniversAAL\textsuperscript{165} and ReAAL\textsuperscript{166} projects have been working in this direction. The platforms were used in a number of EU countries and are available for future exploitation. Limitations to interoperability with other platforms remain. The current lack of interoperability hinders the uptake of these services and reaching economies of scale. Technology providers for example do not have the possibility to market their products in other Member States, but also within Member States a fragmented market exist where platforms do not reach sufficient mass for scale.

Second, a lack of skills and experience of care professionals with these services hinders its use. More guidance and exemplary models as well as increased targeting would benefit the sector and might encourage more efficient and effective, and integrated use. The ICT systems/platforms have to be designed so that it is user-friendly for the older adult minimising the barrier to engage with the new technology. Furthermore, use of these services is hindered by concerns about data protection, which might be resolved by clear guidance and possibly by regulation.

There are some barriers to scaling up. The lack of critical mass of uptake could be mitigated at a European level, where it is possible to find a larger amount of interested parties that are willing to invest and increase awareness of the economic benefits of these projects. Furthermore, at EU-level stakeholders could be engaged in public-private partnerships where risks are shared.

5.5.4 Existing or planned initiatives to build on

Silver Economy policy initiatives can contribute to cost savings in the healthcare system and create socio-cultural benefits. These benefits come from more automated processes, better skills of healthcare providers and improved health and welfare of the older people. In many Member States it is recognised that action is needed in order to change the healthcare system. Initial steps have been taken by various stakeholders to develop new policy plans, for example by the World Healthcare Organisation and the Scottish government.

The strategy on People-centred and Integrated Health Services\textsuperscript{167} of the World Health Organisation supports the shift towards more integrated and people-centred health services. The WHO recognises that funding of management and delivery of health services has to change and the focus should shift from the disease towards self-management and people’s

\textsuperscript{165} www.universaal.org

\textsuperscript{166} www.cip-reaal.eu

\textsuperscript{167} http://www.who.int/servicedeliverysafety/areas/people-centred-care/en/#fn2
needs. Suggested policy options and interventions by the WHO include: building strong primary care-based systems with a family and community-based approach, allocating a greater proportion of health expenditure to primary care, a focus on community delivered care, training for informal carers and strengthened social participation in health.

In Scotland a “Vision and Action Plan for the right pharmaceutical care through integrated partnerships and innovation”\textsuperscript{168} is undertaken by the national healthcare system, NHS. The plan should result in integrated care models that are safe, effective and person centred and that enable older people to live longer healthier lives at home or in a homely setting. The programme also encourages connections between pharmacists and other health and social care professionals. Actions that will be taken by the Scottish government are for example the development of a system that will enhance the pharmacists’ role, the development of a framework for appropriate use of data and risk assessment and support of self-management through the use of mobile technology.

There are also several examples of initiatives that are trying to deliver integrated care and enhance the connectivity of the older people, for example various (sometimes regional) initiatives in the Netherlands, UK, Spain, France as well as EU financed initiatives.

‘HalloZorg’\textsuperscript{169} – previously called ConnectedCare - is an integrated care initiative where connectedness of older people is improved. HalloZorg is a Dutch initiative that started in 2002 and partners with universities and care providers. The platform connects Google Calendar, Facebook and Whatsapp in a safe and closed environment. The aim of the platform is for older people to form a care-network with family, friends and neighbours, as well as care professionals. The platform can be used to make appointments, manage contacts, assign tasks, send messages and photo’s, keep a diary and provides a timeline with information about who is doing what (visiting, providing care) at that day. Furthermore, the platform provides the possibility to connect sensors.

Integrating care within hospitals appears to be more difficult than integrating primary care. A successful initiative in the Netherlands that was able to accomplish this is ParkinsonNet.\textsuperscript{170} It is a national network of caregivers that are specialised in the treatment and support of Parkinson patients. About 3,000 caregivers (e.g. neurologists, speech therapists, physiotherapists, dieticians, ergo-therapists and nurses), divided over 69 regions are connected to this network.

A third initiative example is CanaryCare\textsuperscript{171}, a commercially available monitoring system developed in the UK with the goal to help people live at home for a longer period of time. The system consists of several sensors that monitor temperature levels, light and movement in the home. Canary also provides the opportunity for visitors to carry a visitor-card, in order to register which callers have visited during the day. All information is send to for example a

\textsuperscript{169} www.hallozorg.nl
\textsuperscript{170} http://www.parkinsonnet.nl/
\textsuperscript{171} www.canarycare.co.uk
family member in the form of an easy to read chart. Whenever an unusual pattern is discovered, the system will send an alert via text or email. Positive Canary also supports care professionals with helping people coming home from the hospital and enables more informed decision-making.

In Spain, a similar initiative was started by the Barcelona city council, called VinclesBCN. VinclesBCN is a social innovation project that aims to improve the wellbeing and social relations of the older people. The incentive for the initiative is the fact that loneliness has a negative impact on mental and physical health. A pilot was started in one district in Barcelona in 2016, with the goal to extent the pilot to other neighbourhoods and municipalities in the beginning of 2017 and reach a total of 20,000 citizens. The application itself has two user groups: a personal network with family and friends and a larger community of people in the area that have similar interests. In the latter group, approaching others and joining city activities is promoted.

A regional initiative in Spain is developing a platform of social and health care for chronic patients and dependent people. The objective of the initiative is the development of the necessary technologies and solutions that allow integration of welfare and social processes in a single platform, to achieve an efficient management of the chronicity and dependency through the reorientation towards the needs of the patient and the integration of both services, providing a single view of the patient, improving the efficiency of the processes, providing comprehensive services and ensuring the continuity of care and making innovations usable by other entities in the socio-health area.

The EIP SICODOM initiative, launched in a region in France, aims at testing a new coordination information system for home care. Through better coordination of various home service stakeholders, it helps improve care quality, while optimizing the use of resources and allowing elderly and dependent people to stay at home in optimal conditions, thus reducing unnecessary hospitalization.

The ICT4Life, part of a H2020 initiative, aims at promoting the use of innovative technologies for patients with Parkinson’s, Alzheimer’s and other forms of dementia. The target users are the patients and care-givers. The aims are for the ICT4Life technologies to converge in a unique platform that will allow to monitor the patients in real-time and to alarm and call for early intervention; prevent adverse events, social isolation, depression and poor well-being, promote patient’s independency and social involvement and provide on time support to care-givers.

5.5.5 **Recommended EU policy actions**

There are several ways through which the EC can provide support, both by removing several barriers through policy actions at EU level and by leveraging national policy.

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First, the EC could contribute by supporting the broad application and establishment of ICT solutions across Europe, for example by stimulating the scale up of successful pilots across Member States. In particular, the EC could stimulate development of interoperable solutions between and within the different Member States. This could for example be done by harmonisation and alignment of programmes of national policies, strategies and plans. More interoperability will result in scaling up of successful practices and will make it easier to assess the impact of integrated care solutions.

Second, the EC could aid in the development of a better understanding of data protection. This can be done by the creation of good practices and use cases, and if necessary through further regulation. Skills and training of care professionals relates to this. The EC could stimulate ICT training in the different Member States by for example identification of the most appropriate ICT skills. Furthermore, the EC could work with decision-makers to open up care and educational structures, which will also enable scaling-up.

Third, an important part of creating integrated care is incentivising prevention over treatment. The EC could help leverage national policies on promotion of people-centred health services, and for example encourage the recognition of the pharmacist as an important care service provider.

5.5.5.1 Key stakeholders

Key stakeholders of integrated care technologies are platform providers and providers of tools for the 50+, that can be connected to the platform.

Potential users of integrate care solutions are (50+) patients and care providers. Integrated care solutions can vertically connect primary, secondary and tertiary care and horizontally connect health care, community care and social care. The resulting total number of potential users is therefore large and is increasing. The fact that 8 out of 3 people in retirement age has at least two chronic conditions and that 9% of GDP is currently being spent on healthcare, highlights the need for alternative care models.175

Patients are the key beneficiaries (as well as drivers of innovation). Integrated care and better connectedness is expected to deliver more timely and better quality care, with a personalised approach, higher autonomy for the patient and the possibility to remain at home. Health and social care systems will benefit from integrated care because of better coordination (less operation in silos), higher efficiency because of improved healthcare processes and new organisational models. Finally, care givers would enjoy more support in providing care and easier navigation through the health system.

Other important stakeholder are international networks of older people organisations and, for example, the growing network of World Health Innovation Summit176 (WHIS).

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175 European Partnership for Active and Healthy Aging (2015) Integrated Care and Chronic Disease Management Flyer.
176 www.worldhealthinnovationsummit.com
5.5.6  *Technological and social readiness*

On the technological side there are still challenges around interoperability that are a bottleneck for a EU wide rollout of integrated care services. The integrated care systems are designed to be user-friendly and could improve efficiency of care in numerous situations. In some cases, there is a lack of readiness to shift to a new system and this is blocking the market developments. In other cases, there are structural challenges, associated with funding challenges of the health system, that impede the take-up of integrated care services.

5.6  Development of an age-friendly built environment, including smart home solutions

5.6.1  *The opportunity*

5.6.1.1  Brief description

Most of Europe's current housing stock is designed for a particular type of household - single person, couples without children, families, etc. - and we rely on markets to match supply with need. Homes are not designed to be adapted over our life-course. Building new modular homes that are designed to allow spaces to be reconfigured (e.g. downsized) would be a significant development. It would also potentially help unlock massive underutilized capacity in the housing stock, where a growing number of large family homes are occupied by single people while there is a general shortage of homes for younger people. Furthermore, ergonomic design and adaptations (e.g. larger doors and adapted showers) can greatly contribute to making homes suitable for all ages. Such new buildings could be equipped with smart home technologies. Smart home solutions can help increase both the security and comfort for older people. Smart home solutions can also consist of basic house upgrades/retrofitting focusing on improving the functional autonomy and life quality at home, thereby enabling people to stay in their own home for longer. The development of adaptable housing and the introduction of smart home solutions can also be extended to social housing/rental housing, residential care and tourism – there is a lack of age friendly tourism accommodation and a limited understanding of the potential of the built environment to the tourism sector.

The market potential here is large, both in respect to smart home technologies (e.g. home automation, energy management, security) and new and refurbished homes that are designed to be smart. There are however many obstacles – many financial – that will limit the rate of progress, holding back demand among individual householders.

Home adaptations have been shown to improve the quality of life for an estimated 90% of recipients\(^\text{177}\), thereby enabling older people to remain in their own home for longer. This is a key benefit because around 90% of older people prefer to remain in their own home as they get older and amongst the group of older people that need day-to-day assistance or ongoing healthcare 82% would still prefer to stay at home.\(^\text{178}\)


What is needed is a dedicated and concerted set of actions at European, national and regional levels to take a fresh look at innovating smarter new build and retro-fit home environments, with a view to empowering an ageing population to live more meaningful, independent, connected lives with dignity and autonomy. Results need to inform a European Reference Framework for Age-friendly Housing to boost knowledge and investments in the construction and ICT sectors. Examples could build on existing practices such as the Moselle Council in France project call “Innovative and Solidarity in housing” (Habitat innovant et solidaire). This project involves the testing with social landlords and local enterprises of building smart residences with services, including ICT solutions. It also includes a digital services platform to find sustainable solutions for the elderly (technologies for wellbeing and automation, prevention, information and communication, telemedicine).

5.6.1.2 Barriers and market failures

Barriers and market failures for adaptable and smart home solutions lie both within the demand as well as the supply side. In addition, there are regulatory barriers.

The most prominent barriers on the demand side are the costs and the reluctance to use newer technical solutions. The costs can be a hindrance for user to adapt adaptable and smart homes, as well as retro-fitting existing homes. It is estimated that adapting an existing home costs between €8,000 and €20,000 for ICT adaptations, and €10,000 to €85,000 for spatial adaptations\(^{179}\). These costs can be equally prohibitive for tourism providers, who are considering to build or re-fit hotels to be accessible and suitable for older people. However, manufacturers\(^{180}\) also offer smart home products with creative finance solutions for more accessible prices, also allowing end-users to gradually retrofit homes and/or introduce upgrades to the existing homes.

Moreover, on the demand side, one of the risks is that many older people are reluctant to leave their (family) home to move into an age-friendly but often smaller apartment with sometimes less (indoor/outdoor) space. One reason for this reluctance could be a lack of awareness among older people of their home not being adapted to their needs in the long term. Some older people are hesitant to use smart home technical solutions because they are worried that the new technology would be complicated to use, and that they could not keep up with the latest technology\(^{181}\).

From the supply side, a certain lack of interest can exist with some actors. While there is much research going on and solutions are developed, only a few of those solutions are produced in larger numbers and brought to market. In some cases, this may be due to companies not rating the potential of such technologies high enough to warrant investment. In consequence, the solutions which do exist are relatively expensive, if they are available to the end-user at all. The full benefits of these solutions can however only be realised once they are affordable for end-users, and this will only be the case if technologies are produced in larger quantities and a broader consumer market develops. The last two points are mutually


\(^{180}\) As an example, see www.smartzone.ie

\(^{181}\) Pragnell et al.: “The market potential for Smart Homes”, 2000
reinforcing: if the prices of the technologies drop, then more people will buy them thus increasing the market size, which leads to more products being produced and thus lower prices. In addition to companies producing products for adaptable and smart home solutions, the professionals who fit and install such solutions play a crucial role. If these professionals, such as architects and building and construction engineers, have no knowledge of such solutions, then they can present a barrier to end-users accessing such solutions, even if they would be willing to install them.

Finally, there are regulatory aspects which can be a barrier. This relates mainly to the overlap or gaps in regulations for buildings and electronics which both apply to smart homes, and to issues of data protection which need to be considered in the context of smart homes.

5.6.1.3 Market prospects – size, growth trends and scalability

Total construction output in the EU in 2015 was €1,2414b, 8.5% of GDP\textsuperscript{182}. Jobs in construction in the EU amount to 8.6% of total employment. 49% of construction activity is in relation to rehabilitation and maintenance (27.7%) and new housebuilding (21.3%) (FICE, 2016).

Several million new homes are built in Europe every year but few new homes have adaptable, universal designs and the smart home market potential here is large. The potential market within the refurbishment sector is likely to be larger still, as newly built housing makes up about 1% of the renewal of the residential buildings’ stock\textsuperscript{183}.

According to PWC,\textsuperscript{184} the global smart homes market is predicted to amount to €55.8b ($58b) by 2020. The size of the EU smart home market has been predicted to amount to €15.4b by 2019, “with 50 million Western European homes having installed smart home technology”\textsuperscript{185}. In relation, the global connected home market is estimated at €122b ($150b) by 2020, which comprises of €36.6b ($38b) for the smart meter market, €35.6b ($37b) for the remote home control market and €71.2b ($74b) for the remote home security market. Moreover, “53% of American consumers predict a singular remote that controls everything in the home will be the norm in the next 10 years (PWC).” The move to a universal and smart design would undoubtedly spur new build projects and larger-scale refurbishments. The market is also expected to grow strongly from 2020 onward, based on the assumption that a ‘new’ generation of older people, who are more tech-savvy then the previous generation, will grow older and be more inclined to invest in smart home solutions.

The move to adaptable and smart housing would provide a boost to the European economy, with designers, house-builders and building services benefiting from slightly more intensive activity within the new build sector and an upswing in major refurbishment work. Most of the additional work and income would occur locally, within the EU, albeit there may be some

\textsuperscript{183} Cross-DG Working Group on the European Silver Economy: “Growing the Silver Economy in Europe”, November 2014
\textsuperscript{184} http://pwcmegatrends.co.uk/mylifeconnected/home.html
increased demand for smart home technologies from other international technology suppliers.

The move to smart homes would improve the quality of homes, reduce the degree of overcrowding and improve the general wellbeing of 50+ and younger generations. Some households in the EU still lack basic amenities (i.e. indoor toilet and shower) and 15% of the EU population declares living in a dwelling with a leaking roof, damp walls, floors or foundation or rot in window frames of floor\textsuperscript{186} and renovations are much needed. At the same time, overcrowding is a problem for most EU countries. In 2014, around 17.1% of EU population lived in overcrowded housing, with major overcrowding in Romania, Hungary, Poland and Bulgaria. see figure below.

*Figure 14 Overcrowding rate, percentage of population*

Overcrowding in the UK has increased from 5.7% in 2005 to 8% in 2013 in relation to major housing shortages, concentrated around major cities, including London\textsuperscript{187}. Shortages also exist in other major cities, for example in the Netherlands and Sweden\textsuperscript{188}.

There are various cost savings on the health and care side too:

- Home adaptation can delay a move to residential care by four years, limiting pressure on the care sector\textsuperscript{189}

\textsuperscript{186} Housing Europe. The state of housing in the EU, 2015.  
\texttt{https://drive.google.com/file/d/0B3Yb8SWGTmE7NEN0MGFpVXY2ckU/view}  

\textsuperscript{187} Housing Europe. ibid

\textsuperscript{188} Housing Europe. ibid

\textsuperscript{189} Foundations (2015). Linking disabled facilities grants to social care data
• Relatively low cost simple home modifications (such as grab rails) can help reduce falls that need medical treatment by 26%\(^{190}\)
  - Eg in the UK, this is estimated to lead to annual savings of £500m to the NHS and social care services

5.6.2  Challenges - identified need for action
With increasing age, the characteristics a suitable home environment needs to fulfil can change drastically. Many homes at present are not built to adapt to such changes, nor include smart home solutions. This leads to many older people living in houses and flats which pose unnecessary hurdles for independent living in older age.

Adaptable and smart home solutions can help update and support independent living of older people better.

5.6.3  Added value of EU action
The fact that the EU takes action in the field of adaptable and smart home solutions can lead to increasing visibility and credibility of the initiatives which already exist, some of them nationally or regionally. This could also increase both the knowledge about and the acceptance of such solutions with users as well as suppliers. EU wide action can furthermore help to create a common EU market for such solutions by setting standards, thus opening a wider market for national companies beyond their domestic markets. Beyond Europe, such a concerted effort could also increase the standing of Europe as an important player in this field, and establish a favourable market position against competitors from other countries, notably the US and Japan, which would be unlikely to be achieved by national initiatives only.

5.6.4  Existing or planned initiatives to build on
Several EU member states have been active in the field of smart and adaptable home solutions. These initiatives aim at supporting the networks of companies, increasing knowledge and acceptance, implement adaptable and smart home solutions on a larger scale and supporting adaptable and smart home solutions in the field of tourism. The German state of Baden-Württemberg has published a compass on their policies regarding senior citizens\(^{191}\). This includes initiatives which aim at capitalising on the market for smart home solutions, including setting up the network initiative Smart Home & Living BW for companies, institutions, networks, associations and research centres involved in developing and providing such solutions. The aim is to enable companies in the federal state of Baden-Wuerttemberg to exploit the vast market potential, the economic chances and the developments in the area of smart home & living. In addition, the state is aiming to increase the end-user acceptance of smart home solutions by getting older people in touch with ICT more generally, in order to lessen their inhibition to use ICT solutions in the smart home context. Furthermore, a mobile AAL exhibition is funded, which showcases AAL solutions to increase the awareness and knowledge about AAL, this exhibition is set up alongside events

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\(^{190}\) Keall et al. (2015). Home modifications to reduce injuries from falls in the home injury prevention intervention (HIPI) study: a cluster-randomised trial. The Lancet, 385(9964), 231-238

\(^{191}\) [http://sozialministerium.baden-wuerttemberg.de/de/soziales/aeltere-menschen/kompass-seniorenpolitik/](http://sozialministerium.baden-wuerttemberg.de/de/soziales/aeltere-menschen/kompass-seniorenpolitik/)
which are popular with older people\textsuperscript{99}. Based on academic led R&I projects partly supported through FP7, an open source platform has been developed by a European team specifically for such AAL solutions\textsuperscript{100}. The French Lower Rhine Council, in cooperation with municipalities, has co-financed several homes based on new care solutions for social housing, which include ICT solutions, thus supporting the implementation of smart home solutions on a larger scale\textsuperscript{101}. The European INNOVAge project is focused on providing support for older people to stay at home independently longer, and supports 14 regional innovation offices focussing on smart homes for older people, including one in the region of Castilla y Leon in Spain\textsuperscript{102}. In terms of providing guidance for how to build adaptable homes, the UK Lifetime Homes project implements the concept of adaptable housing, providing a design guide, case studies of existing homes and advice for professionals\textsuperscript{103}. For the field of tourism especially, the Bartlett Faculty of the Built Environment at the University College London has a newly founded Real Estate Institute through which research and training on the build environment with a focus on Health Tourism and Accommodation are conducted. Through developing research collaborations with tourism schools across Europe they aim to investigate the intersection between health and wellbeing and facilities for tourism\textsuperscript{104}.

5.6.5 \textit{Recommended EU policy actions}

EU Communication activities about adaptable and smart home solutions for both users as well as suppliers would increase the knowledge, awareness and potentially the acceptance among those groups. Developing standards and regulations for adaptable and smart homes would provide guidance to suppliers and users. Regulations could target the accessibility of the built environment more generally, benefitting all those with restricted abilities, including older people. Regulations could furthermore be harmonised at a European level to address the current gaps and overlaps between different regulations in regards to smart home solutions. This would help such solutions to be marketable more widely in the common European market.

As laid out earlier, one of the barriers for adaptable and smart home solutions is the lack of technologies produced in larger quantities for the end-consumer at a reasonable price. EU policy actions could help to bring solutions developed in the research field to production by providing funding to bridge this gap. This would lead to more technologies being available at a lower price, due to the economies of scale, which in turn would lead to a larger market for them. This way, increasing demand would help to lower prices further. Supporting ICT training for older people could also increase their acceptance of using especially smart home solutions. It needs to be ensured that all older people, irrespective of their previous experience with ICT, can benefit from these solutions.

\textsuperscript{99} https://www.wegweiseralterundtechnik.de/index.php/Hauptseite
\textsuperscript{100} http://www.universaal.info
http://universaal.sintef9013.com/entry/
\textsuperscript{102} http://www.innovage-project.eu
\textsuperscript{103} http://www.lifetimehomes.org.uk
\textsuperscript{104} www.bartlett.ucl.ac.uk
5.6.5.1 Key stakeholders

Key stakeholders for adaptable and smart home solutions are the inhabitants of such homes and companies which provide the technologies, such as Siemens AG (Germany), Schneider Electric S.A. (France), ABB Ltd. (Switzerland), Ingersoll-Rand PLC (Ireland), Tyco International Ltd. (Switzerland), and Legrand S.A. (France). In addition to the individuals who live in such homes, end-user organisations and community care providers are also relevant groups. Moreover, professionals in the building trade that construct, build and re-fit such homes, including architects and engineers are likewise key stakeholders. Age-friendly and ergonomic design is also part of the University curricula, contributing to more widespread knowledge of its importance.

For the aspect of tourism, tourism providers who run hotels are key stakeholders, potentially together with tourism boards which may publicise such offers. Because the housing market across the EU is rather heterogeneous, national and regional stakeholders play a major role.

5.6.6 Technological and social readiness

Both adaptable and smart home solutions already exist in practice. However smart home solutions are not yet employed in private homes on a large scale basis. The social readiness for adaptable homes is relatively good, while there are still some concerns regarding data security and ownership in relation to smart home solutions.

5.7 Knowledge for an active and healthy lifestyle

5.7.1 The opportunity

5.7.1.1 Brief description

Life expectancy has increased substantially across the EU and on average, life expectancy at birth is 78.1 years for men and 83.6 years for women. However, given an average number of healthy life year at birth of 61.4 years for men and 61.8 years for women, men can only expect to live around 79% of their life in good health and women can only expect to live around 74% of their life in good health (Eurostat, 2014). Life expectancy at age 65 for men is 18.2 years and for women it is 21.6 years and healthy life years at age 65 is 8.6 years for both sexes (Eurostat, 2014). This means that, on average, at age 65 men can only expect to live close to half of the remaining years in good health and women can only expect to live 40% of the remaining years in good health.

The idea is to support the integrated development of tools/apps for data analytics that support and promote the development of globally competitive products for improved nutrition for healthy ageing. Opportunities can integrate developments in various growing sectors – see table below.

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198 See also http://ec.europa.eu/research/innovation-union/pdf/active-healthy-ageing/silvereco.pdf#view=fit&pagemode=none
199 http://ec.europa.eu/health/dyna/echi/datatool/index.cfm?indlist=40a
200 http://ec.europa.eu/health/dyna/echi/datatool/index.cfm?indlist=40a
A structured form of advice supported by empirical, scientific and/or experimental evidence could help to unleash opportunities for the Silver Economy. A hub of reliable and trusted knowledge is a much needed tool. The hub can be used to increase knowledge about the importance of nutrition, health and dental care, exercise, etc. with the aim to improve stamina, concentration, memory, sleeping patterns, gut health, etc. and offer support for a healthier and more active lifestyle overall. It would be possible to offer personalized lifestyle advice including healthy dietary intake. It could integrate individual’s data, drawing from wearable technologies. Older people can be empowered to monitor their health status and the data collected can be used in health checks. Wearable technology clearly has huge potential for older people, from a prevention and wellbeing perspective, but without fixes to the current problems of interoperability and security, these kinds of products are going to be slow to diffuse among older generations.

Table 14 Overview of sectors related to supporting an active and healthy lifestyle

<table>
<thead>
<tr>
<th>Sector</th>
<th>Idea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wearable technologies including activity trackers (e.g. eyewear wristbands, watches, wearables)</td>
<td>Development of new integrated technology and/or wearable technology can be used to collect information about health and wellbeing and provide advice to further increase health and wellbeing. User data, collected via e.g. fitbits can be re-used in health checks. Personalised fitness plans can be set up, tailored to the health and/or recovery of older adults. Older people can be ignored by technology market trends, which is a big wasted opportunity. Current product designs do not target older people and are not specifically designed for older people</td>
</tr>
<tr>
<td>Functional foods and personalised nutrition</td>
<td>Foods or food components that may provide benefits beyond basic nutrition can be custom designed to deliver personalised nutrition. There is an opportunity to identify the specific age-related needs in the current global functional food market and to develop products related to prevention/treatment/management of particular diseases or conditions. Conditions such as dehydration, and osteoporosis, that are more prevalent amongst the older generations could, to some extent, be prevented or treated by means of personalized nutrition. Conditions such as dementia including Alzheimer’s can also lead to poor nutrition.</td>
</tr>
<tr>
<td>Preventative medicine</td>
<td>Despite increasing attention for preventive medicine, the healthcare system is still predominantly focused on treating disease. Evidence based multimodal solutions can be made available to older people, with a view towards personalized medicine</td>
</tr>
</tbody>
</table>

5.7.1.2 Barriers and market failures
The lack of interoperability of different technologies hinders the uptake of healthy ageing solutions. Sustainable and usable solutions for active and healthy ageing include convergence of several technologies such as the cloud market and communication tools. Setting standards and reducing the complexity and the fragmentation of the market helps in enabling different approaches to converge. This for example enables the organisation of tools in a central hub. A fragmentation may also exist in terms of available products, as no single wearable and app may cover the whole spectrum needed to support an active and healthy lifestyle.

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201 Report EU summit on Innovation for Active and Healthy Ageing, 2015.
The lack of recognition for ICT solutions in Health Care Systems. For example, Adapted Physical Activity is not always recognised. The required re-organisation of care is not sufficiently taking place. The current risk-averse procurement strategies hinder the uptake of more innovative and efficient solutions.

There is currently a lack of scale in active and healthy ageing solutions. Implementations only take place on a small scale and are scattered across different regions and municipalities. The lack of scale intertwines with a lack of capacity and knowledge on how to develop these solutions at a larger scale and results in few evidenced benefits, no ecosystem of well-aligned stakeholders and the limited availability of solutions.

While technological solutions exist to assist older people in maintaining an active and healthy lifestyle, there may be a perceived lack of service and business models to support the uptake of such solutions. Even with such models in place, users will only be ready to pay for a service if it provides them with an adequate value.

5.7.1.3 Market prospects – size, growth trends and scalability

Older people would disproportionately benefit from healthy ageing solutions because their physical and cognitive functions change more rapidly. In the upcoming years, life expectancy is predicted to increase. In 2030, it is expected that life expectancy in the EU27 will be 85.3 years for women and 80 years for men. It is predicted that in 2025, 42.9% of the EU28 population will be aged 50 years and older. The rise in average age can be illustrated with the proportion of women that will be aged 65+, which was 19% in 2008 and will be 26% in 2030. The challenge for Europe is to ensure healthy ageing. While currently 4 people are working for every retired person, in 2025 this number will have dropped to 3 and in 2050 only 2 people will be working for every retired person. Keeping people healthy is important, in order for them to contribute to the economy as long as possible.

Healthy ageing solutions do not necessarily only have to be available for the 50+. A large part of healthy ageing is prevention, supporting people to stay healthy and involved in monitoring their own health. This could also include providing them with relevant environmental information, such as pollution levels, extreme temperatures and the occurrence of allergens. Another part of healthy ageing is treatment, where in the case of older people needing medical assistance, technology could enable the accessibility to innovative solutions for supporting and complementing health improvements. Active and Healthy Ageing solutions therefore need to be offered to all age groups but are particularly important for the older adults. While it is important to start living healthily at birth, it is shown that changes in lifestyle, even in later years, can bring health benefits. Furthermore, active and healthy ageing solutions can also play a role in the treatment of diseases. The market for active and healthy ageing is therefore expected to be sizable and growing. Currently, only 47.5% of the people between 50 and 74 years is active compared to 68% of the people aged 25 to 74. This shows there is room for improvement.

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202 EC extra data
203 Eurostat 2010
204 National Positive Ageing Strategy Ireland
CCS Insight estimates that the global market for wearable technologies will grow from €13.5b ($14b) in 2016 to €32.9 ($34.2b) in 2020\textsuperscript{205}. IDTechEx produced more bold estimates and predicts that the wearable technology market will grow from €28.9b ($30b) in 2016 to over €38.5b ($40b) in 2018 to over €96.2b ($100b) by 2023 and €144.3b ($150b) by 2026\textsuperscript{206}\textsuperscript{m} which includes the following products: Smartwatches, Fitness trackers, Smart eyewear, Smart clothing, Medical devices, and other infotainment devices.

According to a publication from 2008, the EU global functional food market falls into a range of €25b-€60b, where dairy products and beverages have the larger market share\textsuperscript{207}. More recent estimate for the global functional foods market estimate that revenue for 2013 was around €161.3b ($168b) and that the market will grow to more than €293.2b ($305.4b) by 2020\textsuperscript{208}.

Users of (private) home automation products are mostly higher-educated people that are able to afford these products and that are aware of the importance of healthy living. It is more difficult to reach lower-income as well as older citizens who could also benefit from these technologies. Games might be a way to achieve this. As shown in the figure below, the internet is used as a key information source for information on health and wellbeing; but the use varies between 26% and 66% across EU countries.

*Figure 15 Percentage of individuals aged 16-74 that used the internet in the last 3 months, seeking information about health: injury, disease, nutrition, improving health, etc.*

5.7.2 **Challenges - identified need for action**

In order to develop innovative services in the domain of Active and Healthy Ageing, several challenges need to be overcome. In recent years, various pilots and prototype systems have

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{205} http://www.forbes.com/sites/paulamakin/2016/02/17/wearable-tech-market-to-be-worth-34-billion-by-2020/#600d12eb3ef3
\item \textsuperscript{206} http://www.idtechex.com/research/reports/wearable-technology-2016-2026-000483.asp
\end{itemize}
\end{footnotesize}
been undertaken and there has been some evidence showing real benefits in relation to the implementation of these innovations. Nevertheless, many of these types of innovations have failed to reach the wider consumer base.

One of the main challenges is the fact that many active and healthy ageing solutions are currently of a local or regional nature. These efforts by themselves do not result in a scalable and competitive EU market for industry. This hinders the possibilities of economic growth and the creation of new jobs that could come with the larger scale implementation of these technologies.

The lack of scale intertwines with the refusal of several important organisations and care professionals to take up innovation in the active and healthy ageing domain, even though pilots have evidenced the benefit of these solutions. Also, several national and regional authorities have not yet committed themselves to the deployment of these innovations. The European Innovation Partnership on Active and Healthy Ageing has made progress in this respect, with bringing together over 3,000 stakeholders that have committed themselves to the scale up of innovation in active and healthy ageing.

5.7.3 Added value of EU action

The current market size of active and healthy ageing innovations is small, even though pilots show promising results. The wider up-take of innovations could be actively promoted by the EC, through several policy actions, such as the provision of systematic support to active and healthy ageing innovations - for example through innovative procurement in EC funding programmes - and by offering risk-sharing opportunities to procurers. Furthermore, jointly with national initiatives, the EC could help raise awareness about the importance of active and healthy ageing and could facilitate the building of new and sustainable networks.

The added value of EU wide actions that stimulate the take-up of active and healthy ageing innovations will result in the building of knowledge and capacity, the increased quality of care and improved health status of citizens, more effective care systems and economies of scale for ICT solutions., contributing to jobs and growth across the economy.

5.7.4 Existing or planned initiatives to build on

There are several examples of existing policy initiatives in Europe that focus on Active and Healthy Ageing. The Irish National Positive Ageing Strategy, published in 2013, has the goal to “support people as they age to maintain, improve or manage their physical and mental health and wellbeing” and focuses on Healthy Ageing, for example by pointing out several (unhealthy) lifestyle factors that influence chronic diseases. The strategy recognises that technologies can offer new ways to support people to live longer, independently at home and benefit prevention and self-care. Based on the strategy, a Healthy and Positive Ageing Initiative (HaPaAI) was developed that monitors changes in health and wellbeing of older people, linked to the goals and objectives of the strategy.

Another initiative is the German Strategy on Active and Healthy Ageing that was implemented in 2012 and is coordinated by the Federal Centre for Health Education. The aim of the strategy is to connect governmental, non-governmental, academic and private stakeholders on several key topics. These topics are physical activity, healthy diet, mental health, substance abuse, dissemination of knowledge on diseases and integration and
participation. The strategy should enable the support of an active and autonomous healthy lifestyle and reduce the need for care.

The Swedish National Research Agenda “an ageing population”, also focuses on the three priority areas health, nutrition and housing. The agenda highlights a role for welfare technologies in order to take preventive actions and to bring tailored solutions to older adults.

There are also initiatives that try to introduce ICT in people’s homes in order to enable Active and Healthy Ageing, mainly focusing on prevention. In France, the Get Physical web platform (GetPhy)\(^\text{209}\) was started by the non-profit organisation Siel Bleu that offers solutions for prevention and support of older people through Adapted Physical Activity (APA) programmes. GetPhy is an innovative web platform that promotes APA and focuses on prevention. The platform brings older adults at home in contact with people from the sports world and helps them getting a better view of what APA programmes are available in their area. Users of GetPhy can assess their own physical condition, access a range of adapted recommendations and exercises to do at home in complete safety. Furthermore, GetPhy encourages people to strengthen their social ties since users have the possibility to set up communities with others to talk about their experiences and organise group sessions or sporting events (e.g. walking groups). The goal of the platform is to create an ecosystem of professionals and users in order to promote an active lifestyle among older people at home.

In the Netherlands, a regional initiative was started called the Healthy Ageing Network in order to develop a portable sensor-system that provides users with information about their lifestyle via a smartwatch or smartphone. The user also receives notifications with suggestions on how to improve their lifestyle. The system is connected to a database, in order to enable large scale research into lifestyles in relation to health and vitality. The final goal of the project is to stimulate high-end innovation of companies. Furthermore, the project should help prevention and reduce expenditures on care. It is executed in collaboration with businesses, the University of Applied Sciences in Groningen, the University Medical Centre Groningen and the General Health Service of the Netherlands.

Other EU-initiatives that focus on treatment are: REMPARK\(^\text{210}\), a monitoring device for Parkinson’s Disease patients that allows for real-time monitoring of patients, which benefits disease management; RGS\(^\text{211}\), a virtual reality-based training system that enables patients to rehabilitate after a stroke; DOMEO\(^\text{212}\), a domestic robot that assists older adults live at home for a longer period of time, in particular people that suffer cognitive decline; and SILVER\(^\text{213}\), a pre-commercial procurement scheme that stimulates innovation in robotics that supports older people with independent living.

\(^{209}\) www.getphy.com


5.7.5 *Recommended EU policy actions*

A major possible point of influence for policy makers is the scale up of initiatives across Europe, for example by promoting APA programmes and the introduction of ICT tools in healthcare systems. It is important that proven innovation practices are spread across European regions, something the EC can facilitate with actions such as raising awareness about the benefits of solutions in the active and healthy ageing domain. Essential to this is the development of partnerships and ecosystems that are transnational. In response to the activities by the European Innovation Partnership for Active and Healthy Ageing (EIP-AHA), a first step is being taken towards developing a European scaling-up strategy for the Active and Healthy Ageing Domain by DG SANCO and CNECT.

A possible way to reach this, is by seeking synergies with other domains such as Smart Cities, to ensure fragmentation of the market is limited and open platforms are developed that support multiple applications, with low cost and with the opportunity for economies of scale.

Furthermore, the link between producers and suppliers across Europe can be improved. The EU could play a role in co-engaging stakeholders, for example by developing a closer relation with health insurance companies. This could benefit the supply-demand chain. A co-design approach in the early stages of research and development could also be promoted, in order to stimulate synergy between technologies.

Finally, risk-taking and innovation can be stimulated by EU instruments. Via EU member states, it is possible to raise a sense of urgency, ensuring the quick development and uptake of new innovations.

5.7.5.1 *Key stakeholders*

Development of technology in the healthcare sector is fast, large players such as Google, Nest and Samsung are heavily investing in home automation products, which makes it difficult to predict how the technologies will develop and who will be involved. In general, it can be expected that key stakeholders will be technology providers, technology suppliers and organisations in the healthcare sector. For example, health insurance companies might also be interested to connect with several healthy and active aging applications and health care providers might enjoy benefits from integrating these technologies in their working environment.

5.7.6 *Technological and social readiness*

In terms of technological readiness, there are a variety of ICT tools and apps, including wearable technologies, which are widely used. What is still missing, however, is their integration, and thus for one solution to cover all relevant aspects to support an active and healthy lifestyle. The social readiness depends on the specific products in questions. Wearable technologies have many users, but such technologies are not necessarily seen as something for older people, and certainly not marketed as such. The social readiness for

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214 [https://madeby.google.com/home/](https://madeby.google.com/home/)
215 [https://nest.com/](https://nest.com/)
functional food and preventive medicine depends in part on the attitude towards taking responsibility for one’s own health.

5.8 Age-friendly universities

5.8.1 The opportunity

5.8.1.1 Brief description

Ageing populations offer opportunities for re-education and diversification in the workforce. ‘Age-friendly’ universities and age-friendly further education should be promoted. Universities are typically engaged with preparing young people for a professional career. Dublin City University became the first designated Age Friendly University (AFU)\(^\text{237}\). The university is leading a network of age-friendly universities to work collaboratively to meet the needs of an ageing demographic and to support active and healthy ageing. The university has developed 10 Principles of an Age Friendly University. Adult education is becoming more popular across various EU countries, e.g. several German universities have specific programmes for older people termed ‘Seniorenstudium.’ In the Netherlands, around 30 HEIs offer higher education for older people (50+) under the umbrella of HOVO (Hoger Onderwijs Voor Ouderen). The organisation offers education at an academic level but no exams. Around 25,000 older people take part in education HOVO each year. In the Czech Republic, the concept of “Universities of the Third Age” has become very popular after 2000 and currently, the majority of higher education institutions offer some courses for seniors and for the older adult.

A specific focus could be on the proposition of digital technology courses for older adults, which could increase the employability of older adults later in life and help them retain their cognitive skills. For example, assignments involving internet searches and an element of ICT skills training could contribute to increase the ICT skills of older people.

Redundancies have a particularly negative effect on the career prospects and wellbeing of people in the 50-60 age group, as while these individuals might reasonably expect to have the opportunity to work for another 10-20 years before retirement, attitudes and competition within the labour market can make it very difficult for people to find work with new employers or in new sectors, with a growing proportion of people in this age-group ultimately leaving the working population years before their retirement age. The economic benefits of policy intervention here are largely indirect, and concern the deleterious effects on wellbeing, families and the wider community. There are possibly some direct economic benefits, through Europe’s education and training providers beginning to develop targeted courses, much of it online, specifically for older people, and for which they are able to charge. Moreover, e-learning can become a big market in the future as universities in the EU will be able to market their courses world-wide. Initially, the market may not bear the full costs and some form of public support may be necessary.

Objectives include:

\(^\text{237}\) The age friendly university network includes Dublin City Univers, Arizona State, Lassell College Boston, University of Manitoba Canada, National University of Ireland Galway, National College of Ireland, Leeds Beckett University UK, Athlone Institute of Technology and Strathclyde University in Glasgow
• Increase the employability of the older adult by re-training
• Increase the offer of universities, contributing to jobs and growth in the education sector
  – Formal Bachelor/Master courses
  – Short training courses, eg in liaison with employment agencies and the private sector
• Contribute to a longer active life-style of the older adult

5.8.1.2 Barriers and market failures
There are three main types of barriers to lifelong learning that older people face: attitudinal, situational and institutional (Cross, 1981)\textsuperscript{218}.

• Attitudinal barriers
  – Older learners have a negative perception about their ability to gain new knowledge, which negatively affects their motivation and interest in gaining new knowledge.
  – Educational providers have a negative perception about the ability, motivation and interest of older people to gain new knowledge. There is a general lack of awareness about older people’s interest in continued education and how to best address it. In this regard, the (potential) contributions of older people to the workforce are not always valued and supported enough.

• Situational barriers encompass personal circumstances such as poor health, other responsibilities and lack of resources

• Institutional barriers encompass organisational practices that discourage older people to partake in higher education. For example, course schedules may not be flexible and older people may be less aware about educational programmes. Also, some infrastructural barriers may impede accessibility.

For those older people still in employment, further barriers can include a lack of incentive for their employers to encourage further education. Employers may be more inclined to support the further education of younger employees, even though many older employees would welcome this opportunity as well.

5.8.1.3 Market prospects – size, growth trends and scalability
Although few data is available on the size and growth rate of Europe’s training markets, experts estimate the market to be between €80b–€100b per year (2013 data)\textsuperscript{219}. One of the priorities is training related to developing or using ICT. One of the main growth areas is MOOCs\textsuperscript{220}, at present primarily offered by university colleges, but expanding towards vocational training suppliers and suppliers of medical services and digital devices to increase digital skills of users, elderly people and carers. PWC estimate that the global value of the connected education market could be as high as €431b ($446b) by 2020, comprising of


\textsuperscript{219} https://www.trainingindustry.com/blog/blog-entries/how-big-is-the-training-market.aspx

primary, secondary (€63.7b ($66b)), higher and tertiary (€197.9b ($205)), and the business, corporate, vocational e-learning market (€167.9b ($174))\textsuperscript{221}. At present, only to some extent digital skills courses are targeted at specific groups such as current and future staff in health care. A good example is Coursera that provides courses on health literacy, e-health and health analytics\textsuperscript{222}. In view of the manifold specific requirements that health services for elderly people pose, this seems to indicate that new market opportunities could rapidly open up.

Currently spending on education for the 50+ is only a fraction of the spending on education for younger generations but because people are living longer and retirement age is increasing across Europe, there is an increased need in up-skilling the 50+. Williams et al. (2010)\textsuperscript{223} suggest that total annual expenditure on formal and informal learning for the 50+ population in the UK amounts to approximately €1.9b (£1.7b) (2007/08). This includes public expenditure, tax relief, expenditure on employee development, expenditure by self-employed, expenditure by the voluntary and community sector, and individual expenditure on learning, which is approximately 10\% (approximately €190m) of total expenditure for the older learner (UK population aged 25+). Following a survey by Aegon (2015)\textsuperscript{224}, around 9\% (average across 15 countries) of the 55+ are offered retraining or reskilling opportunities by employers.

When looking at the annual cost of higher education to the older adult and the estimated number of older adults enrolled in higher education, we find that, in the UK, the estimated contribution to the silver economy falls within the range €141m-€211m. For Germany, it is estimated that the spending on education for older adults falls within the range of €5.5m - €33m. In the Czech Republic, the Netherlands and Ireland there are examples of modules that are tailored to the needs of older adults. Such tailored courses may be less prescriptive and designed around the interests and preferences of older adults. The value of these types of modules can be estimated around €8m for HOVO adult education in the Netherlands. Altogether these figures suggest that there is an appetite amongst older people for continued higher education.

Older peoples’ participation rate in education is increasing relatively faster than younger people across all existing education levels. The participation rate of people aged 55-74 in tertiary education and training (in the last 4 weeks) has increased from 9.4\% in 2007 to 11.2\% in 2015, growth rate of 19\%. The participation rate of older adults (25-74) in tertiary education and training increased from 17.0\% in 2007 to 17.7\% in 2015, a growth rate of 4\% (data from Eurostat). This suggests that there is a need for the higher education sector to accommodate this increase in demand for (age-friendly) higher education. This is also related to the fact that today individuals are much less likely now to stay in the same occupation throughout their career and this increases the need for re-skilling. The number of job changes varies across countries and typically the number of job changes are greater in the first ten

\textsuperscript{221} http://pwcmegatrends.co.uk/mylifeconnected/education.html

\textsuperscript{222} https://www.coursera.org/learn/health-literacy


\textsuperscript{224} https://www.aegon.com/siteassets/research/aegon-flexible-retirement-report.pdf/
years of an individuals’ career –British and German men are estimated to have around 3-4 jobs over their life time (Borghans and Golstyn, 2010).

Table 15 Spending on Higher Education by older people - examples of programmes in EU member states

<table>
<thead>
<tr>
<th>Age group</th>
<th>Cost of higher education to the older learner</th>
<th>Estimated number of older learners enrolled in higher education</th>
<th>Estimated annual contribution to the silver economy</th>
<th>Estimated annual contribution to the silver economy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>€100-€600 per year</td>
<td>55,000 (225)</td>
<td>€5.5m - €3.1m</td>
<td>Older people</td>
</tr>
<tr>
<td>UK</td>
<td>€6,700-€10,000 per year</td>
<td>21,085 (226)</td>
<td>€141m - €211m</td>
<td>60+</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>€45 per module (on average)</td>
<td>48,000 (227)</td>
<td>€2.2m - €4.3m [assuming 1 or 2 modules per person]</td>
<td>Retired population</td>
</tr>
<tr>
<td>The Netherlands, HOVO</td>
<td>€160 per module (indicate)</td>
<td>25,000</td>
<td>€4m - €8m [assuming 1 or 2 modules per person]</td>
<td>50+</td>
</tr>
<tr>
<td>Ireland, DCU – age friendly</td>
<td>• €500 per module</td>
<td>100 (second semester on offer)</td>
<td>€50,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• €500 per module</td>
<td>500 (attending modules of different lengths)</td>
<td>€30,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• €50 per 4 week module</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

There are several economic advantages to increase higher education for older people:

- Expanding the offer of Higher Education could contribute to create opportunity for additional jobs and growth in the educations sectors, ie as evidenced by the examples above.

228 [https://www.hesa.ac.uk/data-and-analysis/students](https://www.hesa.ac.uk/data-and-analysis/students)
229 The Czech Ministry of Education, Youth and Sports subsidises the courses of the “University of the Third Age” at HEIs with €815,000 annually. Source: [http://www.msmt.cz/file/36866_1_1/](http://www.msmt.cz/file/36866_1_1/).
230 [http://www.msmt.cz/file/36866_1_1/](http://www.msmt.cz/file/36866_1_1/)
234 [https://www4.dcu.ie/agefriendly/initiatives.shtml](https://www4.dcu.ie/agefriendly/initiatives.shtml)
The participation of older individuals in the labour market in the long term, which in return can increases growth. The Leitch Review (2006)\textsuperscript{235} provided an overview of the economic benefits of increasing the level of education and skills of adults. Up-skilling (an estimated 3.5m adults) was estimated to produce an estimated benefit (of €95–€112b [£85-100b] to the UK economy), leading to increase in employment and productivity of around 10%. The OCED (2006)\textsuperscript{236} finds that low employability of the 50+ is related to a lower participation in training for this age group.

If a greater uptake of life-long learning leads to an increase in the population of older people in full-time employment, then this consumer group has more disposable income for the Silver Economy. As a result of a lifelong learning trajectory, older people might also be able to transition from voluntary work to paid work and may remain in paid work for a longer period of time. According to analysis of the European Quality of Life Survey (EQoLS) 56% of volunteers who are not in paid employment would like to spend more time in paid work.\textsuperscript{237}

Higher education and re-training for older people can have a disproportionate positive effect on some sectors by positively contributing to address skills shortages. Especially in the health and care sector there are key shortages in nurses, amongst other. The social care sector has consistently had a workforce with an older age profile and the number of older workers active in the sector is increasing.\textsuperscript{238}

5.8.2 Challenges - identified need for action

The average employment rate of 55-64-year-old in the OECD is 58.5\%, substantially lower than the average employment rate of the 25-49 year old in the OECD, which is 76\%.\textsuperscript{239} Amongst EU member states the employment rate of the 55-64 year old is highest in Sweden, where approximately 75\% are employed and it is lowest in Greece where only 35\% are employed. Employment rates amongst the 50+ have increased substantially in some EU countries, eg in the UK employment rate for the 50-64 year olds increased from around 55\% to 70\% over a period of 30 years.\textsuperscript{240}

Adult education and training can contribute to increase the employability of older people. In this regard the OECD has set out a number of recommendations including the following. “Promote the employability of workers throughout their working lives with a view to strengthening employment opportunities at an older age” and “enhance participation in


\textsuperscript{239} http://www.oecd.org/employment/ageingandemploymentpolicies.htm

\textsuperscript{240} https://data.oecd.org/emp/employment-rate-by-age-group.htm#indicator-chart

training by workers throughout their working lives by providing guidance services and ensuring that training is adjusted to reflect the experience and learning needs of workers at different ages, including strengthening access to work-based training for those in non-standard forms of work, encouraging increased investment in skills development at mid-career and improving the attractiveness of training and its potential returns for older workers by adapting teaching and learning methods and content to their needs. ” Related challenges include age discrimination, increase incentives for working longer, and linking age awareness to economic opportunities.

Despite the socio-economic benefits of continued education, older adults are much less likely to enrol in higher education programmes than younger people are. By encouraging older adults to continue education and training it is likely that more people will enrol in higher education and can seize the associated socio-economic benefits.

This might mean that older adults are able to return to employment and become more productive for longer periods. By promoting an age-diverse culture in the workforce, the EU can also draw on the experience of older workers to improve services (e.g. in the care sector) and successful ‘silver entrepreneurs’.

Other benefits from education and training for older people are mental health benefits and increased socialisation and interaction with the community, leading to less social deprivation and associated health and welfare challenges.

5.8.3 Added value of EU action

The EC, via DG Education and Training is an active supporter of lifelong learning and under the framework programmes funding is set aside for the adult learner. No specific European policy exists to support higher education specifically for the 50+.

The efforts made to support higher education for older people at the national level differs substantially. Several EU member states have HEIs with targeted programmes of older adults and other member states do not. Silver Economy consumption of national public education services is very small: only 0.2% of all education spending across the EU. Moreover, national budgets do not prioritise education for older people and there is a lack of investment in increasing the employability of older people. There is opportunity to do more. As an example, several US states (eg New York) have mandated tuition waivers and/or discounts for older adults at public colleges and universities²⁴².

The EC has to opportunity to drive a more positive outlook about the wider benefits of education for older people, and support retraining older people via higher education programmes tailored to the 50+.

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5.8.4 *Existing or planned initiatives to build on*

Older adults already take part in Higher Education across the EU. At some Universities, the percentage of 60+ is 3% of the total student body, e.g. as is the case at Birkbeck. With support from the Irish Government, Dublin City University became the first designated age-friendly university. The university has developed the following 10 Principles of an Age Friendly University that are now adopted by universities in Ireland, the UK and the USA:

- To encourage the participation of older adults in all the core activities of the university, including educational and research programmes.
- To promote personal and career development in the second half of life and to support those who wish to pursue "second careers".
- To recognise the range of educational needs of older adults (from those who were early school-leavers through to those who wish to pursue Master's or PhD qualifications).
- To promote intergenerational learning to facilitate the reciprocal sharing of expertise between learners of all ages.
- To widen access to online educational opportunities for older adults to ensure a diversity of routes to participation.
- To ensure that the university's research agenda is informed by the needs of an ageing society and to promote public discourse on how higher education can better respond to the varied interests and needs of older adults.
- To increase the understanding of students of the longevity dividend and the increasing complexity and richness that ageing brings to our society.
- To enhance access for older adults to the university's range of health and wellness programmes and its arts and cultural activities.
- To engage actively with the university's own retired community.
- To ensure regular dialogue with organisations representing the interests of the ageing population.

These principles were developed based on a multidisciplinary working group and organisations active in the ageing sector. The ten principles form a holistic framework, generic enough for different universities to endorse and work towards. Members of the AFU network are asked to map themselves against these principles and to identify actions points there where progress is needed.

Older adults at DCU can engage in a number of formal (Credit) learning modules and informal education and health and sports activities. The formal education offering allows older people to partake in modules alongside younger adults. The DCU Intergenerational Learning Programme is a more customised and informal programme. DCU has a programme (DCU Connected) for online and digital learning. The medical exercise programme (MeDEX)

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244 [http://dcu.ie/agefriendly/index.shtml](http://dcu.ie/agefriendly/index.shtml)

245 [https://www4.dcu.ie/agefriendly/initiatives.shtml](https://www4.dcu.ie/agefriendly/initiatives.shtml)
programme is a programme targeted towards older people for (preventative) health management and is funded by Medtronic – over 700 participants participate each week.

In Spain, the Spanish National Association of University Programmes for Older Adults was founded in 2002 as a not-for-profit organisation, mainly by public and private universities.246 Throughout the country, there are initiatives which offer university courses for older people, for example the Inter-University Programme in Castilla y León.247 The National Association promotes these university courses to older people and supports the providers of courses with opportunities for networking, lobbying and new insights in the field.

The Ministry of Education, Youth and Sports of the Czech Republic supports courses of the “University of the Third Age” designed and offered at the majority of the Czech higher education institutions (22 of 26). In most general terms, the main goal of the University of the Third Age is to facilitate access to the most recent scientific, technological, cultural and societal knowledge to the older adult. The initiative is subsidised from the public budget by €815,000 annually. In 2016, almost 48,000 seniors participated in one or more modules/courses, amounting to more than 906,000 student-hours in total. Participants pay a fee that is variable per HEI and even per module. On average, participants pay €50 per academic year per module. Although subsidised by the government, the highest cost is covered by HEIs themselves, who organise these courses as part of their “third mission”. They created an umbrella organisation Association of Universities of the Third Age of the Czech Republic.248 This organisation aims:

- To ensure the stability in funding Universities of the Third Age
- To create quality standards for the modules
- To develop the branding of the Universities of the Third Age
- To provide a platform for knowledge sharing
- To maintain and develop international collaboration
- To develop inter-generational dialogue

The Strategic Plan of the Association for 2016 – 2020249 aims at raising awareness of the importance of Universities of the Third Age in the society and improve the availability of the modules and courses. This also helps to improve seniors’ quality of life and enriches their socialisation.

In the recent years, the “Virtual University of the Third Age” has started to emerge in the Czech Republic. Standard courses in classrooms and lecture halls are complemented by courses and modules designed for online platforms, similarly to MOOCs. This allows less mobile seniors from remote locations to participate in the courses and modules from many locations.

246 http://www.aepumayores.org/en/contenido/presentation
248 http://www.au3v.org/
249 https://docs.google.com/viewer?a=v&pid=sites&srcid=ZGVmYXVsdGRvbWFpbnxhdTNIb3Nob3JmjGd4OmYzYTMmODY4NjkwMTBkOA
libraries, municipal centres and day centres, without having to travel to the university campus.

The Open University in the UK is a pioneer in distance learning offering 150 programmes.\textsuperscript{250} The Massachusetts Institute of Technology has been running its OpenCourseWare programme for 15 years\textsuperscript{251}. These and other online programmes (Massive open online courses or MOOCs) already are of interest to older adults.

5.8.5 \textit{Recommended EU policy actions}

Target HEIs and support HEI to improve their offer of higher education for older people

- Promote the age-friendly university concept, eg working together with current age-friendly higher education providers
- Share best practices
- Create awareness of the increasing demand in higher education by older people
- Establish a standardised accreditation and contribute to develop the European market for e-learning

Target the older population promote the uptake of higher education for older people (50+)

- Create awareness around the possibility for higher education programmes for older people
- Create awareness around existing e-learning programmes
- Create awareness about the benefit of life-long-learning
- Promote language learning and knowledge about cultural diversity and the LLL concept

Moreover, there also is a role to contribute to improve the perception of older people in the workplace. This involves generating more inclusive and age-friendly work environments and supporting older peoples’ access to jobs.

5.8.5.1 \textit{Key stakeholders}

Key stakeholders are older people as the users of such offers, HEIs, national/regional governments and accreditation bodies. Volunteers and informal adult education providers may also play a role, as may employers.

5.8.6 \textit{Technological and social readiness}

The technological readiness is especially relevant for education offers which rely on ICT solutions for delivery. Online courses have been offered for many years, and the speed and access of internet available in private homes has steadily increased. The courses themselves have also been further developed. An important aspect of the design remains the ease with which the content can be navigated. In terms of social readiness, in many European countries, university courses for older people have been offered and received good acceptance for many years. For online courses, there may still persist a view that they are of less value than traditional courses.

\textsuperscript{250} http://www.open.ac.uk/courses/choose/ppcbrand

\textsuperscript{251} https://ocw.mit.edu/index.htm
5.9 Driverless cars

5.9.1 The opportunity

5.9.1.1 Brief description

Bringing driverless cars to market can help to increase the mobility of older people who tend to travel less frequently. Older people will benefit predominantly from advances in self-driving vehicle technology as it will enhance social inclusion and mobility. It also has various other benefits for road safety (older drivers cause and are injured in a disproportionate number of traffic accidents), emissions and congestion if incorporated appropriately into the legal and regulatory frameworks of society. It is thus essential to design the technology and the European standards in an inclusive fashion to ensure that older people's needs will be considered at the earliest stages. Such standards and design options should also take into account the needs of older adults with early onset of dementia and options to programme routes and preferences should be optimised towards user-friendliness.

Numerous commentators are predicting rapid progress with driverless cars (and intelligent driver systems) over the next 10 years, with several arguing that this cutting edge technology may be the first where older people will be the 'lifestyle' leaders: “younger people may have been the first to embrace smart phones, but it’s the 50+ consumers who will be first with smart cars.” Research at the Hartford and MIT AgeLab found that more than 70% of over 50s would like to test drive a self-driving car and over 30% said they would buy such a vehicle if the price was similar to that for a regular car. Initial market development exists around the introduction of driverless taxis and driverless public transportation such as buses.

Cars are a particularly important means of mobility for older people (because they are less able to walk long distances, climb stairs, use escalators etc.). Following a survey conducted in England, among the over 80s less than 55% report finding it easy to travel to a hospital, a supermarket or a post office (ILC-UK based on data from the English Longitudinal Study of Ageing). Older peoples’ ability and willingness to drive is handicapped by increasing physical frailty etc. The figure below illustrates that (in the UK) the proportion of individuals that hold a driving licence decreases by age – just over 40% of women of age 70+ tend to have a drivers’ licence, which leaves people heavily dependent on friends and family members and public transport.

Driverless taxis and shuttle buses are possibly a better option for many older people than car ownership. Driverless public transport would also benefit the older adult. Older people tend to use the public bus system relatively more. There may be options for specialised driverless busses for the frailer.

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Consumer trust in driverless cars is low at the moment and technical solutions are not mature yet. The private sector is investing heavily in these technologies (e.g. Ford, Google, Toyota, Uber and many others), with a growing number of large-scale demonstrators, many of which are supported by the public sector through city-wide initiatives. There is substantial public research too (e.g. Horizon 2020 projects on safe and connected automation in road transport), particularly around the development of individual systems and driving aids.

5.9.1.2 Barriers and market failures

There are a number of misconceptions and lack of trust around driverless cars. Potential consumers may not be aware of the rapid developments in the sector and that driverless cars are coming to the market within the next few years. There exists a level of distrust around the technology level and there is some scepticism towards the (improved) safety of driverless technology. There are a number of open questions, just to name a few: how to avoid accidents\(^{255}\), who is liable in case of accidents, what is the acceptable level reliability, what training will be provided, what licence ‘drivers’ will need and public opinion remains sceptical around this issues. Overall, increased public awareness can help overcome these barriers to a greater uptake of driverless cars.

In order to make driverless cars more accessible and appealing to the older customer it will be necessary to work harder at explaining and showcasing the technology to this age group. For instance, the term ‘driverless car’ will have to be revisited. As the industrial segment matures, gerontologists as well as older people should be involved in the co-design. This could involve the introduction of voice/video technology that can be activated to improve the user experience and enhance the feeling of safely. To some extend this already is happening in the car industry and doors, seats, dash board controls are being adjusted with this older age-group in mind (eg Ford\(^ {256}\)). Moreover, thought should be given to integrate the driverless transport in the overall transport mobility plan and there is a need to look creatively at different financial support models to help with affordability, whether that is the kind of


\(^{256}\) Ford Focus was designed with the needs of older drivers specifically in mind
purchase grants or infrastructure support available for all-electric vehicles or needs-based financial mechanisms like the UK motability scheme.

There are some technical hurdles that are yet to be overcome before driverless vehicles will be able to operate anytime and anywhere, specifically in relation to (global) maps and weather conditions\textsuperscript{257}. In relation to these challenges, (local) taxi services - or fleets of cars - are able to be scaled up at a faster rate. There also are (ethical) questions around safety/accident avoidance standards and cyber security – safety on entertainment systems or GPS navigation systems.

There are some barriers around insurance too. It is generally expected that self-driving cars will be safer and as a result of the improved safety, the insurance premiums could be lower. However, insurance providers first need to calculate the economic risk reduction of driverless transport and for this reason there will be a market delay\textsuperscript{258}. The challenges for insurers also include data storage issues. Insurers will need to access historical data of driver activity. If this is to include e.g. video the storage requirements will be immense. There will be both a technical challenge and a service challenge and work in risk assessment are likely to be of key importance.

Public transportation/bus systems will need to buy into the potential of driverless transport, to the benefit of the community. Law and legislation around autonomous driving is in development under different speeds, allowing certain countries able to seize a bigger piece of this upcoming market, e.g. the UK government has permitted testing autonomous cars on roads since 2013 and Switzerland allowed such testing since 2015.

Across the EU there is fragmentation amongst players, leading to unease about the legislative gridlock on unlocking the potential of driverless vehicles. The United Nations Vienna convention limits the speed of self-driving cars to 10 km per hour (the UK has not signed this convention). The EU has to make new legislation, to be transposed fit for purpose.

5.9.1.3 Market prospects – size, growth trends and scalability

Driverless cars are a developing market, with many car companies preparing to launch cars in the next few years. Since 2015, the Google Driverless Car Project already operates more than 20 autonomous vehicles\textsuperscript{259}. NuTonomy is expected to launch driverless cars in 2018. Delphi and MobilEye and Baidu are expected to launch driverless cars in 2019\textsuperscript{260}. GM, Volkswagen and Toyota are expected to launch driverless cars in 2020 and Ford and BMW in the year thereafter.

It is expected that driverless technology will first be introduced at a larger scale as part of taxi services. The CEO of Uber expects that the Uber taxi fleet will be driverless by 2030 and by that time the taxi service will be inexpensive making car ownership effectively obsolete\textsuperscript{261}.

\textsuperscript{257} \url{http://www.driverless-future.com/?page_id=774}
\textsuperscript{258} \url{http://www.driverless-future.com/?page_id=774}
\textsuperscript{259} \url{http://www.driverless-future.com/?page_id=155}
\textsuperscript{260} Source: \url{http://www.driverless-future.com/?page_id=384}
\textsuperscript{261} \url{http://mobilitylab.org/2015/08/18/ubers-plan-for-self-driving-cars-bigger-than-its-taxi-disruption/}
The cost for an autonomous taxi is estimated at €0.32 ($0.35) per mile, versus the €2.62 ($2.86) per mile a passenger currently pays in San Francisco. The average taxi in the U.S. costs €3.17 ($3.46) per mile.

The introduction of driverless cars in the automotive and ICT industry would profit from sales of such cars. Following one estimate, a driverless electric vehicle will cost €13,750 ($15,000) in 2020. BCG estimates that “partially autonomous features are likely to start at or above €3,670 ($4,000) per feature, while fully autonomous vehicles should hit the road in 2025 at around a €9,160 ($10,000) increase over sticker price.” Buses or vehicles tailored to the needs of the older and more frail adults are likely to cost more. It is estimated that a car that would cost €27,490 ($30,000) and, if implemented for taxi purposes, would be able to pay itself off in about five years (assuming rides are priced at €0.32 per mile).

In addition to taxi services, older people rely on public transport services and bus shuttle services. The introduction of driverless technology in public bus systems can increase the transport for older people and contribute to additional positive spillover effects around the improved mobility and enhanced activities of older people. Substantial opportunities also exist around the so-called connected transport market. PWC (2016) predicts that the global car sharing market will be €5.7b ($6b) by 2020 and the global connected cars market will be €119b ($125b) by 2020.

An in-depth study of the trends driving the development and adoption of autonomous vehicles concludes the following:

- “Mass adoption of self-driving technology will result in tremendous economic and societal benefits”
- By 2035, more than 12 million fully autonomous vehicles and 18 million partially autonomous vehicles are expected to be sold per year globally.
- The market for fully and partially autonomous vehicles is expected to leap from about €38.5b ($42b) in 2025 to nearly €70.5b ($77b) in 2035.
- By 2025, autos with autonomous vehicle features are expected to capture around 12%-13% of the new car market and by 2035, autos with autonomous vehicle features are expected to capture 25% of the new car market.

Fehr & Peers, a transportation consultancy, predicts that between 2040/2050 half of all traffic in the US will be autonomous.

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262 http://www.marketwatch.com/story/demand-for-driverless-cars-could-boost-uber-to-2016-09-19
263 http://www.marketwatch.com/story/demand-for-driverless-cars-could-boost-uber-to-2016-09-19
266 http://pwcmegatrends.co.uk/mylifeconnected/transport.html
In the EU, the motorization rate ranges from 672 cars per 1,000 inhabitants in Luxembourg to 235 cars per inhabitants in Romania. Autonomous vehicles could positively impact the use of car sharing, reducing traffic, congestion and pollution, especially in cities.

Economic opportunities also exist around public transportation/bus systems. Driverless buses have already been implemented. Daimler introduced a driverless bus in 2016 providing a shuttle service to Schiphol airport (the bus route included various tips and traffic lights – the bus can communicate with traffic lights). Similar developments are taking place in the city of London (Transport for London, TFL) and Heathrow airport and the UK government is investing £20m in driverless cars technology. Opportunities may also exist around the introduction of driverless trucks.

5.9.2 Challenges - identified need for action
The mobility of the older adult is sometimes impaired, leading to isolation and deprivation. Much of existing transport services for older and disabled people are highly dependent on volunteers. As a result of the ageing population, these voluntary services will become ever more under pressure and there is a danger that older people, especially older people living in more remote areas, will become more isolated.

It is possible to encourage mobility, of residents by increasing the offer of the public transport system via the introduction of driverless cars/buses. A driverless transport scheme would facilitate access to town centres, medical appointments, leisure and tourism activities. The scheme may also contribute to enhance accessibility to employment, thereby allowing the older adult to contribute to the job market for a longer period of time.

5.9.3 Added value of EU action
The EC is already part of the discussion on wide scale implementation of driverless vehicles – Informatics, DIGIT, Mobility and Transport (MOVE) and Internal Market, Industry, Entrepreneurship and SMEs (GROW). Discussions will have to be integrated, and could include a focus on the needs of the older consumer. There are some legal aspects as well, i.e. the Vienna convention and the EU plays a role in this discussion.

Development in the driverless car business are currently uneven and differences in the legislation enhances the discrepancy in developments across the internal market. There is a question around whether the EU national markets are ‘in time’ to compete with other global players and around what can be done to support market readiness.

5.9.4 Existing or planned initiatives to build on
The UK Department of Transport has published a Pathway to Driverless Cars Summary and Action Plan, a document setting out the UK Government’s plans to facilitate the testing and production of driverless cars. The Future of Transport in an Ageing Society: project report from ILC-UK and Age UK setting out the key transport challenges that arise from the UK’s

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269 http://ec.europa.eu/eurostat/statistics-explained/images/b/ba/Passenger_cars_in_the_EU.png
ageing population. Advances in technology, including driverless cars are seen as opportunities to further expand older people’s transport options.272

5.9.5 Recommended EU policy actions

- Technology is still in its early stages and there are challenges to gain the trust of the consumer, especially older people as a key target group. The EU can play a role in generating greater public awareness and about the safety of driverless cars.
- The EC can contribute to accelerate the discussion around standards, support pilots, emphasising the safety and benefit profile for older people.
- The EC should form a more integrated discussion on legislative issues.
- The EC can help tackle (financial) issues around the introduction of driverless public transport schemes.
- An EU wide scheme could be endorsed by best practices and the design of new and creative solutions to support the mobility of older people.

5.9.5.1 Key stakeholders

Key stakeholders include car manufacturers, public transport authorities, design teams, insurance companies, and many other players in the value chain. Key players include the Google Driverless car project, the Uber Advanced Technologies Center, the GM-Carnegie Mellon Autonomous Driving Collaborative Research Lab. In Europe, key plays are the Autonomous car team at the University of Berlin (Germany), the Technical University of Braunschweig (Germany), the Karlsruhe Institute of Technology (Germany), the Universität der Bundeswehr (Germany), TU Eindhoven (the Netherlands), Newcastle University (UK), VisLab, University of Parma (Italy), Oxford Mobile Robotics Group (UK), INRIA IMARA (France), EasyMile (France), and NavyaTechnology (France).

To ensure the needs of the older population are met, it could be important to involve community service providers who make transport arrangements for the older and more frail.

Industries that will experience a negative effect on jobs and growth will be the taxi drivers274 and the traditional car manufacturing industry.

5.9.6 Technological and social readiness

Driverless cars are coming to market by 2020. The driverless car market will change the car industry and older people (as well as the younger generations) can benefit from this change. To ensure that the needs of older and more frail people are taken into account in the driverless car design there may be various design challenges that need to be accounted for to ensure that this market segment is not left behind.

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5.10 Olderpreneur

5.10.1 The opportunity

5.10.1.1 Brief description

The demographic changes towards longevity and the yielding pressure on social and healthcare systems has pushed towards finding alternatives in jobs markets to integrate older people longer in active working life. Entrepreneurship opportunities for older people pose a great opportunity in career advancement for older people, especially after the economic crisis during which many people with long term experience and skills lost their jobs and have been forced to find alternative employment opportunities. People in the age group of 50+ are thus in general in a good position to start an entrepreneurial career and may also have some starting capital available for their business, reducing the need for start-up loans or early stage investment. Some studies have concluded that thanks to long term previous experience, knowledge and networks the companies started by older founders have a higher survival rate than average start-up companies. The entrepreneurship opportunities for older people are especially important in light of decreasing employment opportunities in the age group before retirement and pose an alternative to absence in workplaces. When compared to middle-aged people who are often at the peak of their career and have young children dependent on them, older people have more relative freedom to be able to devote to fulfilling their entrepreneurship dreams. According to the OECD report on inclusive entrepreneurship policies there were 6.5m self-employed people in the EU in 2012, counting for 21% of labour market activity in this age group. At the same time, the rate of self-employment among older people was 25.2% in 2002 and has thus dropped considerably meanwhile. Keeping that in mind, there is a clear business case for encouraging older people to start their businesses and supporting them in this process. There is further opportunity for governments with an aim to un-lock job creation by supporting older entrepreneurs with their start-ups. Potential activities include support through the provision of supportive training/guidance – financing, legal, prototyping, and incubator services. The provision of these services, as well the provision of space sharing facilities, could act as a creator of workplaces for the older adult.

Older people should be encouraged and supported to set up viable businesses. There is no limit to types of businesses that could be started by older people, however, typically these can include professional services based on their previous work experience, businesses built on hobbies and pastimes as well as socially innovative business models aimed at meeting the needs of other older people. It can also include self-employment and micro enterprises.

The objectives of encouraging olderpreneurship include:

- Keep older people active and engaged in society
- Provide older people with opportunity to earn income later in life

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275 http://www.50plus-europe.eu/opportunity-challenge/
• Increase jobs and growth by supporting new business developments
• Increase the opportunity for older people to work on product and service solutions tailored to the needs of older people

5.10.1.2 Barriers and market failures
The main market failure that keeps older people from actively engaging in entrepreneurship is that there is usually a considerable waiting period before investment to one’s own business initiative yields returns. Therefore, people are more motivated to engage in these kinds of activities if they see themselves reaping the future benefits of their time and monetary investment. The older the people become, the lower this incentive becomes. Kautonen and Minniti (2014) claim that the determinant of entrepreneurial activities is not so much how old people are but how old they feel themselves to be, thus establishing a connection between entrepreneurial activities with ageing well.

Furthermore, when compared to a regular job, self-employment creates less security. Survival rates of new businesses can be discouraging; 80% of new enterprises survive their first year and 44% survive a five-year period. Because a significant proportion of business do not survive there is a need to be cautious when investing e.g. retirement savings into a new venture plan. Moreover, often there is no sick leave, it is more stressful and time-consuming than traditional employment. Here again, the general wellbeing and health constraints come in to play.

Training and knowledge restraints are also major determinants which keep older people from entering entrepreneurial fields. On the one hand, general entrepreneurial knowledge is lacking among people that have been previously employed permanently and, on the other hand, there may be gaps in digital awareness required for success in business among older people.

As a result, in a survey from 2012 the older citizens did see becoming an entrepreneur desirable (30%) but were much less likely to see it as feasible path within next five years (16%). Despite not seeing it as a likely or feasible option, not many older people reported barriers to this chosen path. 10% thought that lack of capital would prevent them from starting a business, 5% saw a barrier in lack of skills and 4% saw a lack in business ideas. Therefore, the reasons for lack of incentives in starting the business can be sought after elsewhere.

OECD report on older entrepreneurship concludes that there are generic barriers to entrepreneurship that affect also older entrepreneurs – human capital, social capital and

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access to finances, while age-specific barriers for this group of entrepreneurs are declining health, financial disincentives, and age discrimination.\textsuperscript{280}

There also exist disincentives for older people to work (more flexibly) in relation to pension systems. For example, in Luxembourg, pensioners that are aged 57-64 may face pension deductions when they earn additional income but for pensioners that are 65+ there are no such pension deductions.

5.10.1.3 Market prospects – size, growth trends and scalability

There is a growing tendency of olderpreneurism in many countries. In some countries, e.g. the UK, the age mix of self-employed has already shifted towards older workers (ONS, 2016\textsuperscript{281}) About half of all retirees (in the EU) who are not in employment say they would like to work, often part-time. Proportions are higher for younger, highly educated and healthy retirees with work experience\textsuperscript{282}. 55% of those aged 55+ and are working envision a flexible transition to retirement, however, only 27% say their employer offers the opportunity to move from full-time to part-time employment\textsuperscript{283}.

The expectation is that increasing the level of entrepreneurship among older people could potentially extend people’s working lives – thinking some of the new entrepreneurs would have retired rather than simply switching from formal employment. Altogether, this could help ease the impact that demographic change will have on EU member states’ dependency ratios and fiscal sustainability.

The propensity of older people to stay in the labour market has improved over time, suggesting that an increasing pool of older workers are seeking work. Economic activity among individuals aged 50-74 has gone up from 37.7% in 2002 to 47.5% in 2015 across all of the EU28, see Figure 17. Moreover, long-term unemployment as a percentage of the total unemployment among individuals aged 50-74 has also gone up from 47.4% in 2002 to 61.0% in 2015 and is higher than the long-term unemployment rate among individuals aged 25-49, which is 49.5%.


\textsuperscript{283} http://www.aegon.com/en/Home/Research/Flexible-Retirement-Report/
The growing interest of older people to become entrepreneurs, the entrepreneurial *zeitgeist* of the era, is in part explained by the spread of digital empowerment and the digital platform economy, which have formed a strong start-up mentality. While in many countries, digital skills are not considered the strongest suit of the older people, the digital empowerment and new entrepreneurial opportunities in this field have opened up opportunities for older people. Digitally empowered older people have potential to further explore the opportunities provided by the digital world, and engage in further training or economic activities available online.

The spread of this start-up culture has generated developments and support structures which often go beyond government actions. One of the examples of this is the emergence of crowdfunding practices which facilitates gathering the starting funds for companies. Venture capital funding and angel investment availability are other important factors which encourage entrepreneurship amongst the 50+ population.

Another example is the high and growing participation of older people in the sharing economy. For instance, the percentage of Airbnb hosts that are 60+ ranges from 9% in e.g. the Netherlands to 15% in France and this is the fastest growing demographic in Europe284. Hosts aged 60 and older are consistently the best rated Airbnb hosts in Europe. Half of senior hosts in Europe say that hosting on Airbnb helps them afford to stay in their home.

An underused option from the wide skill-base of older people and when it is put in practice in entrepreneurship is the potential of reverse mentoring programmes - the young trainers-volunteers can improve their skills and gain invaluable experience as mentors on the one hand, and as beneficiaries of the life and professional experience of older people on the other. This could create extra income for the older and help the young employees be more productive, this way companies won't lose time and money by repairing the problems the unexperienced create due to the lack of it. Thus giving more flexibility and confidence in a job.

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There are opportunities for older people to engage in entrepreneurial activities in a variety of areas both commercial and social and sometimes in relation to growing the silver economy, e.g.:

- Creating incubator environments or co-operatives where people can come together to incubate and test ideas
- Developing customised tourism opportunities for the older traveller
- Developing new career pathways for young people as career carers with options to professionalise caring outside of nursing
- Contributing to the development in assisted living and sensor technology
- Developing new financial products and services for an older market
- Developing new types of food to meet the needs of a more conscious and informed ageing population
- Contributing to the development of new types of housing - more multigenerational living and support in community rather than residential care

Mostly, start-ups launched by older people tend to offer tailored services or craft items based on their hobbies and interests. An OECD report on the topic claims that older self-employed people are more likely than others to operate in agriculture, forestry and fishing, wholesale and retail trade and repair of motor vehicles; transportation and storage; real estate; and human health and social work.285

5.10.2 Challenges - identified need for action

Since the economic crisis starting in 2008, unemployment rose sharply in all of the EU member states, affecting the youngest and the oldest age groups of labour force the most. The older age group faces serious challenges in finding new jobs after becoming unemployed – employers are reluctant to hire them, often their formal skills have become outdated to meet the specific needs of the employment market. Platform 50plus-europe.eu outlines that the unemployment rates in the age group of 50-74 started to increase sharply after 2008 and were still high in many countries in 2014, not showing signs of decrease.286

Increasing the number of older entrepreneurs offers opportunities to solve multiple issues facing the people in the 50+ age group and creating wider societal impact, there are multiple challenges which act as impediments towards achieving a high level of “olderpreneurship”.

Older people might experience social exclusion and age-based discrimination which can become determining factors in discouraging the entrepreneurial joy and advancement, thus affecting directly the development of the businesses of older people. Kibler et al. (2015) investigate the issue of social exclusion among older entrepreneurs in the London area and

286 http://www.50plus-europe.eu/opportunity-challenge/?subpage=challenges&doing_wp_cron=1478432034.0526959896087646484375
suggest that more attention towards discrimination sources should be given by both entrepreneurs themselves as well as support initiatives\textsuperscript{287}.

The availability of government entrepreneurship support programs is a strong determinant of the propensity of older entrepreneurship. Pilková and Rehak (2015) claim in their study that well-designed government programmes also serve to encourage the social inclusiveness of older people in addition to supporting older entrepreneurship. At the same time, the authors also conclude that intellectual property rights as a variable do not explain the low innovativeness of older entrepreneurship and other factors should be examined to find potential determinants of this tendency\textsuperscript{288}.

To conclude, the main challenges of older entrepreneurship that the governments are facing are multifaceted – firstly, the cultural and societal characteristics determine the general attitude towards older entrepreneurs in general and can become determinants in whether a person starts a business at all or not. The incentive of creating something with a long-term return is furthermore influenced by the ageing process in general – whether the person feels old or not. This is further influenced by the general entrepreneurial culture in the country. Once the business has been created, the country’s innovation system and available support mechanisms shape its potential growth. The final question lies in the value added and level of innovativeness of companies created by older people.

5.10.3 Added value of EU action

The added value of EU-level action for member states can mostly derive from knowledge spill-over from sharing the best practices and encouraging networking. An understanding of best practices could build on robust data analysis of older entrepreneurs and policy implemented across the EU. Eurostat is already working on “providing statistical evidence and expertise to support the implementation of a number of EU or international policy initiatives related to the silver economy” (EC, 2015).\textsuperscript{289} Experience of aligning tax and pension policies, breaking down negative stereotypes around ageing, and other ways to stimulate entrepreneurship amongst the 50+ should be shared across EU member states. There is also a potential to encourage EU-level mentoring and coaching networks that would help in sharing experiences.

The EC and Members of European Parliament are already supporting older entrepreneurs. On June the 8\textsuperscript{th}, 2016, The internet platform 50plus-europe.eu joined forces with the European Innovation Partnership on Active Healthy Aging (EIP on AHA)\textsuperscript{290}. There are several other initiatives too that are European wide as well as various national, and regional initiatives. The EC can play a role by reinforcing the development of a key contact point.

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\textsuperscript{288} Pilková, A., Rehák, J. Regional aspects of inclusive entrepreneurship of older people in Europe. 18th International Scientific Conference: Enterprise and the Competitive Environment. March 5-6, 2015. C. Republic.


\textsuperscript{290} http://www.50plus-europe.eu/about
Moreover, the agenda of the older entrepreneur can be promoted more widely and with more vigour in some sectors and the EC can play an important part here.

5.10.4 Existing or planned initiatives to build on

The main policies to look at from the point of view of the EU level actions are networks and practice sharing initiatives, including mentoring and coaching. One of the good examples from this field is the internet platform 50plus-europe.eu which brings together different organizations concerned with the employment opportunities of people in the age group of 50 and older. The aim of the initiative is to raise the awareness of policy makers regarding the potential and importance of entrepreneurship initiatives in the older age group in Europe. Another example is CreAger Hubs291 which encourage entrepreneurship by older people.

On national level, more direct entrepreneurship encouragement policies should be considered – financial incentives, training, mentoring and coaching support, but also general awareness raising and societal support towards olderpreneurship to decrease the influence of age discrimination and discouragement from health issues.

A good example at a national level is the Prince’s Initiative for Mature Enterprise, PRIME from the UK. It was a charity set up by the Prince of Wales to support the over-50s start businesses, and provided advice and access to loans. In 2014 it merged with Business in the Community initiative and is no longer running. Some of the issues are now tackled by the Age in the Workplace programme in the UK.292

Educational initiatives for entrepreneurial training of older people is important. Workshops have been held in the UK (Bristol), Bielsko Biela (Poland) and in Brussels via European Association of Development Agencies. Drop in sessions for older people have been set up. In NW England a scheme is in place to offer older people direct help in setting up businesses and wishing to volunteer for small businesses to gain experience. The H2020-ICT-2014-1 project proposal STARTINNOCOOP, presented by 13 entrepreneurship local-hubs coordinators, created the website http://coopreneur.eu.

5.10.5 Recommended EU policy actions

Recommended EU policy actions would be built mostly around sharing best practices and building case examples based on successful approaches to older entrepreneurship. The level of engaging in entrepreneurial activities among older people differs substantially among EU member states and therefore a knowledge spill-over and learning practices are needed. This can be done by facilitating the European networking and work meetings, assembling experts and entrepreneurial stakeholders (incubators/accelerators, chamber of commerce, industrial parks) and EU-STARTUP initiatives. One option for this knowledge sharing is building networks or encouraging the existing ones. Monitoring and coaching practices can also be useful and could be encouraged as part of network activity or a separate initiative. Another way to encourage policies of member states towards encouraging entrepreneurship is the monitoring and feedback system regarding their activities and benchmarking against other

291 http://scanbalt.org/creager/
member states. This is already done as part of entrepreneurship monitoring activities (for example Global Entrepreneurship Monitor (GEM)) and further activities could be based on the existing ones.

The internet platform 50plus-europe.eu recently put forward a call for action to the European Union and there may be scope to support this agenda further. The call was made for policies and proposal that:

- Fully recognize the immense social-economic contribution that the 50+ group brings to Europe and the labour market challenges it faces
- Promote and support 50+ entrepreneurship as a viable career option with benefits for individuals, economies and society
- Allow the 50+ to make full use of traditional and innovative funding sources while avoiding age-related discrimination and improve access to information on all funding options
- Align tax with pension policies to ensure entrepreneurial activity does not undermine pension prospects for 50+ entrepreneurs
- Minimize or eliminate red tape throughout the entire process of business creation for entrepreneurs of all age groups
- Simplify and reduce the tax burden for setting up and running a business especially during its early phases
- Reduce discharge time after bankruptcy and facilitate funding for second/third time entrepreneurs of all age groups
- Encourage the development of formal and informal entrepreneurial educational programs tailored to address the 50+ group’s unique needs and strengths
- Support intergenerational learning and mentoring between young and older entrepreneurs
- Help create a 50+ entrepreneurship friendly culture with support from the private and public sectors, civil society and academia by promoting role models and sharing best practice
- Set up "one-stop-shops’ for 50+ entrepreneurs to bring together all business support services - mentoring, facilitation and advice as per the specific needs of the 50+ group
- Commission a comparative study of the situation for 50+ business in the EU, identify their main obstacles and provide policy recommendations on how best to overcome them
- Call on Member States to build knowledge, understanding and support for 50+ entrepreneurship at national level

http://www.50plus-europe.eu/an-agenda/
5.10.5.1 Key stakeholders

Key stakeholders for older entrepreneurship initiatives are older people interested in self-employment activities. Government organisations, education and skills training providers, network organisations and 'senior organisations', existing incubators and launch-pads. From the financial perspective, key stakeholders include financial investors and insurance companies. Beneficiaries of the older entrepreneurial activities are also examples of key stakeholders.

5.10.6 Technological and social readiness

Many older people are interested in maintaining an active lifestyle, after the age of 50 and sometimes even after retirement age. There exist no technological hurdles to impede a greater number of older people to become entrepreneurs although in some of the sectors that are of interest to the olderpreneur technological barriers do exist – e.g. connected health.

Despite various good examples of initiatives on how older people can be supported to become an entrepreneur, there are still some social barriers and lack of support infrastructure that impede older people to start-up their own business.

5.11 Interactive platform to fast-track product and service development

5.11.1 The opportunity

5.11.1.1 Brief description

The idea is to create an interactive platform connecting (younger) people that are working on developing new solutions with older people that want to support and/or invest in business development and share experience with the younger generation or be involved in test-bed activity. The evolution of ICT systems and the large number of R&D activities linked to the Silver Economy resulted in various solid solutions that can support the independent living of senior citizens. Some of the products and services that are currently on the market are not financially sustainable, given the high costs and the difficulty to get them subsidized by national health systems. There also exists opportunity for the development of radically new products and services. Due to the lack of an integrated ecosystem that can support -or even finance- the deployment of such solutions, entrepreneurs are seeking for disruptive business models to address this market. An interactive platform that can link young and old generations can represent a new and more inclusive way forward to build an integrated and healthy society. The skills and experience of old people are a resource for the younger generations. An integrated platform or ecosystem should involve all that will have direct or indirect benefits from the use of such solutions. Objectives include:

- Support the early development of new product and services
- Provide test-bed access to test new products and services
- Increase market access by engaging by engaging older people in product/service development
- Increase access to (older) investors
- Bridge the gap between product development in the Silver Economy and (wide-spread) market access
The platform should be a trusted market and meeting place where older people can find opportunities to engage in business developments, at their own pace, at their own place. Older people can bring expertise and financial support, to the benefit of younger people. The interactive platform would have to be designed as user friendly to older people and could be linked to existing platforms for older people.

Benefits to older people include:

- Access to new products – free of charge
- Engage in business ideas/share knowledge
- Options to invest in new business – promote silver crowd funding
- Become knowledgeable about new product/service developments

There are various existing platforms that provide test-bed access and support the early development of products and services. However, an EU wide platform that supports intergenerational learning with the objective of benefitting young and old and enables older people to become investors/co-creators is missing.

5.11.1.2 Barriers and market failures

The idea behind the interactive platform is to help overcome market fragmentation and bring stakeholders closer with the aim of contributing to the development of new products and services for the silver economy. Specifically, the platform could help overcome the following barriers:

- Network failures and challenges associated with identifying partners who would like to collaborate. It is generally difficult to link the younger and older generation in a fragmented market. There also is a lack of engagement of older people in identifying potential funding opportunities. However, it is generally thought that intergeneration solidarity and dialogue is progressive and can help business development.

- Lack of access to the older population that can participate in a pilot/test-bed. The involvement of older people as testers allows for great potential on the user experience (UX) side, not only for the development of products/services that are targeted towards older people but also for more general and widespread product and service development.

- Financial constraints of the younger generations

- Mismatch between older people with time and ideas but no connection to employment

- Underdevelopment of common standards and lack of user-friendly products for older people. The platform could contribute to the development of user-friendly products and (ICT) solutions
  - Older people might not necessarily have a good grasp of the technologies per se. Potential development (particularly eHealth / mHealth / telemedicine) to have both a non-specialist description and hypertext links to new technologies, expressed in similar levels of language. As potential end-users older people need to be able to interpret and then offer functional observations /views of the proposed emerging or near-market solutions
Challenge with bringing new products to market. - The platform could contribute to overcome the market gap between the development of new ICT solutions and bringing these solutions to the market. A lot of (older) people are not familiar with ICT nor the safe use of ICT and because of that, they don’t buy or use it. To have trained people to help older people at home with the installation and use of ICT creates jobs. Also an opportunity is to work on internet safety and cyber security in Europe. The platform could also explore ways to keep older people from being exposed to abuses or scams.

5.11.1.3 Market prospects – size, growth trends and scalability

An interactive platform to fast-track product and service development in relation to the Silver Economy can generate numerous benefits. To involve older people in the co-creation/financing of products for the Silver Economy will ultimately contribute to better solutions of interest to the older generation in the EU and abroad. Because there is an ageing society, in Europe and many other countries, the Silver Economy is a growing market. As evidenced previously, in 2015, 39% of the population—199 million people—of the EU were aged 50 or over. They contributed 40.6% of private consumption expenditure—worth €3.3 trillion. Over the next decade, we expect the Silver Economy’s population to rise to 222 million—42.9% of the EU total and this rise is forecast to lead to the Silver Economy’s private consumption to increase to €5.0 trillion.

Household disposable income (for all ages) ranges from around €16.6k in Latvia to around €36.2k in Germany. Many older people do not spend all of their disposable income. Following the results of the Irish Longitudinal Study on Ageing, (in Ireland) “average weekly household disposable income is €767 but around half live on under €400 per week”.

Many older people are genuinely interested in staying active and continue to contribute to society. Based on the results from a Eurobarometer (2012), 41% of the population of 55+ would like to continue working after they reach the retirement age. Once retired, older people generally have spare resources. 27% of the 55+ are still involved in voluntary work (working on average 14 hours a month).

The strength of the interactive platform to help trigger jobs and growth consist in the expectation that it could trigger the following:

- Increase financial access – by engaging senior investors, early-stage businesses may be able to access capital to grow which they could not obtain from a more traditional source (such as a bank) because such traditional routes might be deemed too risky. Examples of existing non-traditional investment routes are facilitated by AngelList (angel investment) and Kickstarter (crowdfunding).
- Engage older people in entrepreneurial activities in a variety of areas both commercial and social - creating incubator environments or co-operatives where people can come together to incubate and test ideas

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294 https://tilda.tcd.ie/assets/pdf/glossy/Chapter9.pdf
295 Eurobarometer 378 (2012) Active Ageing
• Help evaluate 'fitness for purpose' before huge investments are made in prototypes or scarce resources are deployed
• Increase the creation of new and innovative products and services for the silver economy
• Help scale up product and service developments for the silver economy
• Help generate new start-ups, jobs and growth
• Generate changes in consumption, such as older citizens buying more products online, increasing the Silver Economy

The degree to which such impacts are materialised is dependent on the volume of members of the interactive network, and the degree to which these members are mobilised to join forces.

5.11.2 Challenges - identified need for action
• Older people have time to contribute to business development. The average employment rate of 55-64-year-old in the OECD is 58.5%⁵⁹⁶, substantially lower than the average employment rate of the 25-49 year old in the OECD, which is 76%⁵⁹⁷. Amongst EU member states the employment rate of the 55-64 year old is highest in Sweden, where approximately 75% are employed and it is lowest in Greece where only 35% are employed.
• Older people are able to invest in new product and service developments. Given their accumulated resources, those aged 50+ represent an excellent potential source of investment⁵⁹⁸. Older people can invest (Europe has relatively low rates of informal investors: 4% EU average compared with 6% in the US) or acquire business.
• Older people have experience and knowledge and ideas about what products and services could help improve they lives

5.11.3 Added value of EU action
The EC works on various horizontal issues in relation to the Silver Economy. An interactive platform to fast-track product and service development could be a core initiative, building on other similar initiatives at the EU level and at the national level. The advantage of operating at the EU level would be:
• Mobilise interest from older adults and upcoming product and service developers from across the EU
• Mobilise key stakeholders from across the EU
• Provide opportunity for a level playing field in the Silver Economy
• Establish a single intergenerational access point for Europe
• Establish a large EU wide consumer panel of older adults, which would benefit smaller and larger companies

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⁵⁹⁶ http://www.oecd.org/employment/ageingandemploymentpolicies.htm
⁵⁹⁷ https://data.oecd.org/emp/employment-rate-by-age-group.htm#indicator-chart
⁵⁹⁸ http://www.seniorenterprise.ie/what-is-involved/investing-acquiring/
- Learn from best practices from various member states
- Set standards and guidelines for ethics and the protection of privacy and data security
- Create traction and thereby facilitate market uptake

### 5.11.4 Existing or planned initiatives to build on

- The French Retirement and Occupational Health Insurance Agency of Languedoc-Roussillon (Carsat LR), launched an interactive platform for new technology home services (over €1M for 2015) that rallies over 10 actors of the Silver Economy currently developing personalised ICT tools to improve the safety and comfort of seniors as well as the coordination between health and social care. The aim is to increase legibility as well as technical and financial access to innovations for vulnerable people who are remote from the digital era, through a multiservice user-friendly platform. This platform objective is to provide information and digital service at the right time to the right person. 800 Carsat retirees will be testing these new devices and solutions which will be provided to them without charge for two years.

- One of the programmes under the French Silver Economy sectoral agreement is the Forum of living labs (Forum des "Living Labs pour la Silver Autonomie" (LLSA)). This forum aims at bringing living labs together and generating at least 10 innovations per year in the Silver Economy field. This initiative supports the creation of an activity structure for the living labs network; sets up an information area and shared workspace, organises conferences at national level, facilitates access of living labs to major international events related to the Silver Economy.

- The Ireland Smart Ageing Exchange (ISAX) in a new independent network working in multiple sectors (e.g. functional food, housing, health). Programmes of ISAX include test beds to trial new products and services and a design shop to provide a 'voice of the consumer' for market design and expertise. ISAX is able to link needs, including needs of the older and more frail members of society, with economic opportunity. Concretely, the ‘consumer insight’ programme offers opportunity for industry to run focus groups involving older people, and to learn about the attitudes and behaviours of older people via a survey. The ISAX network is not entirely freely accessible, companies and other organisation pay membership to access the consumer insight programme (fee of €15k).

- Elderscamp (www.elderscamp.com) is a network that targets older people that has been launched in India and is currently being developed for Europe.

- The Newcastle University Institute for Ageing runs a consumer panel that comprises of older adults. The institute works with, amongst other, VOICE North, the North East Dementia Alliance, and EIT Health. The aim of the collaboration is to:\n
  - better understand the needs of our partners and their environment
  - help partners access our unique knowledge base in ageing
  - support the delivery of new policy, products, services and solutions

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[^1]: [http://www.ncl.ac.uk/ageing/partners/](http://www.ncl.ac.uk/ageing/partners/)
• Other Universities in the UK have involved in related activities. Panels of older and older frail people have also been run at the University of Dundee\(^3\), eg testing the effectiveness of supplements to improve muscle strength. The University of Bath\(^4\) works on Designability and eg Technology for People living with Cognitive Impairments and Dementia.

• The European Network of Living Labs (ENoLL)\(^5\) is the international network of Living Labs in Europe and worldwide that was launched 10 years ago. The membership includes more than 170 active Living Labs members worldwide including active members (eg Laurea Living labs network in Finland and BIRD LIVING LAB in Spain) in 20 of the 28 EU Member States. The network provides opportunities for co-creation, user engagement, test and experimentation facilities targeting innovation, and is mostly active in the health and care sector. The network does not have an explicit focus on older people.

5.11.5  **Recommended EU policy actions**

DG SANCO, CNECT, EMPL and Active and Healthy Ageing (AHA) are already involved in various closely related activities. The EC together with the network around AHA can:

• Provide an interactive platform that allows for multidisciplinary meetings, idea sharing, and is a safe space for experts and investors

• Contribute to raise awareness amongst older consumers’ product/service developers and investors support match-making and mutual learning between stakeholders

• Support access to safe and secure start-up funding with help from the older investors as well as other funding opportunities

• Develop EU panels of (older/frail) consumers by linking with existing initiatives

• Develop supportive guidelines, standards and accreditation schemes for the products and services under development

• Set standards and guidelines for ethics and the protection of privacy and data security

• Promote synergies with other sectors

• Share best practices based on existing (national) platforms

5.11.5.1  **Key stakeholders**

The platform would be open to all interest. To gain momentum the platform would benefit from endorsement by key stakeholders including:

• Active and Healthy Ageing (AHA) has launched a repository of innovative practices as part of the European scaling–up strategy\(^6\). The Interactive platform could be linked with

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\(^4\) http://www.bath.ac.uk/health/about/partner-organisations/designability

\(^5\) http://openlivinglabs.eu/node/1453

\(^6\) https://ec.europa.eu/eip/ageing/repository_en
this repository and the stakeholders involved. There also is a dedicated webpage with resources for scaling up your innovation where it is possible to submit a project\textsuperscript{304}.

- Platforms for the older adults, eg Age Platform Europe
- National/regional networks for older people
- Online networks for older people, for example the Italian network Intrage.it is a network for the over 50 that focuses on building opportunities for dialogue and encounters. Such networks can function as intermediaries
- Government
- Investors
- Universities
- Industry

5.11.6 Technological and social readiness

There exist few or no technological barriers to launch an interactive platform although challenges may exist around gaining traction and encouraging both the older and younger generations to share ideas, and in the case of the older person, to invest in the ideas of others. There are technological barriers that will impede some of the creative ideas of young entrepreneurs to take off. Some of such barriers, eg in the health and care sector have been discussed in other section of this report.

\textsuperscript{304} https://ec.europa.eu/eip/ageing/scaling-up_en
# Recommendations to growing the EU Silver Economy

## 5.12 Recommendation 1: Support the technological and digital revolution of the healthcare sector

<table>
<thead>
<tr>
<th>Recommended policy actions</th>
<th>Lead bodies</th>
<th>Examples of existing policies/initiatives</th>
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<tbody>
<tr>
<td><strong>Promote training of (formal and informal) caregivers to increase their ability to work with new (digital) technologies for older people. This should also enhance productivity and cut costs of care.</strong></td>
<td>European Commission, National governments, Regional governments</td>
<td>Significant work has been carried out in digital Innovation for ageing well and the silver economy (Carers+ and Grand coalition for digital skills) that support the creation of a new recognised digital skills framework for carers linked to the action on “Advancing Digital Skills”[^305]. The ICT4Life, part of a H2020 initiative, aims at promoting the use of innovative technologies for patients with dementia. It targets both the patients and caregivers. The aims are for the ICT4Life technologies to converge in a unique platform that will allow monitoring of patients in real-time and for alarms and calls for early intervention; prevent adverse events, social isolation, depression and poor well-being, promote patient’s independence and social involvement and provide on time support to care-givers[^306].</td>
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<tr>
<td><strong>Support the development of interoperable ICT solutions and their application across the EU. This will create the potential for developers to scale up their offerings</strong></td>
<td>European Commission, National governments</td>
<td>The Information and Communication Technologies Policy Support Programme (ICT-PSP) aimed to stimulate a wider uptake of innovative ICT based services and the exploitation of digital content across Europe. The programme also aimed to contribute to a better environment for developing ICT-based services and to help overcome hurdles such as the lack of interoperability and market fragmentation[^307].</td>
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<tr>
<td><strong>Help improve the understanding of data protection and privacy, tackle related legislative issues, support ‘open’ data records to the</strong></td>
<td>National governments</td>
<td>The Estonian e-Health Strategy is based on the principle that implementing ICT solutions in the health sector is a prerequisite for achieving Estonia’s health sector goals. The main focus areas of the strategy are setting the principles of</td>
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<tr>
<td>beneﬁt of the patient (including ownership of and access to data)</td>
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<td>gathering and handling health data, providing health services, further developing the health system&lt;sup&gt;308&lt;/sup&gt;.</td>
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<tr>
<td>Incentivise prevention over treatment by leveraging (national) policies on promotion of integrated people-centred health services</td>
<td>National governments Regional governments</td>
<td>The National Centre for the Prevention and Control (Centro nazionale per la prevenzione e il Controllo delle Malattie – CCM) – Italy, was established in 2004 by the Italian Ministry of Health with the main objective of active prevention through the promotion of healthy lifestyles. Through a relationship between the Ministry of Health and regional governments the National Centre facilitates the dissemination of health information and practices&lt;sup&gt;309&lt;/sup&gt;. Health 2020 - National Strategy for Health Protection and Promotion and Disease Prevention – Czech Republic. The main objective of this strategy is to improve the health of the Czech population and reduce incidences of preventable diseases and premature deaths&lt;sup&gt;310&lt;/sup&gt;.</td>
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<tr>
<td>Stimulate the upscaling of successful pilots across Member States. This will lead to understanding health beneﬁts and potential business models, which are prerequisite for engagement with industry</td>
<td>European Commission National governments</td>
<td>The European Innovation Partnership on Active and Healthy Ageing has published a European Scaling-up strategy, which focuses on promoting the uptake of good practices across Member States&lt;sup&gt;311&lt;/sup&gt;.</td>
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**Recommended policy actions related to robotics and games for older people**

| Promote public awareness and discussion with campaigns, platforms, web forums, e.g. about whether the robot and gaming technologies are a good solution to reduce loneliness, isolation, and cognitive decline, thereby creating a potential consumer community | European Commission National governments | The Croatian Ministry of Health for Health Care of the Elderly is involved with higher education institutes in the implementation of gerontology-related activities. The types of activities include: studies on the future health needs and functional disabilities of the elderly, professional and methodological support, support for the implementation of individual Programmes of health measures and procedures in health protection of the elderly. This policy has a number of programmes attached<sup>312</sup>. |
| Coordinate the standardisation for robotics to ensure suitable quality standards, and help strengthen international collaboration, enabling developers to scale and integrate | European Commission National governments | The euRobotics association has a topic group on standardisation and collaborates with the European Commission on this and other topics<sup>313</sup>. |

<sup>309</sup> [http://www.ccm-network.it/pagina.jsp?id=node/282&lingua=english](http://www.ccm-network.it/pagina.jsp?id=node/282&lingua=english)  
<sup>311</sup> [https://ec.europa.eu/research/innovation-union/pdf/active-healthy-ageing/scaling_up_strategy.pdf](https://ec.europa.eu/research/innovation-union/pdf/active-healthy-ageing/scaling_up_strategy.pdf)  
<sup>312</sup> [http://www.stampar.hr/hr/centar-za-zdravstvenu-gerontologiju-referentni-centar-ministarstva-zdravlja](http://www.stampar.hr/hr/centar-za-zdravstvenu-gerontologiju-referentni-centar-ministarstva-zdravlja)  
<sup>313</sup> [https://eu-robotics.net/](https://eu-robotics.net/)
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<th>Recommended policy actions</th>
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<tr>
<td>their technologies across Europe</td>
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<tr>
<td>Identify options to label interactive games/robotics as age-friendly and/or ‘therapeutic’</td>
<td>European Commission</td>
<td>Join-In project, support by the Ambient Assisted Living Joint Programme, developed a comprehensive social networking platform for older people to encourage and support communication and socialising in older people. It includes examples such as video exercises that allow older people to perform age-specific exercises and Memofix, a computer game for older people that enhances cognitive abilities and facilitates socialising.314</td>
</tr>
<tr>
<td>Support for (pilot) projects for electronic and mobile health; links between robotics and gaming, in different European regions</td>
<td>European Commission National governments Regional governments</td>
<td>H2020 supports the ENRICHME (Enabling Robot and assisted living environment for Independent Care and Health Monitoring of the Older people) project, a consortium of 10 partners from six different EU countries, looking at tackling the progressive decline of cognitive capacity among the older people proposing an integrated platform for AAL with a mobile service robot for long-term human monitoring and interaction.315 H2020 also supports the RAMCIP (Robotic Assistant for Mild Cognitive Impairment Patients at home) project that aims to perform R&amp;D on real robotic solutions for assistive robots for the older people and those suffering from MCI and dementia.316</td>
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314 [http://www.helmholtz-muenchen.de/en/join-in/](http://www.helmholtz-muenchen.de/en/join-in/)
315 Source: [http://www.enrichme.eu/](http://www.enrichme.eu/)
316 Source: [http://www.rmcip-project.eu/](http://www.rmcip-project.eu/)
### 5.13 Recommendation 2: Support healthy ageing across the EU

<table>
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<th>Recommended policy actions</th>
<th>Lead bodies</th>
<th>Examples of existing policies/initiatives</th>
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<tr>
<td><strong>Recommended policy actions to spread knowledge for an active and healthy lifestyle</strong></td>
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<tr>
<td>Raise awareness of the benefits of an active and healthy life-style</td>
<td>European Commission, National governments, Regional governments</td>
<td>The Irish National Positive Ageing Strategy, published in 2013, has the goal to &quot;support people as they age to maintain, improve or manage their physical and mental health and wellbeing&quot; and focuses on Healthy Ageing, for example by pointing out several (unhealthy) lifestyle factors that influence chronic diseases[317].</td>
</tr>
<tr>
<td>Raise awareness of the need to develop more bespoke products and services for the (sometimes frail) older consumer</td>
<td>European Commission, National governments, Regional governments</td>
<td>The European Innovation Partnership on Active and Healthy Ageing is contributing in this direction[318].</td>
</tr>
<tr>
<td>Upscaling of initiatives across Europe</td>
<td>European Commission, National governments</td>
<td>The European Innovation Partnership on Active and Healthy Ageing has published a European Scaling-up strategy, which focuses on promoting the uptake of good practices across Member States[319].</td>
</tr>
<tr>
<td>- promoting Adapted Physical Activity (APA) programmes&lt;br&gt;- introduction of ICT tools in healthcare systems</td>
<td>European Commission, National governments</td>
<td></td>
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<tr>
<td>Spread proven innovation practices across European regions</td>
<td>European Commission, National governments</td>
<td>The Active &amp; Assisted Living (AAL) Joint Programme is part of the eHealth Action Plan. AAL funds cross-national projects focused on creating better conditions of life for older people and on strengthening the industrial opportunities in Europe through the use of ICT. Funded projects typically involve small and medium enterprises (SME), research bodies and user organisations representing older people whilst combining technological and social innovation[320].</td>
</tr>
<tr>
<td>- raise awareness about the benefits of solutions in the active and healthy ageing domain&lt;br&gt;- develop transnational partnerships and ecosystems</td>
<td>European Commission, National governments</td>
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<tr>
<td>Seek synergies with other domains such as Smart Cities to limit fragmentation of the market and develop open platforms that support multiple applications</td>
<td>European Commission, National governments</td>
<td>The Information and Communication Technologies Policy Support Programme (ICT-PSP) aimed to stimulate a wider uptake of innovative ICT based services and the exploitation of digital content across Europe while addressing EU challenges, one of which is the problem of an ageing society. The programme also aimed to contribute to a better environment for developing ICT based services and to help overcome hurdles such as the lack of interoperability and market fragmentation[321].</td>
</tr>
</tbody>
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[318] [https://ec.europa.eu/research/innovation-union/pdf/active-healthy-ageing/scaling_up_strategy.pdf](https://ec.europa.eu/research/innovation-union/pdf/active-healthy-ageing/scaling_up_strategy.pdf)
[319] [https://ec.europa.eu/research/innovation-union/pdf/active-healthy-ageing/scaling_up_strategy.pdf](https://ec.europa.eu/research/innovation-union/pdf/active-healthy-ageing/scaling_up_strategy.pdf)
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<th>Lead bodies</th>
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<tbody>
<tr>
<td>Improve link between producers and suppliers across Europe</td>
<td>European Commission</td>
<td>The National programme care for the elderly (Nationaal Programma Ouderenzorg), under the Dutch Ministry of Health, Welfare and Sport, is a large programme that helps to support and care for the vulnerable elderly. The quality of healthcare is improved through this initiative by innovative projects, regional collaboration, and keeping the elderly themselves involved.</td>
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<tr>
<td>• co-engage stakeholders</td>
<td>National governments</td>
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<td>• develop a closer relation with health insurance companies</td>
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<tr>
<td>Promote a co-design approach in the early stages of research and</td>
<td>European Commission</td>
<td>The Ireland Smart Ageing Exchange (ISAX) is a new independent network. (Anticipated) programmes of ISAX include test beds to trial new products and services and a design shop to provide a ‘voice of the consumer’ for market design and expertise. The idea behind ISAX is linking needs, including needs of the older and more frail members of society, with economic opportunity.</td>
</tr>
<tr>
<td>development, in order to stimulate synergy between technologies</td>
<td>National governments</td>
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<tr>
<td>Stimulate, risk-taking and innovation with (EU) instruments</td>
<td>European Commission</td>
<td>SILVER, a pre-commercial procurement scheme stimulates innovation in robotics that supports older people with independent living.</td>
</tr>
<tr>
<td>Convey a sense of urgency, ensuring the quick development and</td>
<td>European Commission</td>
<td>The European Innovation Partnership on Active and Healthy Ageing, aims to make the EU a place of excellence in innovation for healthy ageing, e.g. by enhancing the competitiveness of EU innovation and industry through an improved business environment providing the foundations or growth and the expansion of new markets.</td>
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<tr>
<td>uptake of new innovations</td>
<td>National governments</td>
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323 http://isax.ie
325 https://ec.europa.eu/eip/ageing/about-the-partnership_en
### 5.14 Recommendation 3: Focus on mobility for older people

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<tr>
<th>Recommended policy actions</th>
<th>Lead body</th>
<th>Examples of existing policies/initiatives</th>
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<tbody>
<tr>
<td><strong>Recommended policy actions to increase mobility of older people</strong></td>
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<tr>
<td>Support and continue the ongoing work on (accessibility) standards at European level and promote the age-friendly label</td>
<td>European Commission&lt;br&gt;National governments&lt;br&gt;Regional governments</td>
<td>The COME-IN! (interreg) project promotes a transnational route of accessible museums. The project also stimulates the integration with other services, such as transportation, accommodation, leisure and facilities&lt;br&gt;A directory of accessible tourism – Pantou - is being developed with support from the European Commission</td>
</tr>
<tr>
<td>Work cross-sector to improve connectivity and accessibility for older people, including transport and access to facilities</td>
<td>European Commission&lt;br&gt;National governments&lt;br&gt;Regional governments</td>
<td>Irish Age Friendly City programme aims to create the kinds of communities in which older people live autonomous and valued lives. The programme covers Outdoor Spaces and Buildings, Housing, Social Participation, Transportation, Respect and Social Inclusion, Civic Participation and Employment, Communication and Information, Community Support and Health Services</td>
</tr>
<tr>
<td><strong>Recommended policy actions related to driverless cars/public transport for older people</strong></td>
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<td>Form a more integrated discussion on legislative issues around driverless cars/transport and the needs for older people</td>
<td>European Commission&lt;br&gt;National governments</td>
<td>The EC is part of the discussion on wide scale implementation of driverless vehicles – Informatics, DIGIT, Mobility and Transport (MOVE) and Internal Market, Industry, Entrepreneurship and SMEs (GROW)</td>
</tr>
<tr>
<td>Help tackle financial issues around the introduction of driverless public transport schemes</td>
<td>National governments</td>
<td>The UK Autonomous Vehicles initiative ‘Pathway to Driverless Cars Summary and Action Plan’, a document setting out the UK Government’s plans to facilitate the testing and production of driverless cars[^327]</td>
</tr>
<tr>
<td>Generate public awareness about the safety of driverless cars</td>
<td>National governments</td>
<td>[Action to be undertaken at the time of market breakthrough]</td>
</tr>
<tr>
<td><strong>Recommended policy actions to improve the EU Silver Tourism offer</strong></td>
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<tr>
<td>Continue to promote off-season tourism to older people</td>
<td>European Commission&lt;br&gt;National governments&lt;br&gt;Regional governments</td>
<td>CALYPSO initiative[^328] / SMEs COSME program[^329], and the Low-Medium Season Tourism Initiative Board (EULTIB), an informal ad-hoc group set-up on an ad-hoc basis for the period 2015-2016 to support the Commission with expertise on low-medium season tourism[^330].</td>
</tr>
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[^326]: https://pantou.org/
[^328]: www.ecalympso.eu
[^329]: https://ec.europa.eu/easme/node/55
<table>
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<tr>
<th>Recommended policy actions</th>
<th>Lead body</th>
<th>Examples of existing policies/initiatives</th>
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<tbody>
<tr>
<td>A local Spanish government initiative, Social Holidays for Elderly has as objective to offer seniors a holiday period in the area of Valencia, to promote active ageing and the creation of employment in tourist areas during the low season.</td>
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<tr>
<td>Support the development of innovative and high quality care holiday packages using mHealth and integrated personal care that target frail people</td>
<td>European Commission National governments Regional governments</td>
<td>The integration of mHealth and interoperable technologies in the tourism industry is a growing trend. The EC promotes accessible tourism and some tourism companies offer 'Care Holidays'.</td>
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<tr>
<td>Share best practices and exchange of knowledge, enable the development of common platforms, etc. and continue to support the Silver Tourism initiatives that have been inaugurated in recent years</td>
<td>European Commission National governments Regional governments</td>
<td>Best practices include COME-IN!, the WHO Global Network of Age-friendly Cities and Communities network, and the SMEs COSME program.</td>
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<tr>
<td>Contribute to train and re-skill (older people) to increase the offer and quality of care in target tourist destinations</td>
<td>National governments Regional governments</td>
<td>The Turkish national government is working on the development of an old-age care system with the aim to increase the number of older tourists travelling to tourist destinations. The government is setting up a programme of training for care-givers and a compulsory health care insurance system that is compatible with that in EU member states. DG EAC works on anticipating and forecasting the skills needs, including in the tourism sector.</td>
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### 5.15 Recommendation 4: Increase the active participation of older people in the labour market

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<th>Recommended policy actions</th>
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<th>Examples of existing policies/initiatives</th>
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<tbody>
<tr>
<td><strong>Recommended policy actions to promote age-friendly universities and age-friendly further education</strong></td>
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<tr>
<td>Support HEIs to improve their offer of higher education for older people</td>
<td>European Commission, National governments, Regional governments</td>
<td>The Ministry of Education, Youth and Sports of the Czech Republic supports courses of the “University of the Third Age” designed and offered at the majority of the Czech higher education institutions (22 of 26)(^{332}). In most general terms, the main goal of the University of the Third Age is to facilitate access to the most recent scientific, technological, cultural and societal knowledge to the older people.</td>
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<tr>
<td>- Promote the age-friendly university concept, e.g. working together with current age-friendly higher education providers&lt;br&gt;- Share best practices&lt;br&gt;- Create awareness of the increasing demand in higher education by older people&lt;br&gt;Establish a standardised accreditation and contribute to develop the European market for e-learning</td>
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<td>Target the older population to promote the uptake of higher education for older people (50+)</td>
<td>European Commission, National governments, Regional governments</td>
<td>In Spain, the Spanish National Association of University Programmes for Older Adults was founded mainly by public and private universities, and promotes university courses for older people and supports the providers of courses with opportunities for networking, lobbying and new insights in the field(^ {333}).</td>
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<tr>
<td>- Create awareness around:&lt;br&gt;- The possibility for higher education programmes for older people&lt;br&gt;- Existing e-learning programmes&lt;br&gt;- The benefit of life-long-learning (LLL)&lt;br&gt;- Promote language learning and knowledge about cultural diversity and the LLL concept</td>
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<tr>
<td><strong>Recommended policy actions to support entrepreneurship of older people</strong></td>
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<tr>
<td>Support learning which benefits entrepreneurship</td>
<td>European Commission, National governments, Regional governments</td>
<td>Workshops have been held in the UK (Bristol), Bielsko Biela (Poland) and in Brussels via European Association of Development Agencies(^ {334}). Drop in sessions for older people have been set up.</td>
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<tr>
<td>- Encourage the development of formal and informal entrepreneurial educational programs tailored to address the 50+ group’s unique needs and strengths&lt;br&gt;- Support intergenerational learning and mentoring between young and older entrepreneurs&lt;br&gt;- Set up &quot;one-stop-shops&quot; for 50+ entrepreneurs to bring together all business support services - mentoring, facilitation and advice as per the specific needs of the 50+ group</td>
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<td>Share best practices and build case examples based on successful approaches to older</td>
<td>European Commission, National governments</td>
<td>The H2020-ICT-2014-1 project proposal STARTINNOCOOP, presented by 13 entrepreneurship local-hubs coordinators,</td>
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\(^{332}\) [http://www.msmt.cz/file/36866_1_1/](http://www.msmt.cz/file/36866_1_1/)


\(^{334}\) [http://www.eurada.org](http://www.eurada.org)
### Recommended policy actions

<table>
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<th>Entrepreneurship</th>
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<th>Examples of existing policies/initiatives</th>
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| • Building networks or encouraging the existing ones (facilitating the European networking and the work meetings, assembling experts and entrepreneurial stakeholders (incubators/accelerators, chamber of commerce, industrial parks) and EU-STARTUP initiatives)  
• Encourage monitoring and coaching practices | European Commission National governments | created the website http://coopreneur.eu. |

| Increase the profile of entrepreneurship of older people | European Commission National governments | The internet platform 50plus-europe.eu brings together different organisations concerned with the employment opportunities of people in the age group of 50 and older. The aim of the initiative is to raise the awareness of policy makers regarding the potential and importance of entrepreneurship initiatives in the older age group in Europe.  
The initiative CreAger Hubs also encourages entrepreneurship by older people. |

| Monitoring and feedback system regarding member states’ activities in the field of entrepreneurship and benchmarking against other member states | European Commission National governments | The Global Entrepreneurship Monitor (GEM) collects data on entrepreneurship worldwide, and published reports based on this data. |

| Provide financial incentives to promote entrepreneurship of older people | European Commission National governments | The Prince's Initiative for Mature Enterprise, PRIME from the UK was a charity set up by the Prince of Wales to support the over-50s start businesses, and provided advice and access to loans. In 2014 it merged with Business in the Community initiative and is no longer running. Some of the issues are now tackled by Age in the Workplace programme in the UK.  
The Ireland Smart Ageing Exchange (ISAX) is a new independent network. It has recently launched Ingenuity, a national 'Start Your Own Business Programme' for entrepreneurs aged 50+, sponsored by Bank of Ireland. |

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335 http://scanbalt.org/creager/  
336 http://gemconsortium.org  
Recommended policy actions | Lead bodies | Examples of existing policies/initiatives
--- | --- | ---
bankruptcy and facilitate funding for second/third time entrepreneurs of all age groups

**Overarching policy recommendations to improve the perception of older people in the workplace**

Contribute to improve the perception of older people in the workplace
- Generating more inclusive and age-friendly work environments
- Supporting older peoples’ access to jobs

Fully recognize the immense social-economic contribution that the 50+ group brings to Europe and the labour market challenges it faces

European Commission
National governments
Regional governments

The ‘Action plan 50 plus works’ is a Dutch policy which aims to support older people in finding employment. Recruitment agencies, together with the employee insurance agency (UWV), including support for networking meetings, inspiration days, schooling vouchers and placement bonuses. This policy will be replaced by ‘Perspective for 50 plus’ (Perspectief voor vijftigplussers) in 2017, which will include a campaign to improve the image of the 50+ people in the work space.

5.16 **Recommendation 5: Increase innovation of smart home products and services targeted towards independent living of older people**

Recommended policy actions | Lead bodies | Examples of existing policies/initiatives
--- | --- | ---
Overarching policy recommendations

Develop technological standards, guidelines and accreditation schemes for products and services in the Silver Economy, including standards for ethics, the protection of privacy and data security and to improve financial safety. Specifically for adaptable and smart homes:
- Accessibility of the built environment more generally, benefitting all those with restricted abilities
- Harmonise regulations on a European level to address the current gaps and overlaps between different regulations in regards to smart home solutions

European Commission
National governments

LEIT-ICT is an initiative within H2020 that aims to support the EU industrial policy goals and supports the EU strategy for Key Enabling Technologies (KETS). In support of the EU industrial policy goals, LEIT can play an important role in the development of standards. Defined by the EU as a necessary protection to the public’s health, safety, security and environment, standards support market-based competition and help ensure the interoperability of complementary products and services.

Support intergenerational learning and endorse best practices

European Commission
National governments
Regional governments

At the Dublin City University, older people can engage in the Intergenerational Learning Programme. Various networks/living labs incorporate intergenerational learning in their activities.

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## Recommended policy actions

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<tr>
<td>Contribute to raising awareness amongst older consumers’ product/service developers and investors support match-making and mutual learning between stakeholders</td>
<td>European Commission National governments Regional governments</td>
<td>AFE-INNOVNET is a thematic network on innovation for age-friendly environments. The main achievement of this network is the launch of the EU Covenant on Demographic Change. The Covenant gathers European public authorities, at local, regional and national level, and other relevant stakeholders, committed to develop environments that support active and healthy ageing, enhance independent living and well-being of older persons, and create a society for all ages. AFE-INNOVNET has also developed a repository of notable and replicable practices in innovative ICT and services solutions with associated socio-economic evidence which is available online (<a href="http://afeinnovnet.eu/repository">http://afeinnovnet.eu/repository</a>). Intergenerational living spaces as intelligent Cognitive Homes will be part of the future neighbourhoods according to a recent report by AgileAgeing Alliance[341]</td>
</tr>
<tr>
<td>Communication activities about adaptable and smart home solutions towards users and suppliers to increase the knowledge, awareness and potentially the acceptance</td>
<td>European Commission National governments Regional governments</td>
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<tr>
<td>Support cross-departmental dialogue to unlock funding for smart home construction for older people.</td>
<td>European Commission National governments Regional governments</td>
<td>As part of Horizon 2020 the EU Commission have developed eight contractual Public-Private Partnerships (PPPs). The partnerships are expected to leverage more than €6 billion of public investments which will subsequently allow for the development of new technologies, products and services heightening the EU’s place in world markets.[342] In the UK, new building projects were supported by the government for older and disabled people to live independently for as long as possible. This was a cross-departmental project, including the Dept. of Health.[343]</td>
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<tr>
<td>Support access to safe and secure start-up funding with help from the older investors as well as other funding opportunities</td>
<td>National governments Regional governments</td>
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### Recommended policy actions related to interactive platform to fast-track product and service development

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<tr>
<td>Create and support existing horizontal platforms &amp; single points of contact for policy makers, public and private sector players to help overcome market fragmentation and develop synergies across sectors</td>
<td>European Commission National governments Regional governments</td>
<td>To enable companies in the German federal state of Baden-Wuerttemberg the network initiative Smart Home &amp; Living BW was funded. It includes companies, institutions, networks, associations and research centres and aims to exploit the vast market potential, the economic chances and the developments in the area of smart home &amp; living[344]. Based on academic led R&amp;I projects partly supported through FP7, an open source platform has been developed</td>
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<td>Share best practices based on existing (national) platforms</td>
<td>National governments Regional governments</td>
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341 https://www.agileageing.org/page/neighbourhoods-future/
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<th>Examples of existing policies/initiatives</th>
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<tr>
<td>Provide an interactive platform that allows for multidisciplinary meetings, idea sharing, as a safe space for experts and investors</td>
<td>European Commission, National governments, Regional governments</td>
<td>by a European team specifically for such AAL solutions(^{345-346}). The European Construction Technology Platform (ECTP) defined Active Ageing and the Built Environment (ECTP-AABE) as one of its two main focus areas. For example, the development of Smart Homes through the conversion of European housing stock into age friendly, ICT enriched homes offer a huge potential to the development of the industry and the economy(^{347}). Gerontopoles in France (eg, in Loire, Ile-de-France, Toulouse ) provide an opportunity for regional actors to interact and create public and private opportunities and solutions around the ageing population. Reference Sites (part of EIP-AHA) provide a way to harness commitment across stakeholder groups in a region. One good example is in Languedoc Roussillon where the CARSAT through the Regional Institute of Ageing develop an interactive platform for new technology home services.</td>
</tr>
<tr>
<td>Develop EU panels of (older/frail) consumers by linking with existing initiatives</td>
<td>European Commission, National governments</td>
<td>The Newcastle University Institute for Ageing runs a consumer panel that comprises of older people. The institute works with, amongst other, VOICE North, the North East Dementia Alliance, and the EIT Health(^{348}).</td>
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