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REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL

Final evaluation of the Active and Assisted Living Research and Development Programme

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1. OVERVIEW

This report presents the findings of the final evaluation of the Active and Assisted Living Research and Development Programme (AAL2, covering 2014–21) ([1]). The Commission concludes, on the basis of this evaluation, that the AAL2 programme has been successful in achieving its main goals.

The programme was highly relevant in terms of the problems addressed and the stakeholders involved, and responded well to changing technologies and the fast evolving market environment. It demonstrated that the EU intervention had been both necessary and effective in delivering digital innovation in active and healthy ageing in a variety of fields, including health and care; communication and information; safety and security; leisure and culture; work and training; travel and transport.

The evaluation is based on an external study ([2]), incorporating 2 case studies ([3]), using data collected through surveys and interviews with programme participants and a wider variety of stakeholders, complemented with data provided by the dedicated implementation structure managing the AAL programme and evidence already collected by previous studies, such as prior evaluations, impact assessments, self-assessment reports and annual programme reviews (Commission, supported by external experts).

The overall findings indicate the importance of:

- using digital innovation to help ageing populations, supporting active and healthy living, and to secure the future of our health and care systems;
- strategies for deploying and scaling up innovation for ageing well/healthy living focussing on: integration and deployment of digital solutions in existing systems; better engagement of all actors along the entire value chain, including regional involvement; and incentivising and providing support for companies to go to market (including small and medium-sized enterprises (SMEs));

([1]) Decision No 554/2014/EU, 15 May 2014.

([2]) Independent Expert Report (September 2022). *Active and Assisted Living Research and Development Programme (AAL2) final evaluation* - Study in support of the ex-post evaluation of the European Framework Programme for Research and Innovation Horizon 2020, Prognos, PPMI, Publications Office of the European Union, 2022 (https://data.europa.eu/doi/10.2777/068757).

([3]) Independent Expert Report AAL2 final evaluation: *Annex D: Case Study on 'Support Actions for capacity development and community building and Annex E: Case Study on 'Learnings from the AAL2 Public-Public Partnership Approach*, Publications Office of the European Union, Luxembourg (https://data.europa.eu/doi/10.2777/068757).

- cooperation and communication at all levels and tapping into the energy of an 'alliance of early movers' mobilised by the AAL Association (AALA), which have set the agenda for active and healthy ageing in Europe and promoted the role of digital innovation in the field;
- long-term programme-driven partnerships offering, next to transnational calls, a portfolio of inclusive, EU-level Support Actions (set of initiatives, studies and services) aimed at supporting project applicants, partnership beneficiaries and the wider community linked to the partnership's key focus domains;
- a holistic system transformation approach, encompassing co-dependencies of policy/regulatory measures, funding & investment decisions, data ecosystems and digital technology applications with differing organisational culture, business and governance models, and different regional health and care systems.

2. ACTIVE AND HEALTHY LIVING: THE COMBINED CHALLENGE OF DEMOGRAPHIC CHANGE AND DIGITAL TRANSFORMATION

This report concerns the evaluation of the AAL2 programme which was set up in 2014 as a successor initiative of the Ambient Assisted Living Joint Programme ([4]) (AAL). Both programmes are based on Article 185 of the Treaty on the Functioning of the European Union (TFEU) ([5]). The EU decided to participate in these research and development programmes by matching participant states' support with funding from Horizon 2020 (for AAL2) and the 7th Research Framework Programme (for AAL). The 2014 decision on the EU's financial contribution to the AAL2 programme provided for a final evaluation of the programme to be conducted by the end of 2022.

In total 21 countries participated throughout the 7-year programme lifecycle of AAL2: 16 EU Member States, 3 Horizon 2020 associated countries and 2 third-countries ([6]). The participating states implement the programme through an international non-profit AAL Association governed by a General Assembly and supported operationally by a Central Management Unit (CMU). The Commission has observer status in the General Assembly with a veto right over the annual work programme, and was also a party to the agreements with the AALA as regards the EU's financial contribution.

The AAL2 programme focused on market-oriented applied research and innovation on ICT-based solutions for active and healthy ageing at home, in the community, or at work. It is established as an Article 185 TFEU ([7]) initiative in which the Commission has

([4]) Decision No 742/2008/EC, 9 July 2008.

([5]) Decision No 554/2014/EU, 15 May 2014.

([6]) Austria, Belgium (2 regions), Canada, Cyprus, Denmark, Hungary, Ireland, Israel, Italy (3 regions), Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Slovenia, Spain (3 regions), Sweden, Switzerland, Taiwan and the United Kingdom.

([7]) Article 185 initiatives are long term public-public partnerships (P2P) established on a voluntary basis by EU Member States that are also eligible for a substantial financial contribution from the EU Research Framework Programme. They aim to address common challenges in specific research areas by creating economies of scale and synergies between national and EU research programmes and investment. Their ambition is to achieve scientific, managerial and financial integration among national research programmes in a given field (from: https://www.era-learn.eu/).

worked with national and regional authorities to seize the many opportunities involving both digital innovation and active and healthy ageing.

On average Europeans enjoy longer lives in good health than other regions. In the last 50 years, life expectancy at birth has increased by about 10 years for both men and women. This is a remarkable achievement that both poses challenges and offers opportunities.

By 2070, over 30% of Europeans are projected to be 65 years of age or over, compared to just over 20% in 2019 ([8]). The share of people aged 80 years or older is expected to double from 5.8% to 13.2% over the same period. Within the EU, the impact of ageing varies widely between regions, especially between urban and rural areas, and gains in healthy life expectancy are unevenly distributed ([9]). At the same time there are social and economic opportunities associated with the concept of healthy ageing.

Older citizens are increasingly shaping economies and the demand for services and products in the 'silver economy' is increasing rapidly ([10]). There is now a substantial number of technologies and digital solutions to support people at any stage in their lives, to support 'ageing in place' and at work, improve the home environment and support social connectedness ([11]). In using these technologies to the maximum extent possible, there is potential for economic growth and social development in demographic change that can balance some of its impacts on health and (social) care systems and improve the quality of life of the ageing population and their carers.

In April 2020, the Commission adopted a 'Report on Demographic change' followed by a 'Green Paper on Ageing' in January 2021. They promote a life-course approach to ageing, emphasising the importance of health promotion and prevention of diseases from early on in life, and the need to lead healthy and active lives throughout one's whole lifespan.

Digital health solutions play an important role in for example:

- helping older people live independently ('ageing in place') and better monitor their own health status;
- supporting fall prevention;
- promoting age-friendly buildings, cities and environments;
- empowering older people to cope with co-morbidities (having multiple health issues at the same time) and loneliness, so improving their mental health.

([8]) European Commission (2021), *The 2021 Ageing Report. Economic & Budgetary Projects for the EU Member States (2019-2070)*, Publications Office of the European Union, Luxembourg.

([9]) World Health Organization (2021), *Decade of Healthy Ageing: Baseline Report*.

([10]) European Commission (2018), *The Silver Economy*, A study prepared for the European Commission DG Communication Networks, Content & Technology by Technopolis Group, Oxford Economics, Publications Office of the European Union, Luxembourg.

([11]) SAPEA, Science Advice for Policy by European Academies (2019), *Transforming the Future of Ageing*, SAPEA, Berlin (pp. 190-196).

The Strategy on the Rights of Persons with Disabilities 2021-2030 ([12]) promotes access to prevention and high-quality healthcare as a key aspect to improve the quality of life of persons with disabilities, including older persons.

This is also among the ambitions of the recently published EU Care Strategy ([13]) (September 2022). The Commission urges Member States to ensure that long-term care is timely, comprehensive and affordable, as well as to increase the supply and mix of professional long-term care services (homecare, community-based care and residential care), and to roll out accessible digital solutions for providing care services.

The Commission is determined to make this Europe's 'Digital Decade'. The '2030 Digital Compass for the EU's digital decade' ([14]) Communication, lays out the Commission's vision and the avenues for Europe's digital transformation up to 2030. Europe must now strengthen its digital sovereignty and set standards, rather than following those of others – with a clear focus on data, technology, and infrastructure. If they are to fully participate in economic and societal activities today and in the future it is necessary to enable all Europeans to make full use of digital opportunities and technologies, such as digital health services, and to facilitate seamless, secure and interoperable access across the EU to digital public services designed to meet people's needs effectively.

The European Declaration on Digital rights and principles for the Digital Decade ([15]) provides guidance shaped by European values for the EU and Member States as they adapt to the digital transformation. The 'solidarity and inclusion' principle specifically focusses on technology that should unite and not divide people and stresses that everyone should have access to the internet, to digital skills, to digital public services and to fair working conditions.

The proposed European Health Data Space (EHDS) Regulation ([16]) will empower individuals to control and share their electronic health data while ensuring compliance to strong privacy standards with legal, organisational and technical safeguards.

3. EVALUATION OBJECTIVES AND METHODOLOGY

The final evaluation addresses the seven years of operation of the AAL2 programme, from June 2014 to June 2021, in line with the five evaluation criteria of the Commission's Better Regulation Guidelines ([17]), complemented with two additional

([12]) European Commission (2021), Directorate-General for Employment, Social Affairs and Inclusion, *Union of equality : strategy for the rights of persons with disabilities 2021-2030*, Publications Office, 2021, https://data.europa.eu/doi/10.2767/31633

([13]) European Commission (2022), *A European Care Strategy for caregivers and care receivers*, https://ec.europa.eu/commission/presscorner/detail/en/ip_22_5169

([14]) COM(2021) 118 final.

([15]) COM(2022) 27 final.

([16]) COM(2022) 197 final.

([17]) The better regulation guidelines set out the principles that the European Commission follows when preparing new initiatives and proposals and when managing and evaluating existing legislation.

partnership-specific criteria on ‘additionality’ and the ‘transparency & openness’ of the partnership.

The evaluation methodology built on different analysis methods and data sources. The evaluation is based on an external study ([18]), incorporating 2 case studies, using the wealth of evidence already collected by previous studies, such as prior evaluations, impact assessments, self-assessment reports, annual reviews (Commission supported by external experts) and other reports. The evaluation also included statistical information about the AAL2 programme and 2021 programme impact study ([19]), provided by the dedicated implementation structure (CMU) managing the programme. The quantitative findings were enriched with qualitative information from approximately 30 interviews with programme participants and a wider variety of stakeholders. The conclusions of the external study are sound and based on a good understanding of the complexities inherent to the AAL2’s underlying indirect management model for ‘Article 185 TFEU partnerships’ with Member States.

Limitations and robustness

Statistical data has been provided by the CMU, a highly professional organisation with very comprehensive processes and procedures, so the available datasets are considered highly reliable.

Data on the long-term impacts of the AAL2 programme are still emerging. Approximately 40% of the projects are still ongoing ([20]). The assessment of impact and part of the effectiveness criteria were therefore mainly based on the programme impact study ([21]), which looked into a relatively small sample size of 38 AAL2 projects completed by December 2019 and interviewed AAL2 beneficiaries involved.

The evaluation takes into account the inherent limitations of the findings of surveys:

- the answers received reflect the views of a sample of relevant stakeholders and not those of the entire community that has a stake in this field;
- stakeholders' views convey an individual rather than an overall perspective.

All interviewees were highly experienced professionals who were very familiar with the programme. As such the evidence base accumulated is considered to reliably reflect the views and opinions of the AAL community.

Given the information above, this evaluation can be considered to have been carried out on the basis of the best available data. Whenever reliable quantitative data is lacking, this is counter-balanced with qualitative data and considerations, so the impact of the above-mentioned limitations was mitigated as much as possible.

([18]) See footnotes 2 and 3.

([19]) Idea Consult, *Third edition of the AAL programme impact assessment*, final summary report, December 2021, Brussels.

([20]) Status of 151 AAL2 projects at end 2021: 78 finished; 59 ongoing; last projects are estimated to be finalised mid-2025.

([21]) See footnote 19.

4. FINAL EVALUATION FINDINGS AND RECOMMENDATIONS

The final evaluation report confirms the high added value and major achievements of the AAL2 programme and concludes that:

- the programme continues to occupy a unique position in the field of digital solutions for active and healthy ageing, with strong relevance, EU added value and additionality;

- AAL2 brings together a highly relevant combination of beneficiaries, including SMEs and end-user organisations that do not typically participate in Horizon 2020;

- the programme is well managed thanks to flexible implementation methods and a strong leadership role by the Central Management Unit/dedicated implementation structure;

- the programme has made significant progress towards its objectives, but the complex nature of the market still constrains the swift uptake of innovative solutions.

The evaluation highlights some important key achievements and early results, which are promising indicators of relevant overall impact:

- in total, 151 collaborative projects (involving at least 3 partners from different countries) were funded under AAL2;

- AAL2 supported 705 beneficiaries, with 1078 participations ([22]), of which:

    - SMEs accounted for 40.3%,

    - universities and research institutes accounted for 26.8%,

    - end-user organisations accounted for 26.3%; participation by end-user organisations increased strongly over the course of AAL2;

- overall programme investment in AAL2 represents EUR 308 million; EC commitment of EUR 108.6 million ([23]), complemented by over EUR 121.5 million of commitments from participating states and leveraging an estimated co-financing of over EUR 77.7 million from programme participants.

- AAL2 brings together top research bodies in Europe with SMEs and end-user organisations that do not typically participate in Horizon 2020;

([22]) The term 'participations' refers to the sum of all beneficiaries in all projects, including multiple counting of beneficiaries that participated several times.

([23]) The legal bases set a maximum estimated EU financial contribution of EUR 175 million and stipulate that the annual EU financial commitment to the AAL2 programme must not exceed the annual financial commitment by participating states. EC budget includes programme management, Support Actions and project calls; participating states' and beneficiaries' budgets are only for financing project calls.

- around 22% of the universities and higher education institutes participating in AAL2 belong in the top 1% of Horizon 2020 participants; 45.4% belong to the top 10%. This indicates the nature of research bodies participating in AAL2;

- there is strong complementarity between AAL2 and other parts of the Horizon 2020 programme in terms of participants' profiles: 56.2% of AAL2 participants have not participated in a Horizon 2020 project (outside AAL2); for SMEs, that rate is 62.8%;

- the budget utilisation rate increased by 18.8 percentage points, compared to the predecessor programme, thanks to project reconfigurations and other optimisation mechanisms;

- out of 38 projects, 23 (61%) that were completed by the end of 2019 had brought at least one solution to the market. These covered digital solutions supporting ageing well in a variety of fields, including safety and security; leisure and culture; work and training; vitality and abilities; travel and transport;

- over 4 800 people attended the AAL2 Forums to intensify transnational collaboration, network and exchange ideas;

- a total of 65 projects participated in AAL2Business Support Action activities to improve their skills in bringing their solution to the market. Beneficiaries also reported a substantial increase in their knowledge of user needs.

4.1. General observations

The Commission welcomes the final evaluation report, which is underpinned with objective data and evidence. The recommendations and lessons learned are based on a good understanding of the complexities inherent to the indirect management model of Article 185 TFEU partnerships with Member States.

The Commission welcomes the conclusion that the major concerns expressed in the interim evaluation ([24]) did not materialise. The negative trends identified by the interim evaluation, notably the decreasing number of countries actively participating in the programme and associated decreasing budget commitments, did not continue and were reversed during the second half of AAL2, thus securing the sustainability of the programme, with stable membership numbers over the whole programming period.

In addition, the concerns about a lack of strategic leadership within the AALA were countered by a major restructuring of the CMU in response to the recommendations in the interim evaluation. This resulted in improved strategic capacity, which provided proactive, responsive and energetic leadership during the second half of the AAL2 programme. Subsequently, the programme was able to adjust swiftly to new insights and demands, introducing substantial operational improvements that have kept it relevant.

([24]) European Commission (2017), *Interim Evaluation of the Active & Assisted Living Programme*, Publication Office of the European Union, Luxembourg.

The Commission acknowledges the pioneering role of the programme in creating and seizing the many opportunities to contribute to active and healthy ageing through digital innovation. The programme actively contributed to developing a positive perspective on ageing and created a neutral space, bringing together stakeholder groups that previously had little or no interaction.

Despite the complex and fragmented nature of the market, AAL2 showed a positive trend in the number of solutions launched on the market and has promoted social innovation. It also addressed well the priority target groups set-out for the programme i.e. SMEs (40.3%) and end-user organisations (26.3%) that do not typically participate in EU-funded research and innovation (R&I) programmes.

4.2. Recommendations and lessons learned

The Commission subscribes fully to the conclusion of the evaluation report that future European action on digital innovation in active and healthy living needs a wider approach to system transformation. A holistic approach is required that engages all private and public stakeholders, including all relevant levels of government responsible for the sustainability and transformation of health and care systems.

The Commission has already adopted such a holistic approach in the Horizon Europe research and innovation framework programme and more specifically in its call for a European Partnership on transforming health and care systems ([25]). This co-fund action will create an R&I partnership with a focus on transforming health and care systems, representing a unique strategic opportunity to bring together stakeholders (including regional ecosystems), create synergies, coordinate R&I actions, and facilitate the digitalisation of health and care services, using innovative solutions driven by knowledge and evidence.

It will stimulate service, policy and organisational innovations, as well as the integration of biomedical and technological innovations for the benefit of the European citizens and European industry. The co-fund partnership is requested to build on knowledge gained from Horizon 2020 initiatives, such as the AAL programme. This responds to the recommendation of the evaluation report that future actions should build on the commitment of the community of stakeholders created by AAL2 who are dedicated to active and healthy living.

The Commission recognises that ‘Support Actions’ proved to be an efficient and cost-effective addition to the funding of transnational calls and strengthen the Partnership’s ability to achieve its objectives. The Commission would promote such an approach in any future partnership and cooperation structure.

Importantly, future policy actions should blend technological and social innovation instead of dealing with both aspects separately. Likewise it should promote active and healthy living and help people and societies to use the full potential of digital solutions for ageing well.

([25]) HORIZON-HLTH-2022-CARE-10-01

The European Care Strategy ([26]), published in September 2022, acknowledges the importance of rolling out accessible digital solutions for the provision of care services, in all care settings, such as home, community-based and residential care. The proposed EHDS Regulation promotes interoperability of electronic health data between the different providers and will thus contribute to the creation of an inclusive health and care infrastructure. In addition, in designing the funding programmes under the current Multiannual Financial Framework (MFF), the Commission has paid specific attention to creating favourable conditions for blending funding and stimulating synergies across programmes.

The Commission has also published a Flagship Support Instrument on 'Person-Centred Integrated Care' ([27]) (May 2022), to promote reforms in EU Member States that help national and regional administrations to investigate, design and implement strategies for integrating health, social care and long-term care, including through more integrated digital solutions.

The Commission concurs with the need to develop strategies for deploying and scaling up innovation in future actions supporting digital transformation in health and care systems and to zoom in on the situation on the ground.

The Commission has initiated the work in a cross-domain approach with a focus on supporting large-scale pilots and platform projects under the Horizon 2020 cluster 'Digitisation of European Industries – Large-Scale Pilots on Active and Healthy Living (DEI Healthy Living)' ([28]). In support of the implementation of next generation digital platforms DEI Healthy Living works along four action lines: platform building, data-powered business ecosystem, large scale piloting of reference architectures and standardisation.

Furthermore, the new Digital Europe programme (DIGITAL) proposes multiple actions to support deployment and up-take of new solutions, through funding actions that accelerate the adoption and best use of digital technologies, also in the health and care sector, by offering 'Testing and Experimentation Facilities (TEF)' and 'European Digital Innovation Hubs' (EDIH), involving the entire value chain, from both the supply chain and demand-side perspective. Combining service innovation, business innovation and digital innovation will be crucial in realising the paradigm shift to focussing on and investing more in prevention and healthy living to empower people to take care of their health and make well-informed health choices.

The deployment and scaling up of innovation for better delivery of health and care to the ageing population in Member States has been prompted in several Council Recommendations.

In October 2020, the Council adopted Conclusions on Human Rights, Participation and Well-Being of Older Persons in the Era of Digitalisation ([29]) calling on Member States to

([26]) See footnote 13.

([27]) https://ec.europa.eu/reform-support/towards-person-centred-integrated-care_en

([28]) https://www.opendei.eu/ and https://www.opendei.eu/healthcare-sector/

([29]) https://data.consilium.europa.eu/doc/document/ST-11717-2020-REV-2/en/pdf

promote active and healthy ageing – including by using the positive impact of digital technologies in public services. It also invited the Commission to continue to support Member States in actions focussing on digitalisation; as well as to empower older persons to use digital technologies to better monitor their health independently.

Furthermore, the Council Conclusion on Demographic Challenges – the Way Ahead ([30]) called on Member States to address demographic challenges and explore how digitalisation and welfare technology can be better integrated into care services to improve the accessibility and delivery of services.

In 2021, the Council Conclusions on Mainstreaming Ageing in Public Policies ([31]) were adopted, and in September 2022 the Council Recommendation on access to affordable high-level long-term care ([32]) recommended that Member States roll out accessible, innovative technology and digital solutions for providing care services, including to support independent living.

In addition, strategic digital R&I priority areas are embedded in the different thematic clusters of the Horizon Europe research and innovation framework programme (2021-2027) - such as cluster 1 Health, which strongly supports digital technologies.

Elderly people should be empowered by digital technologies, be able to trust them and be encouraged to use them to age well. The Commission will continue to support 'Active and Healthy Living in the Digital World' ([33]) and the growing silver economy, through its R&I activities, policies and partnerships, ecosystem and community-building support as well as through its European Care Strategy and the Flagship Technical Support Instrument on Integrated Care, making sure that these will benefit the European ageing population.

5. CONCLUSIONS

The COVID-19 pandemic changed Europe and the world within the blink of an eye. It clearly demonstrated the importance - and significantly accelerated the uptake - of digital services in our society. This will leave a lasting impact on the way we live and work, with the ubiquitous presence of digital technologies.

The pandemic showed us how health, wellbeing, and social inclusion are intertwined and often overlapping. We need to rethink policies and practices providing for and intervening in wider sectors of society, including traditional and new stakeholders.

The final evaluation report for AAL2 documents the positive impact of the EU and participating states joining forces to tackle the 'Silver Deal' challenge Europe is facing at all levels and to encourage the wider ecosystem to further tap into the energy of this 'alliance of early movers' to promote technological and social innovation for ageing well in Europe.

([30]) https://data.consilium.europa.eu/doc/document/ST-8668-2020-INIT/en/pdf

([31]) https://data.consilium.europa.eu/doc/document/ST-6976-2021-INIT/en/pdf

([32]) COM(2022) 441 final.

([33]) https://futurium.ec.europa.eu/en/active-and-healthy-living-digital-world

The Commission believes that the swift deployment of innovative digital health and care solutions can best be achieved by working together at EU level, sharing experience in deploying, measuring impact and transferring innovation across Member States and regions, including border regions. At the same time, it is clear that there is no one-size-fits-all approach. Policymaking across all levels will need to zoom in on the reality on the ground and adapt accordingly to regional differences. The active engagement of all parties is essential if we are to succeed in creating a 'triple win' that benefits people, health systems and the market.

The European Parliament and Council are invited to give their opinion on the report's analysis and recommendations, and to support the implementation of future action on digital innovation in active and healthy ageing.