ProCon

Boosting innovation, entrepreneurship and training for PROmoting CONtinence in nursing homes.

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FRAMEWORK FOR INNOVATION AND ENTREPRENEURSHIP

IN NURSING HOMES

ProCon Project

Deliverable 2.1_D3

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LIST OF ACRONYMS

AI	Artificial Intelligence
EntreComp	European Entrepreneurship Competence Framework
EU	European Union
GOLTC	Global Observatory of Long-Term Care
HE	Higher Education
LTC	Long-term care
NH	Nursing Home
VET	Vocational Education and Training
VR	Virtual Reality
WHO	World Health Organization
WP	Work Packages

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Summary

The ProCon project aims to strengthen innovation and entrepreneurial competencies in long-term care, with a focus on continence care. As part of this initiative, this deliverable (D2.1/D3) presents a co-created framework to guide innovation and entrepreneurship in nursing homes (NHs), rooted in the European Commission's *EntreComp* framework.

A total of four workshops were conducted in Spain, Belgium, Finland and Canada between November 2024 and May 2025. Seven workshop facilitators and a total of forty-eight participants took part, including NH staff (14), policy makers/stakeholders (8), researchers/experts (9), higher education (HE) students (7), vocational education and training (VET) students (6), business professionals (4). Each workshop followed a structured format in which participants discussed the topics of innovation, entrepreneurship, gerontechnology, sustainability and resilience. The process encouraged both individual and organisational perspectives.

Qualitative data were thematically analysed, grouping responses under recurring themes. Cross-country synthesis identified shared priorities and actionable **recommendations for embedding innovation culture in NHs**. Finally, a consensus was reached among the ProCon team. Basic sociodemographic data, as well as degree of satisfaction and learning outcomes were additionally collected, by means of a post-workshop questionnaire.

There was strong agreement across countries on key conditions for fostering innovation and entrepreneurship in NHs, including having a clear strategic vision, supporting staff initiative, promoting teamwork, ensuring leadership support and adequate resources. Additional themes comprised use of gerontechnology, small-scale sustainability actions, and the importance of emotional resilience —confirming that **innovation is shaped not only by tools, but by people, culture, and everyday practice.**

This framework is the first to apply EntreComp in NHs and offers practical, scalable strategies for educators, care providers, and policymakers. It supports ProCon's broader objectives of improving continence care, training present and future healthcare workers, and promoting sustainable, inclusive innovation in long-term care.

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1. Background

The global population is experiencing a significant demographic shift. According to the World Health Organisation, the number of individuals aged 60 or above is expected to double by the year 2050 (WHO, 2015). Among this population, older adults residing in nursing homes (NHs) represent the most vulnerable and frailest segment of society, often approaching the end of life. The COVID-19 pandemic had a profound and detrimental impact on NHs, highlighting structural deficits in the long-term care (LTC) system, while also offering a valuable opportunity to collect evidence for reshaping health and social care models (Amblàs-Novellas et al., 2024).

Given these challenges, it is essential to develop and implement innovative strategies aimed at addressing the healthcare needs of older people, particularly as frailty and functional decline escalate with the accumulation of health-related deficits. Innovation in healthcare extends beyond the generation of novel ideas (Flessa & Huebener, 2021). This transformative process will involve refining existing systems and practices to overcome structural and organisational barriers, increase patient and provider satisfaction, and enhance overall quality and efficiency. (Al-Saleem & Aldakheel, 2024).

Entrepreneurship, research and innovation in NHs are crucial to address pressing healthcare issues such as cognitive and physical impairment and incontinence, which are highly prevalent among older nursing home residents. However, despite its importance, research and innovation in NHs remain underdeveloped due to various challenges, including high staff turnover, constraints and inherent difficulties in including residents in research (Goodman et al., 2011).

To foster innovation and enhance individual and organisational performance within NHs, it is imperative to cultivate an organisation culture that promotes effective internal communication, facilitates the exchange of information, and optimises the work environment. A well-structured and supportive institutional framework can serve as a catalyst for the successful implementation of innovative healthcare solutions, ultimately improving the quality of life for older adults residing in NHs (Banaszak-Holl et al. 2015).

2. Justification

Innovation and entrepreneurship play a critical role in transforming the LTC sector by fostering new approaches to service delivery, improving resident outcomes, and optimising resource utilization. NHs face complex challenges, including an increased proportion of medically complex, frail residents, workforce shortages, and financial constraints, which necessitate innovative solutions to identified problems. By embracing innovation, NHs can introduce technologies such as telemedicine, artificial intelligence

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for personalised care, and smart monitoring systems, all of which enhance patient safety and care efficiency (Berrut et al., 2013).

Entrepreneurship within NHs encourages the development of novel business models, partnerships, and funding strategies that drive sustainability. Entrepreneurial thinking enables NH administrators to adopt proactive problem-solving approaches, ensuring continuous improvements in service quality and cost-effectiveness. For instance, social entrepreneurship initiatives that integrate community-based care models have been shown to enhance well-being and promote active aging (Ippolity et al., 2018).

The European Entrepreneurship Competence Framework (EntreComp) provides a comprehensive guideline for fostering entrepreneurial skills across various sectors, including healthcare (Bacigalupo et al., 2016). EntreComp defines key competencies such as creativity, vision, and resource management, all of which are essential for driving innovation in NHs. By using the EntreComp framework into LTC, institutions can develop a culture of entrepreneurship, empowering staff to generate and implement innovative solutions tailored to the needs of older adults.

Moreover, fostering entrepreneurship within NHs aligns with broader EU policies on social innovation and active aging. Encouraging interdisciplinary collaboration between healthcare professionals, policymakers, and technology developers can lead to more sustainable and patient-centred care models (WHO, 2015). In this context, the adoption of the EntreComp framework serves as a strategic tool to equip professionals with the skills and mindset needed to navigate challenges and drive meaningful transformation in LTC settings. Additionally, successful case studies of entrepreneurial approaches in LTC demonstrate that investing in human capital and training staff in entrepreneurial competencies can significantly improve service delivery and patient satisfaction (Leichsenring et al., 2013).

Our team conducted a literature search of the use of EntreComp framework in Gerontology. No initiatives were found that had used EntreComp to boost innovation and entrepreneurship in the LTC sector.

To address the identified lack of initiatives, the ProCon project aims to foster innovation and entrepreneurship within NHs. The project addresses challenges of an aging population and promotes sustainable and inclusive growth. ProCon seeks to enhance innovation in NHs by including the development of this framework of recommendations to boost innovation and entrepreneurship in NHs. The project also promotes the exchange of knowledge between academic and non-academic sectors, developing new skills, and addressing skills mismatches.

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The project also aligns with the United Nations' Sustainable Development Goals, specifically by promoting good health and well-being (goal 3), quality education (goal 4), sustainable economic growth (goal 8) as well as innovation (goal 9). ProCon targets priorities established by the 'Global strategy and action plan on ageing and health' and the new WHO programme 'The Decade of Healthy Ageing 2020-2030', by highlighting collaboration and coordination across multiple sectors, with stakeholders and older people, promoting innovative research on healthy ageing, enabling older adults' engagement, or providing support for people experiencing losses in capacity, retaining autonomy and health (WHO. Global strategy and action plan on ageing and health (2017). The ProCon project also aligns with several European Union frameworks, including the 'European Pillar of Social Rights', which aims to ensure that all citizens have access to quality and inclusive education, training, and lifelong learning opportunities.

3. Introduction to this Deliverable

ProCon aims to foster innovation in NHs, specifically in the promotion of modern continence care in NH residents, through cooperation and flow of knowledge among 5 labour market actors, 4 higher education (HE) institutions, 2 vocational education and training (VET) providers, 1 non-governmental organisation and 1 affiliated research institution. The project consists of 6 work-packages (WPs):

- **WP1**: Project management and coordination, led by the University of Vic – Central University of Catalonia (UVic-UCC).
- **WP2**: Innovation, technology, and entrepreneurship in healthcare and NHs. It includes the development of this Framework, as well as a technological solution for continence care, and a multidisciplinary course on innovation and entrepreneurship.
- **WP3**: Skills development. It focuses on co-creating two courses: one on resilience and flexible work practices and one on continence care in NHs.
- **WP4**: Piloting the ProCon educational programme through a multinational pragmatic study in Spain, Finland, Canada, and Belgium.
- **WP5**: Quality assurance and evaluation, including assessment of the project's socioeconomic impact.
- **WP6**: Communication, dissemination, and exploitation of results. It includes outreach, creation of virtual communities of practice, and policy recommendations.

Figure 1 graphically represents ProCon WP structure and main outputs.

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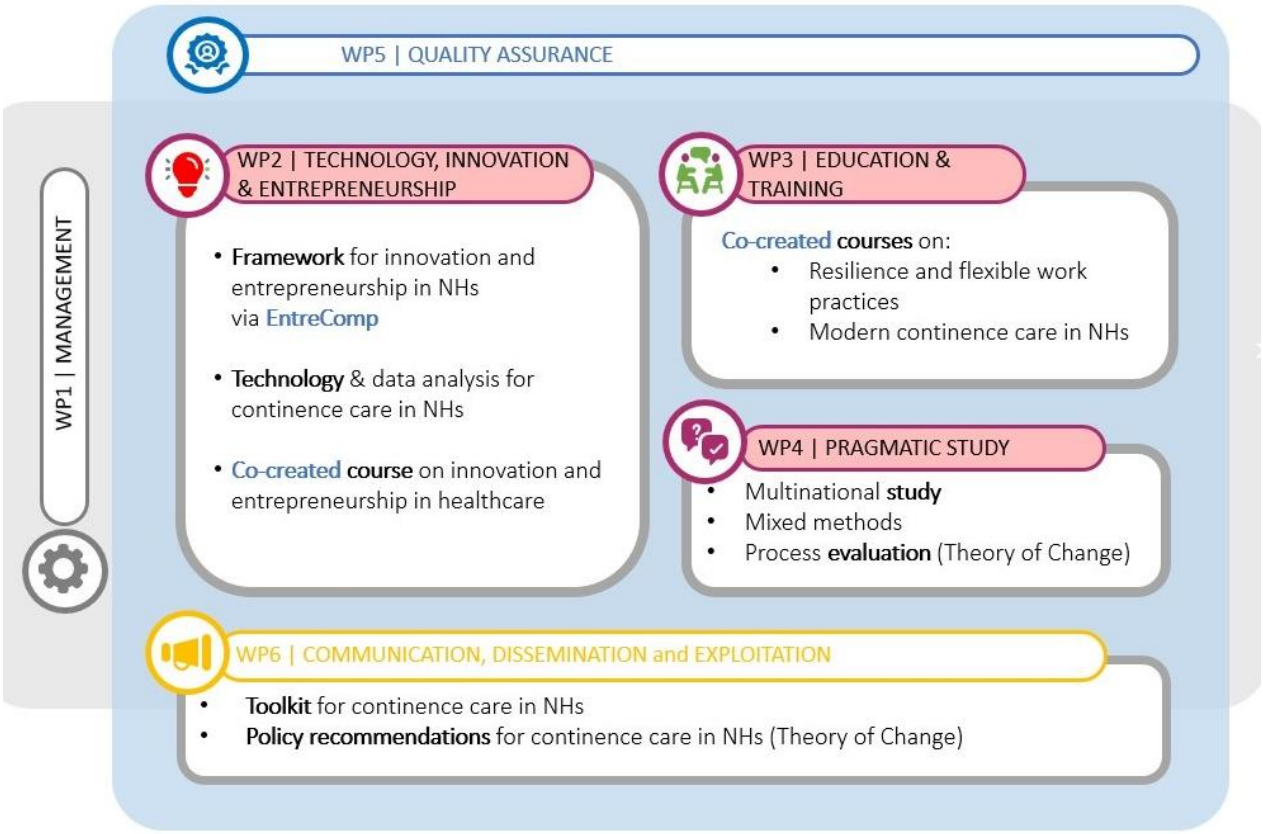

Figure 1. ProCon 6WP-structure and their main outputs.

Apart from the socioeconomic impact, ProCon aims to influence academia (HE and VET providers, educators, and students), LTC (NHs, staff, residents and their relatives) and labour market (technological companies, innovators/entrepreneurs and non-governmental organisations). WP6 on communication, dissemination and exploitation of results expects to reach more than 10,000 people. Virtual communities of practice, a toolkit for continence care will be for NH residents and relatives, as well as policy recommendations for continence care in NHs will also be co-created through the development of the project.

This Deliverable (D2.1/D3) provides structured guidelines and actionable recommendations developed through a participatory approach, actively involving stakeholders in identifying best practices and opportunities for improvement.

The framework for innovation and entrepreneurship in NHs represents the first intellectual output of ProCon. It will serve as an umbrella and will be embedded in all its outcomes (see Figure 2).

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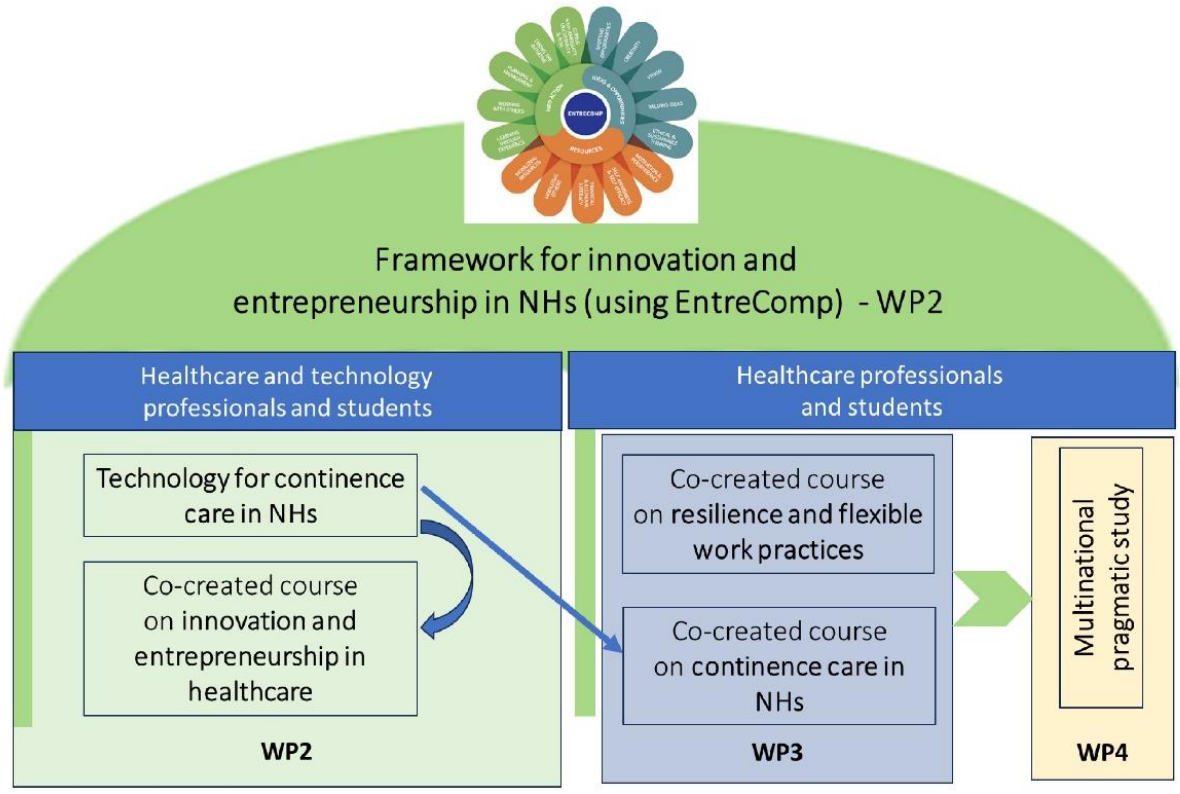

Figure 2. ProCon intellectual outputs and their relationships.

The framework for innovation and entrepreneurship in NHs (hereon "the Framework") will guide the development of ProCon's educational courses:

- **Innovation and Entrepreneurship in Healthcare and NHs (WP2):** aims to enhance learners' knowledge, skills, and competencies in healthcare innovation, with a focus on labour opportunities in gerontology and nursing homes. Key topics include digital competences, entrepreneurship, gerontechnology, sustainable development, and resilience skills.
- **Resilience and Flexible work practices (WP3): will** provide evidence informed practical insights into introducing practice and sustaining flexible work models in healthcare settings.
- **Continence Care in NHs (WP3):** will include innovative solutions for the delivery of continence care, identifying and addressing current gaps in care for both men and women.

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For the General Public:

- The Framework offers accessible, practical guidelines and tools to policymakers, NH administrators, educators, researchers, and community stakeholders.
- It encourages the broad adoption of innovative, entrepreneurial, and resilient practices in healthcare and LTC sectors.
- Independently of the ProCon courses, the **Framework can serve as a standalone resource for any organisation or individual seeking to implement change and foster innovation in NH and related environments.**

This framework contributes directly to ProCon's overarching goal of driving sustainable improvements and fostering an entrepreneurial mindset and resilience in NH care services.

4. Ethical aspects

The development of the Framework was specifically approved by the Ethics Committees:

- University of Vic - Central University of Catalonia (code 337/2024), Nov. 6th, 2024.
- KU Leuven Social and Societal Ethics Committee (code G-2024-8497-R2) on October 28th, 2024.
- University of Alberta Health Research Ethics Board (code Pro00148586) on January 30th, 2025.

In Finland, approval by an ethical committee was not required, as the workshop did not involve sensitive personal information, nor did it pose any risk to participants or facilitators. Participation in the workshop was voluntary, and informed consent was implied through participation, allowing the results to be used as a foundation for content development within the ProCon project.

Personal data were processed in a way that preserved confidentiality of the involved persons and ensured fairness, transparency and accountability of the data processing and data quality. Data collected was used solely for the ProCon project. No data were collected unless strictly necessary to the completion of the task activities were collected. Every partner had a person responsible for overseeing all personal data processes/protection. Personal data were collected, analysed, stored, and shared in full compliance with European and national legislation, conventions, declarations, and manuals relevant to the country of the data collections taking place (international/European). The ProCon project follows international and European ethical guidelines and regulations.

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Each national workshop was held (organised and conducted) by one or two ProCon team members.

During workshops, the ProCon project and the objective of co-creation was explained to participants. Information sheets were provided (Annex 1) and participants were asked to provide informed consent; in case of underage participants (VET students), additional consent and signature were required from a parent (Annex 2). Permission was gained for audiovisual recording during the workshop (for analysis and dissemination purposes). Sociodemographic information, age, gender, years of experience in work position and category/profile (e.g. physiotherapist, NH director, researcher, HE or VET student) was collected and stored in an encrypted password protected spreadsheet.

As a minimal risk study, no adverse events or unintended effects were expected or observed.

Permission was obtained from all participants who appear in the pictures of the report. Participation in the project was voluntary, and participants did not receive any compensation. There was no specific insurance for participants. Each participant received a certificate of participation in the Erasmus+ project.

5. Method

We conducted four workshops aimed at co-creating a framework of recommendations to boost innovation and entrepreneurship in NHs. These co-creation sessions involved all relevant stakeholders and focused on exploring innovation and entrepreneurship in elderly care settings. The EntreComp framework was used to build a bridge between the worlds of education and professional practice.

As inspiration, we used Case Study T9, “Entrepreneurial competences workshop”, from the EntreComp into Action user guide. This method allowed us to identify and map the needs, strategies and policy gaps within NHs in relation to fostering innovation and supporting the development of entrepreneurial competences among students.

Data collection and analysis followed a mixed-methods approach. Quantitative data were collected through basic sociodemographic questionnaires and post-participation satisfaction surveys. Qualitative data were analysed through a coding and grouping process, conducted independently in each country by ProCon researchers with expertise in qualitative methods and elderly care. The analysis relied on a thematic analysis approach.

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5.1 Recruitment and sampling

ProCon partners in each country were in charge of recruiting participants. Specifically:

1) In Spain:
   a. UVic provided conductors, HE students and experts/researchers.
   b. IVic provided VET students.
   c. CHV provided NH staff, stakeholders and business professionals.
2) In Belgium:
   a. KU Leuven provided a conductor, HE students and experts/researchers.
   b. Byteflies provided a business professional.
   c. Zorg Leuven provided NH staff and policymakers.
3) In Finland:
   a. TUAS provided conductors, HE students, experts/researchers, NH staff, business professionals and stakeholders.
   b. TAI provided VET students and experts/researchers.
4) In Canada:
   a. UA provided all categories of participants.

Workshops took place on November 19, 2024 (Spain), November 26, 2024 (Belgium), January 30, 2025 (Finland) and May 13, 2025 (Canada). Participants were asked to self-identify their professional role in the workshop questionnaire. In some contexts (such as Belgium) certain roles, particularly NH managers, were considered stakeholders or policymakers during the workshop discussions due to their decision-making responsibilities, even though they selected the “NH staff” category in the survey. Target numbers for participation included 44 people: 8 HE students, 6 VET students, 8 experts/researchers (including ProCon members), 8 stakeholders (e.g., managers, policymakers), 10 NH staff, 4 business professionals and 4 workshop conductors. The final number of participants was 48, plus seven ProCon conductors/assistants. Details are shown in Table 1.

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Table 1. Participants of the workshops to co-create the ProCon Framework of recommendations to foster innovation and entrepreneurship in NHs following EntreComp.

Co-creators	Spain	Belgium	Finland	Canada	TOTAL
HE students	2	3	2	0	7
VET students	3	0	3	0	6
Experts/researchers	3	2	2	2	9
Stakeholders /policymakers	2	2	2	2	8
NH (first line) staff	8	3	2	1	14
Business professionals	1	1	2	0	4
Subtotal (participants)	19	11	13	5	48
Conductors / Support	2	1	3	1	7

5.2 Workshop structure

Three workshops were conducted face-to-face. Two were held at university premises (UVic in Spain and TUAS in Finland) and one in a NH (Zorg Leuven in Belgium), with an approximate duration of 3-4 hours per workshop. Due to difficulties in scheduling and geographic challenges, the workshop by the University of Alberta (Canada), was conducted via Zoom and the method was adapted for this format. Duration of the online session was around three hours.

Picture 1. Preparation of the workshop in Belgium.

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Generally, the structure of workshops consisted of 3 sessions with different contents:

SESSION 1: Introduction (30-60 min approximately):

a. **Presentation the ProCon project**.

Picture 2. ProCon presentation by the Principal Investigator (Javier Jerez-Roig, PhD) in Spain.

Picture 3. Beginning of Spain workshop.

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b. **Icebreaking game:** "Two Truths and One False", lasted approximately 15-20 minutes. Each participant introduced themselves and shared three statements about their professional experience. Out of the three statements, two had to be true, and one false. Participants were asked to phrase their statements by starting with "I have" to maintain consistency. The other participants attempted to guess which of the three statement was false.

Example: *"Hi, I'm John. Here are my two truths and one false:*

- *I have been working as a nursing home director for 5 years.*
- *I have developed an invention to improve continence care.*
- *I have worked in an orthopaedic clinic before.*

Can you guess which one is false?"

c. Explanation of the EntreComp framework and the workshop goals.

Picture 4. Meltem Yildirim, PhD explains EntreComp competences in Spain.

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SESSION 2: Good Practices in Innovation & Entrepreneurship (90 min approximately):

Brainstorm and vote on ideas about fostering innovation in NHs using the *Turning Tables* method (further explained in the next section).

Questions of session 2 included:

- What does your organisation do to foster innovation and entrepreneurship?
- What do you do to foster these topics?
- What could be done (competences, activities, other) to foster innovation and entrepreneurship in NHs?
- What (resources) would be needed in NHs to foster innovation and entrepreneurship?
- What would be your recommendation/advice for a new colleague/student?
- What would you use from EntreComp to foster innovation and entrepreneurship in NHs?

SESSION 3: Gerontechnology, Sustainability & Resilience (90 min approximately):

A similar brainstorming and voting session focused on technology, green practices, and resilience skills in NHs, using the Turning Tables method (explained in the next section).

Questions in Session 3 included:

- Which gerontechnology are you or your organisation currently developing, using, researching?
- Which gerontechnology solutions could be needed in NHs?
- What do you or does your organisation do to support green aspects and sustainability?
- What would your recommendation be, advice be for a new colleague/student regarding sustainability and green aspects in NHs?
- What resilience skills could be needed in entrepreneurship and innovation?
- How can resilience skills be included or enhanced in NHs?

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5.3 Turning Tables-based method for co-creation

The *Turning Tables* method is an interactive brainstorming process structured around the following working scheme:

1. **Themed Brainstorming and ideas generation**:

   Participants sit in pairs or group at a section of the table and brainstorm on a specific theme/question related to innovation and entrepreneurship. Participants were shown the EntreComp competences and encouraged to guide their answers and suggestions around this supporting guide, when possible (Figure 3 or Annex 4 for larger size).

Figure 3. EntreComp competence areas and specific competences.

The questions/themes are included in workshop sessions 2 and 3. Every session included 6 rounds (one per question/theme): round 1 lasted 8 minutes, round 2 lasted 7 minutes, round 3 lasted 6 minutes, round 4 lasted 5 minutes, round 5 lasted 4 minutes and round 6 lasted 3 minutes. Ideas were written on sticky notes and placed on the relevant theme/question section. After 3-8 minutes, the participants rotated to the next theme, contributing new ideas at each stop.

Picture 5. Workshop participants writing their ideas on sticky notes in Belgium.

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2. **Idea selection:**

After all rounds were completed, each participant received 8 dot-stickers to distribute on what they felt were the best ideas during approximately 10 minutes. They also received a veto sticker to indicate something which they did not want or with which they disagreed (constructive conflict). The veto sticker was identifiable so more explanation as to why they disliked the idea could be requested (individual accountability).

Picture 6. Workshop participants observing and voting the topics in Spain.

3. **Final discussion:**

The conductor reviewed/discussed the most popular ideas. In the final phase, ideas that received most dots were discussed in the group. Veto stickers were also discussed.

Picture 7. Conductor Meltem Yildirim, PhD debriefs results of the workshop in Spain.

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The Canadian online session was adapted to a focus group and expert consultation. Participants were asked to discuss the questions outlined in the protocol, and then consensus was reached on the questions through discussion.

5.4 Data processing and consensus reaching procedures

Qualitative data were analysed thematically by grouping similar ideas into broader categories. For example, in response to the question "What could be done to foster innovation in nursing homes?", answers like "allocating more time for staff to reflect", "having structured follow-up", and "creating space for experimentation" were grouped under the broader category "Allocating time and structure to make innovation happen". This coding and grouping process was carried out by ProCon researchers within each country, with backgrounds in qualitative analysis and elderly care, and relied on a thematic analysis approach. The analysis was iterative, allowing for adjustments to the thematic categories as new ideas emerged.

- **Data collection** through written sticky notes, facilitator observations, recordings of discussions, and voting outcomes.
- **Thematic analysis** using coding to group similar ideas into broader categories.
- **Categorization of responses** under the EntreComp framework and identification of individual *vs* organisational perspectives.
- **Extraction of recommendations and resource needs**, paying attention to recurring suggestions and gaps.
- **Analysis of gerontechnology, sustainability, and resilience** by identifying current practices, future needs, and key skills mentioned.
- **Prioritization and voting analysis** to capture which ideas were most supported or vetoed, and why.

Data from each workshop were summarised for final comparative thematic analysis following these steps:

- **Review of all national summaries** to identify key ideas, recommended actions, and recurring challenges.
- **Thematic coding** of all responses, grouping similar inputs into broader categories (e.g., time allocation, leadership, co-creation).
- **Organising categories** under the main areas of EntreComp Framework.
- **Clustering of recommendations** into visually supported formats, such as the EntreComp flower diagram (see Figure 4) and the ProCon Metro map (Figure 5 or Annex 6 for larger size), to show interconnections.
- **Separate thematic grouping** of responses to the second workshop (gerontechnology, sustainability, resilience).
- **Synthesis of cross-country commonalities and differences**, identifying shared priorities, innovative practices, and contextual nuances.

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The main results were discussed with ProCon team members in an online workshop conducted with 16 attendees on the 20th of May of 2025. All those involved in conducting workshops attended this meeting. Following this all 52 ProCon team members were given the opportunity to comment on the main results.

At the end of each national workshop a post-exit questionnaire (see Annex 3) was provided to participants. It included:

- Sociodemographic information: participant profile (VET student, HE student, healthcare professional, expert/academic, policymaker or manager, other), years of experience in current position, years since college, gender (female/male/other) and age.
- Satisfaction (5-point Likert-type scale): general satisfaction with the workshop, communications for invitation, length and time distribution, explanations and support provided by the facilitator/s of the workshop, workshop design and methods, materials used, usefulness for you personally, usefulness for your work, usefulness for NHs (in general).
- Learning/awareness (5-point Likert-type scale): awareness on ways to foster innovation, awareness on ways to foster entrepreneurship, learning about gerontechnology in NHs, awareness on green aspects and sustainability, learning about resilience skills in regard to innovation and entrepreneurship.

6. Results

The final number of co-creators was 48. Their profile is shown in Table 1. The highest proportion (*n* = 14; 29.2%) of participants corresponded to NH staff (including first line staff and managers). However, in some contexts (e.g., Belgium), managers are also considered policy makers due to their decision-making roles within the institution, as noted in the previous section. The rest of the sample included experts in research/innovation on gerontology (*n* = 9; 18.8%), stakeholders / policymakers (n =8; 16.7%), students of higher education institutions (*n* = 7; 14.8%), students of vocational and education and training providers (*n* = 6; 12.5%) and business professionals (n = 4; 8.3%).

6.1. Main results

6.1.1 Good Practices in Innovation & Entrepreneurship (EntreComp Framework)

The first six questions explored how innovation is fostered in nursing homes, focusing on human factors, organisational strategies, and entrepreneurial attitudes. These responses

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were arranged using the EntreComp Framework to visualise innovation as a process that integrates ideas and opportunities, actions, and resources.

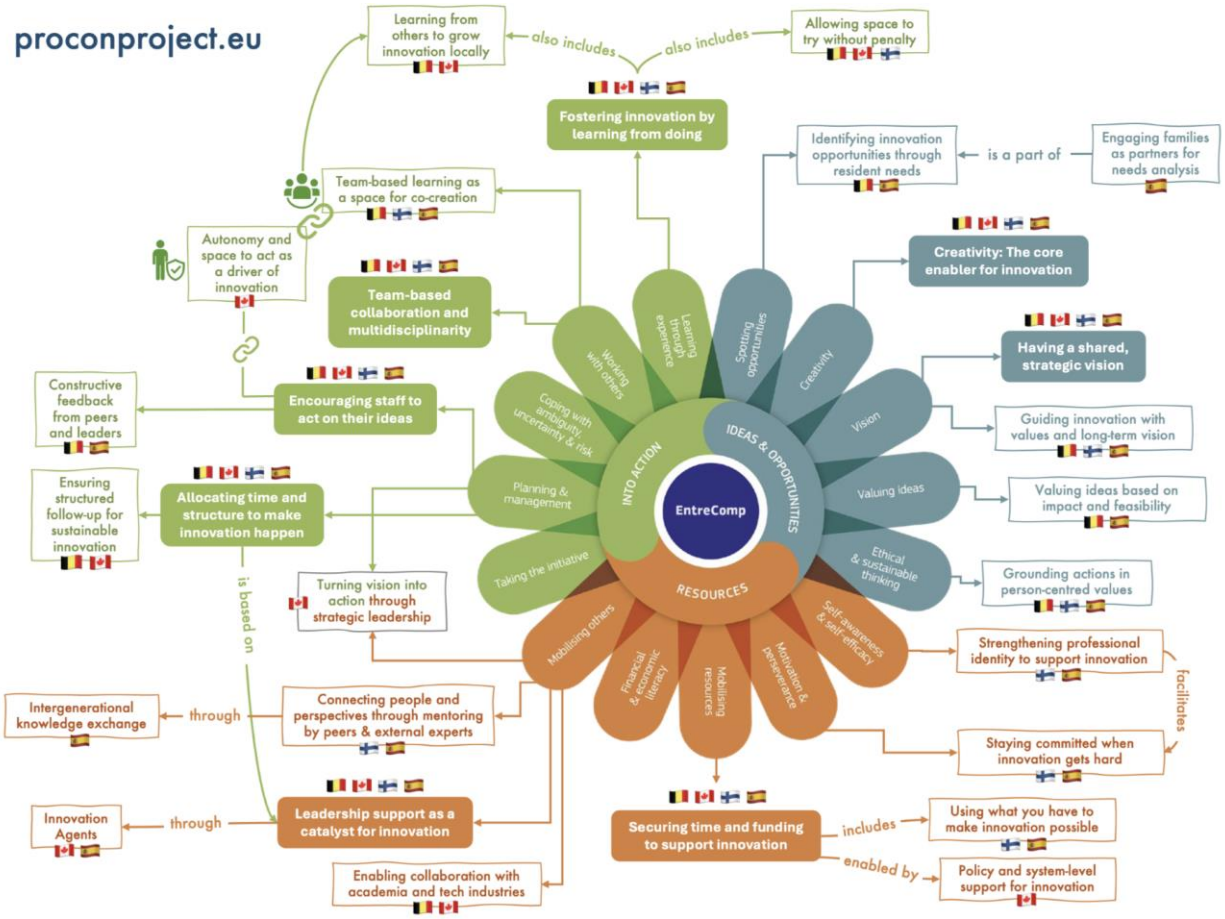

Figure 4. Map of Recommendations: Innovation & Entrepreneurship in NHs, relative to EntreComp.

The ideas shared by the four participating countries marked with their flags have been organised into a petal diagram based on the EntreComp framework (Figure 4 / Annex 5). This visual tool helps to illustrate not only the variety of good practices and recommendations identified, but also how all of them are interconnected within three main competence areas: Ideas & Opportunities (blue), Into Action (green), and Resources (orange).

a. **Recommendations based on *Ideas & Opportunities*:** All four countries underlined that having a shared and strategic vision, combined with creativity, has the power to facilitate innovation. At the same time, an ethical and sustainable perspective is important to value ideas and consider their possible impact and feasibility. Engaging family members in the process of identifying residents' needs can play a key role in identifying opportunities for innovation.

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b. **Recommendations based on *Into Action***: All countries placed strong emphasis on planning and management as key elements for innovation. But for innovation to really happen, professionals need to work with others, experiential learning is essential. Fostering innovation by learning from doing is closely linked to team and interprofessional collaboration. To make that possible, leaders need to encourage staff to act on their ideas, giving them space to try without fear of failure or penalty. When people feel safe, they are more likely to explore new ways of doing things. Additionally, constructive feedback from peers and leaders can boost confidence and even spark more innovation. Management needs to provide enough time and the right structure so that innovation has a real chance to take shape. This kind of supportive structure is usually made possible through leadership that trusts the process and the people involved.
c. **Recommendations based on *Resources*:** All countries placed strong emphasis on mobilising both people and economic resources. In terms of people, leadership support acts as a catalyst for innovation. This can mean having someone inside the organisation who takes the lead on innovation, like an innovation agent, but also by promoting mentoring, collaboration with external experts, and even intergenerational knowledge exchange to bring in new perspectives. On the side of financial resources, countries underlined the need to secure time and funding to make innovation possible. That includes making good use of what's already available but also being aware that system-level and policy support are often necessary to sustain efforts over time. The need for a strong professional identity was also mentioned as important. When professionals feel grounded and confident in their role, they're more likely to push forward and stay committed, even when innovation gets challenging.

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Key Recommendations for Innovation and Entrepreneurship in Nursing Homes

After analysing the insights across countries, a final journey can be taken through the ProCon Metro Map (Figure 5), where each line represents a key area of competence in innovation, and each station reflects one of the most relevant recommendations identified during the workshops (Table 2). This visual tool allows the main messages to be explored in a dynamic and accessible way.

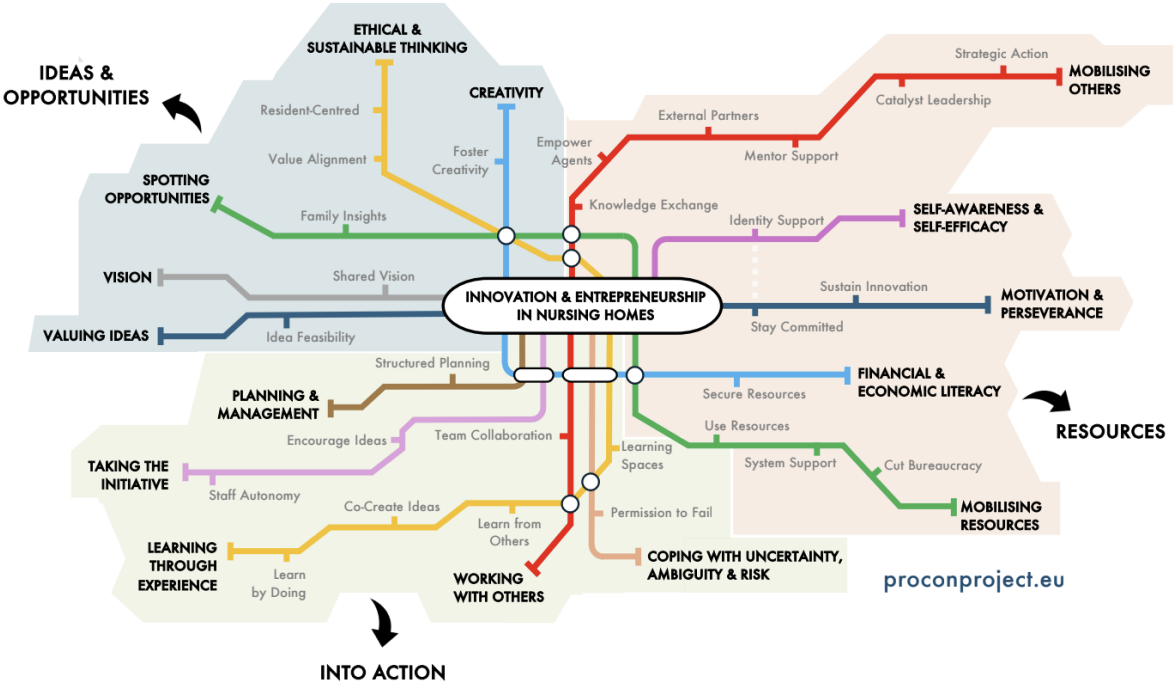

Figure 5. The ProCon Metro Map to Innovation in NHs. Larger figure available in Annex 6.

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Table 2 . Key Recommendations for Fostering Innovation in NHs: Cross-Country Insights.

Recommendation	Countries *	ProCon Metro Station
Foster creativity to rethink care routines and approaches	BE SP FI	Foster Creativity
Develop and communicate a shared strategic vision	BE CA SP FI	Shared Vision
Guide innovation with long-term values and ethical principles	BE SP FI	Value Alignment
Encourage valuation and feasibility evaluation of new ideas	BE SP	Idea Feasibility
Use person-centred values and resident needs to guide innovation	BE SP FI	Resident-Centred
Involve families as partners in identifying resident needs	SP	Family Insights
Engage in co-creation and structured reflection to generate opportunities	BE SP	Co-Create Ideas
Promote team-based collaboration and multidisciplinarity	BE CA SP FI	Team Collaboration
Create team-based learning spaces for co-creation	BE SP FI	Learning Spaces
Encourage staff to act on their ideas with feedback and trust	BE CA SP FI	Encourage Ideas
Support autonomy and initiative-taking in innovation	CA	Staff Autonomy
Use structured planning and management processes	SP CA	Structured Planning
Learn from other institutions and experiences (benchmarking)	BE CA FI	Learn from Others
Foster innovation by learning from doing and experimentation	BE SP CA FI	Learn by Doing
Allow space to try without penalty ('permission to fail')	BE CA FI	Permission to Fail
Turn strategic vision into action through leadership	CA	Strategic Action
Ensure leadership acts as a catalyst for innovation	BE CA SP FI	Catalyst Leadership
Empower innovation agents or internal champions	CA SP	Empower Agents
Enable collaboration with academia and tech sectors	BE CA	External Partners
Encourage intergenerational knowledge exchange	SP	Knowledge Exchange
Provide mentoring and coaching (internal and external)	SP FI	Mentor Support
Secure time and funding to support innovation	BE CA SP FI	Secure Resources
Use available resources strategically and creatively	SP FI	Use Resources
Support innovation through policy and system-level frameworks	CA	System Support
Streamline bureaucracy and align with innovation goals	CA	Cut Bureaucracy
Ensure structured follow-up for sustainable innovation	BE CA SP FI	Sustain Innovation
Support professional identity and motivation to sustain innovation	SP FI	Identity Support
Promote resilience and commitment when innovation is difficult	SP FI	Stay Committed

** Country codes: BE (Belgium), CA (Canada), FI (Finland), SP (Spain).*

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6.1.2 Gerontechnology, Sustainability & Resilience

Session 3 of the workshops explored how LTC settings are adapting to major challenges related to digital transformation—particularly gerontechnology—as well as sustainability and systemic resilience. A descriptive qualitative analysis of participants' responses revealed six main thematic areas, reflecting lived experiences, practical ideas, and key challenges. These six areas are summarised in Figure 6 (Annex 7), offering a visual synthesis of the core concerns and opportunities discussed during the workshops.

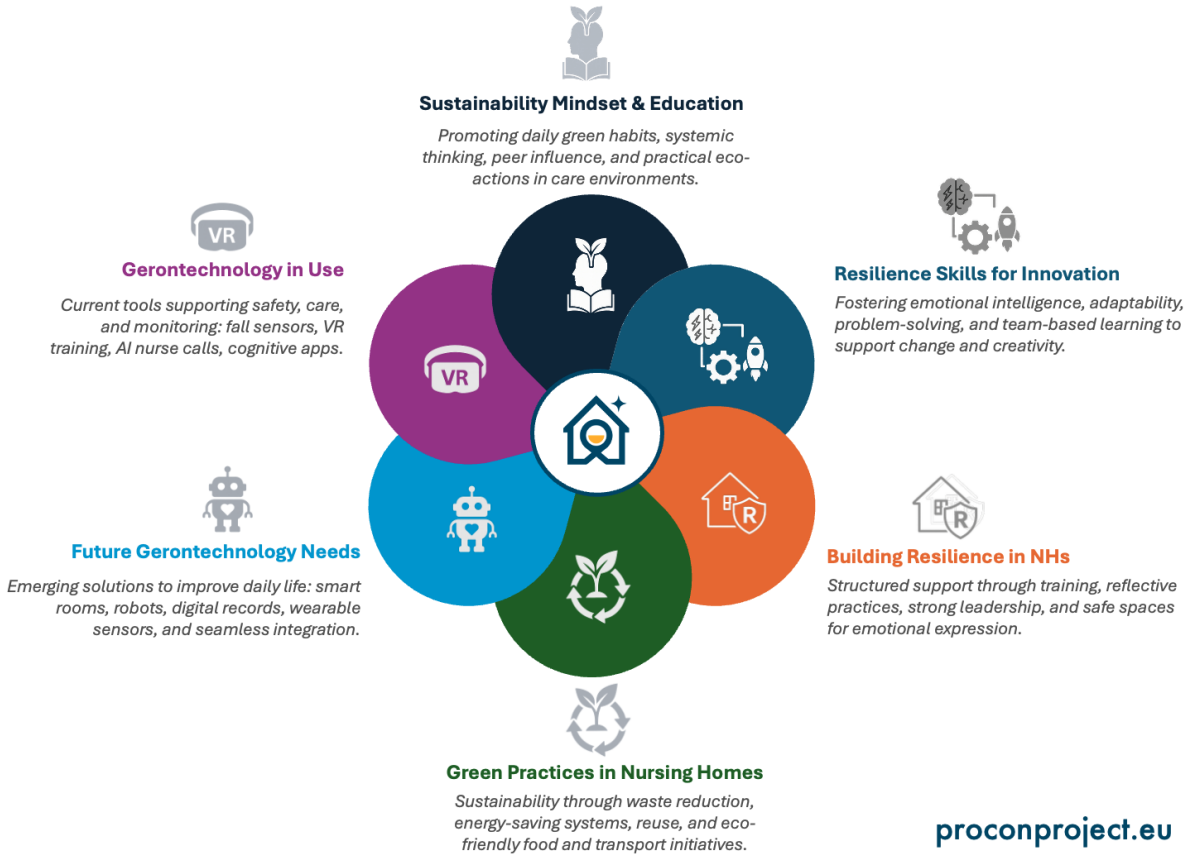

Figure 6. Key Areas for Adapting LTC: Insights on Gerontechnology, Sustainability & Resilience.

When it comes to technology, all countries report that they already use tools like alarms, sensors, and AI-based systems to support care and safety, and a growing interest in things like VR and robotics. The shared goal is to have simple, user-friendly tech that improves daily life for both residents and staff — even if the level of implementation or support systems may differ significantly among countries.

When considering sustainability, all countries report making effort to reduce waste and have energy. Most of the actions mentioned are small and practical—like sorting waste,

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turning off lights, or reusing materials—but they are starting to build habits. There is a clear message that everyday consistent actions, done with team support, could lead to bigger change.

In terms of resilience, emotional skills like empathy, flexibility, and learning from mistakes are seen as essential for adapting to change. Support from leaders, space for reflection, and good teamwork is being considered as key to help people stay motivated and keep going, especially when facing difficulties or system-level barriers.

Figure 7 shows the most important areas that care homes are working on when it comes to innovation, sustainability, and resilience.

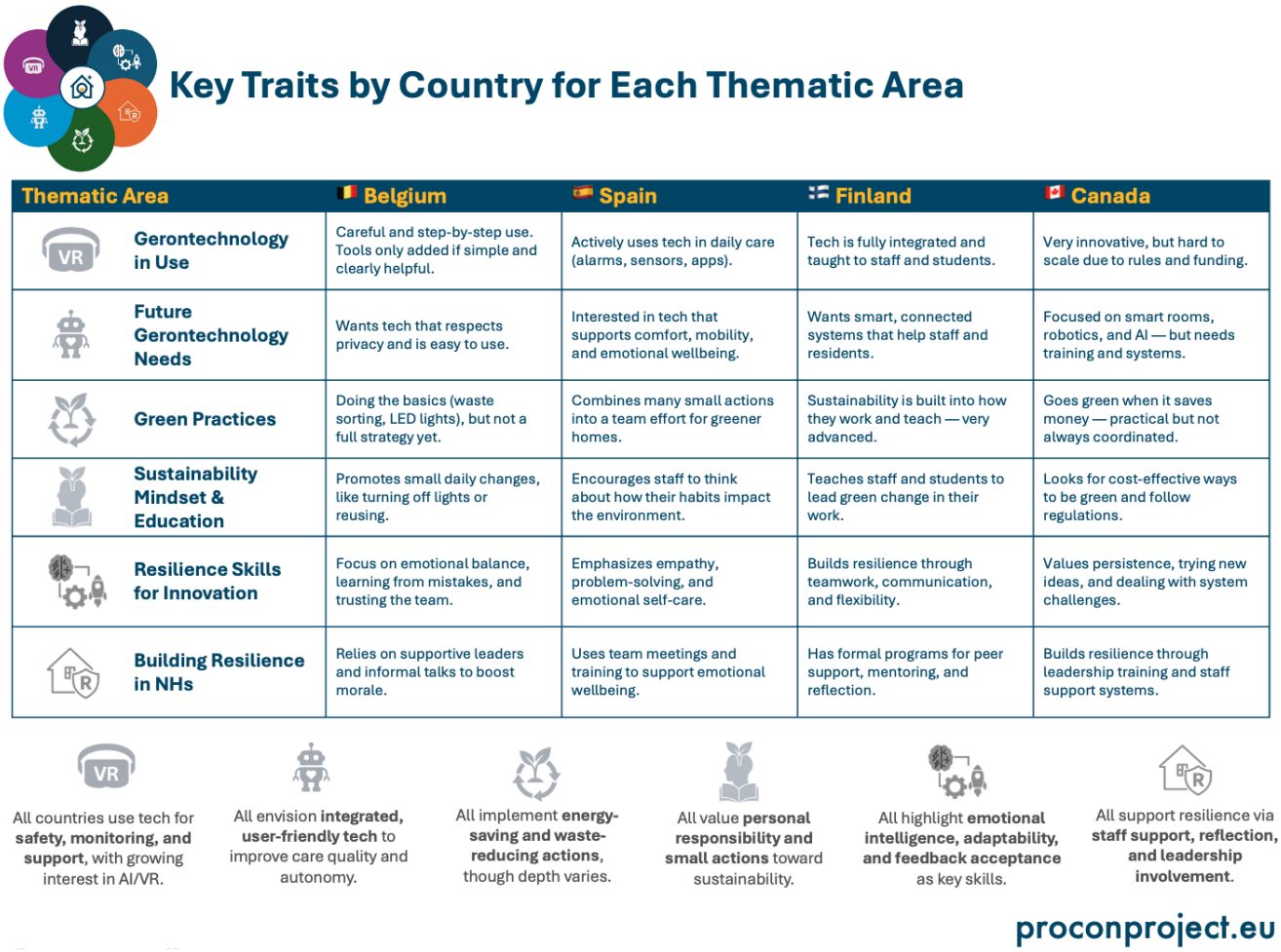

Figure 7. A snapshot of both the diversity and the common ground that exist across countries when it comes to adapting LTC services to current challenges in technology, sustainability, and staff well-being.

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6.1.3 Conclusions

The results of this analysis highlight that while each country brings its own context, constraints, and strengths, there is clear common ground when it comes to fostering innovation, promoting sustainability, and building resilience in LTC. The EntreComp-based findings point to **shared priorities such as having a clear vision, encouraging staff initiative, enabling teamwork, and ensuring leadership and resource support.** Building on this, the last part of the workshops revealed how **technology, environmental habits, and emotional adaptability are being integrated into care practices,** showing that innovation is not only about tools, but also about culture, collaborative work and values.

6.2. Survey results on satisfaction, awareness and general feedback

The survey was conducted under Work Package 5 of the ProCon project, which focuses on ensuring the quality of project activities, deliverables, outputs, and stakeholder engagement.

Key findings indicate high levels of satisfaction:

95% of participants were satisfied with the conduction of the session, 93% with the materials, and 100% expressed overall satisfaction. In terms of learning outcomes, 84% of participants reported increased awareness levels around the topic of innovation in healthcare.

All survey results presented in this section are based on responses from the 42 participants who completed the evaluation forms, out of a total of 48 attendees. While six participants did not submit feedback, their absence is not expected to significantly influence the overall trends and insights drawn from the survey.

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6.2.1 Participant Demographics

Gender Distribution

A substantial female majority (83%) reflected the demographic characteristics of the healthcare and care field overall, while still incorporating varied perspectives. See figure 8 for gender distribution.

Figure 8. Distribution of participants according to declared gender, for 42 individuals.

Age Distribution

Age distribution showed that 33% of participants were aged 16-30 and 29% were aged 31-40. Together representing the majority (62%). Professionals 41-50 years of age represented 21% of participants, with 17% aged 51-60. See figure 9.

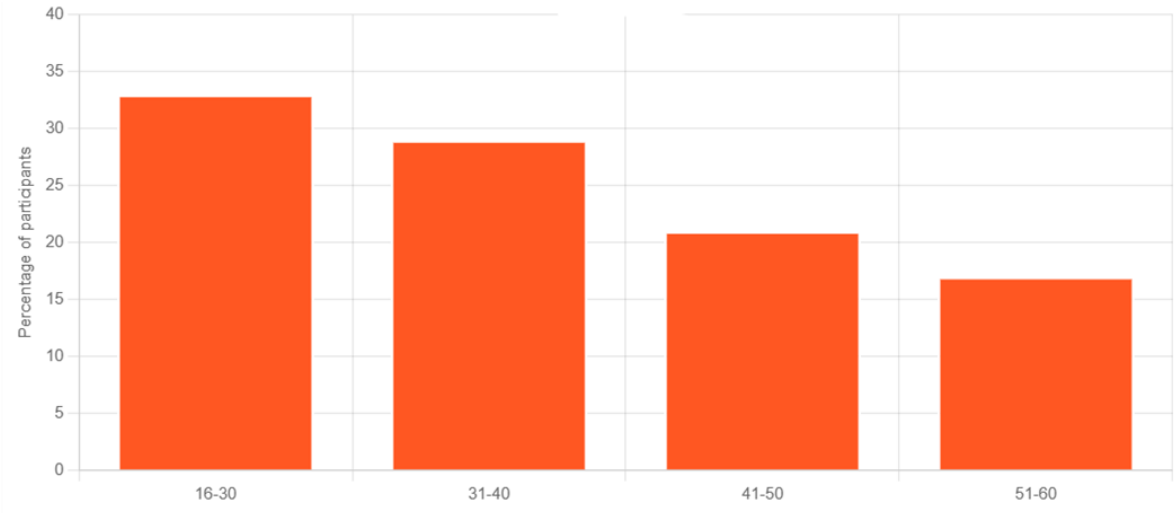

Figure 9. Distribution of workshop responders by age group, for 42 individuals.

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Years of Work Experience

When asked about years of experience in current position, in this or previous work settings, distribution revealed that 56% of participants had over 10 years of experience, making them the largest group. Additionally, 16% had 6-10 years of work experience, 6% had 3-5 years, and another 6% had up to 2 years. Notably, 16% of participants declared having no prior work experience, ensuring a mix of established expertise and fresh perspectives. See figure 10.

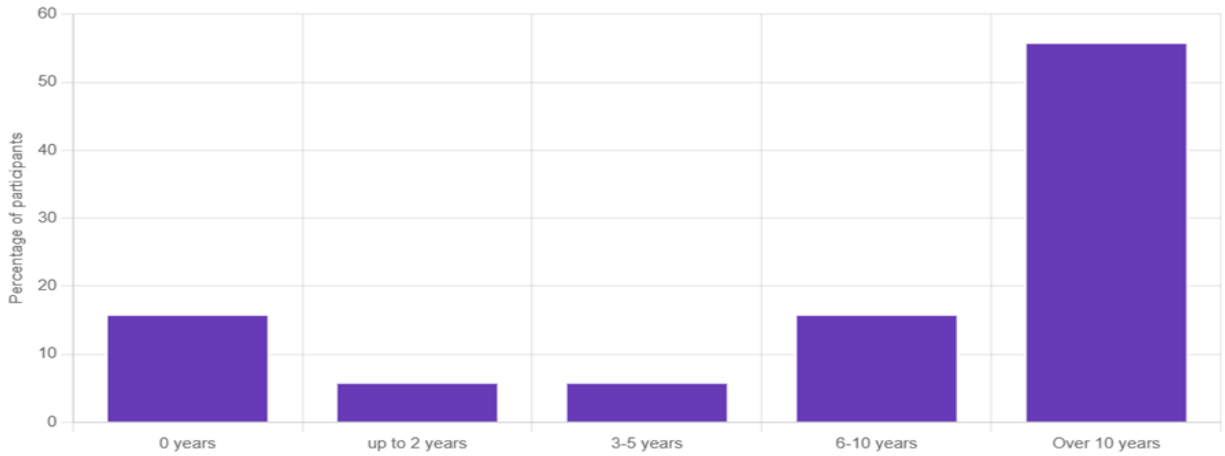

Figure 10. Participants declared years of work experience.

6.2.2 Satisfaction Levels

Satisfaction by Category

The survey results indicated a high level of satisfaction among participants, with overall satisfaction reaching 100%. Key aspects such as workshop facilitation, design, and materials received particularly strong ratings, while perceived usefulness—both personally and professionally—was slightly lower but still notably positive.

Key Findings on Participant Satisfaction, per category (figure 11):

- 100% on General Satisfaction: 57% very satisfied, 43% satisfied.
- 88% on Event Communications: 57% very satisfied, 31% satisfied.
- 93% on Workshop Length & Time: 52% very satisfied, 41% satisfied
- 95% on Workshop Facilitators: 62% very satisfied, 33% satisfied.
- 97% on Workshop Design: 52% very satisfied, 45% satisfied.
- 93% on Materials used: 62% very satisfied, 31% satisfied.
- 79% on Usefulness to self: 31% very satisfied, 48% satisfied.
- 83% on Usefulness for Workplace: 40% very satisfied, 43% satisfied.
- 83% on Usefulness for Nursing Homes: 52% very satisfied, 31% satisfied.

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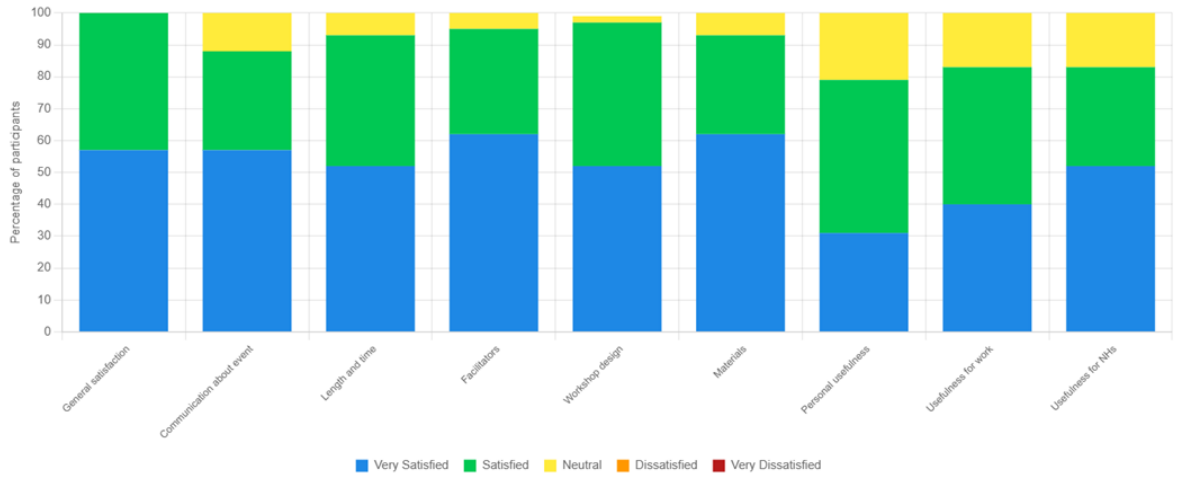

Figure 11. Satisfaction levels by category, for 42 individuals.

6.2.3 Learning Outcomes

Learning Outcomes by Topic

Key Learning Results (figure 12):

- Awareness of how to foster innovation: 48% strongly agreed, 36% partially d(84% total positive).
- Awareness of ways to foster entrepreneurship: 31% strongly agreed, 48% partially agreed (79% total positive).
- Gerontechnology awareness: 36% strongly agreed, 36% partially agreed (72% total positive)
- Awareness of green aspects and sustainability: 14% strongly agreed, 45 % partially agreed (59% total positive).
- Resilience skills in relation to relation to innovation and entrepreneurship: 24% strongly agreed, 52% partially agreed (76% total positive).

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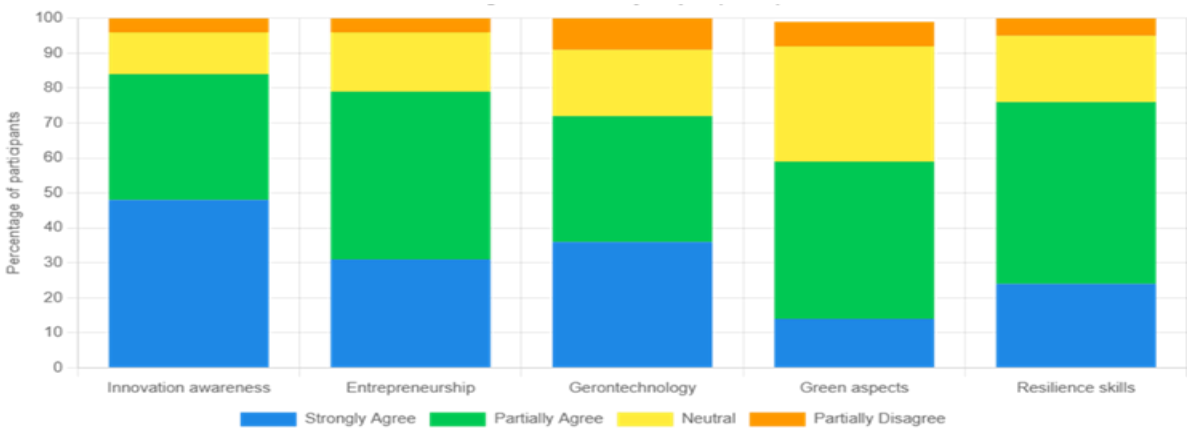

Figure 12. Declared levels of learning resulting from workshop participation, for 42 respondents.

6.2.4 Overall assessment & conclusions

Summary of Results

The data reinforced the effectiveness of the ProCon workshop, with consistently high satisfaction scores across all measured dimensions. Notably, 95% of participants were satisfied with the facilitators, and 100% expressed overall satisfaction, highlighting the exceptional quality of workshop delivery, internationally. Workshop materials received 93% approval rating, confirming their effectiveness and relevance to the co-creators.

In terms of learning outcomes, 84% of participants reported increased awareness of innovation, and 79% gained insights into fostering entrepreneurship. However, awareness of green aspects and sustainability, as well as resilience skills, received 59% and 76% positive responses respectively, indicating that while resilience was relatively well-received, both areas could benefit from greater emphasis in future workshops.

Key strengths Identified (including findings from open-ended evaluation questions)

- Expert facilitators with deep sector knowledge and strong engagement with participants.
- Inclusive participant composition, engaging a diverse mix of participants.
- Effective small group formats that encouraged active participation and diverse perspectives.
- Strong cross-generational engagement.

Areas for Enhancement (including findings from open-ended evaluation questions)

- Awareness of gerontechnology, as well as green and sustainability aspects, was comparatively lower, indicating a potential area for greater emphasis in future workshops.

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- Time allocation for key topics: Participants expressed a desire for more time to explore certain concepts in depth, suggesting that allowing more time to explore these topics in depth could enhance their understanding even further.

7. Strengths and limitations

The ProCon Framework for Innovation and Entrepreneurship in NHs incorporates participatory research, an approach which involves diverse individuals and moves away from traditional methods where academics and researchers are solely responsible of developing procedures. Participatory research facilitates integration of proposals and initiatives, incorporating a wide base of consensus. The framework presented in this deliverable is based on a robust framework developed by the European Commission to foster entrepreneurial competencies. Leveraging EntreComp should facilitate the replication and integration of our findings into other European or trans-European initiatives, enhancing their scalability, adaptability, and impact in LTC. By aligning our methods with this widely recognised framework, we ensure coherence with existing EU strategies, promoting cross-sectoral collaboration and sustainability.

Our method was also inspired by an existing co-creation method, Turning Tables. While this provided the process with a sound approach, minor modifications (e.g., extending round participation times, using posters instead of wheels) were made to adjust procedures to the needs at each location. Due to scheduling constraints (particularly the longer ethical approval process in Canada) and the geographic dispersion within Alberta, the last workshop was conducted online via Zoom. An attempt was made to adapt the "turning tables framework" (which typically involves whiteboards and sticky notes) for the virtual Zoom environment, though this was a challenge. To suit the virtual environment, the original method, including the use of dot voting, was adapted. Participants engaged in structured discussions following the protocol's questions, with consensus achieved through deliberation rather than visual voting. While this modification represents a methodological divergence, we do not believe it significantly affected the integrity or comparability of the final results.

Our sample included a wide range of profiles (e.g., NH staff, managers, professionals from the technological and business sector, students, researchers), of different genders, nationalities, ages and experience, providing strength and a broad perspective to our results. It should be noted that neither NH residents nor their family members were part of our consultation. Their vision may have been partially represented by NH staff members and including older adults in the workshops could have enriched our findings. The target number of participants was exceeded by 4 individuals. Finally, more NH staff and experts/researchers (than initially targeted) participated in the workshops, which might be considered a strength.

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In Spain, Belgium and Finland results were translated into English by local researchers and then analysed collectively by an expert in qualitative research. The latter constitutes a strength, while a limitation could be seen in the fact that the final main analysis was not in the local language and data analysed were a translation of the original results. To minimise this limitation, the results were agreed by consensus of all partners.

The ProCon Framework (Figure 4) provides a series of recommendations that have emerged from input from a variety of stakeholders. Quantitative variables, such as self-awareness of improved knowledge, were also noted and analysed. This should help the reader to further interpret our results and acknowledge potential differences between the samples that participated in this study, and other potential settings or populations.

Our results provide a starting point. People interested in innovation in NHs can use this information for further development. Individuals who want to use this Framework should adapt it for local use. For example, the Framework could be put through a filter to establish the benefits of the proposed actions versus its implementation costs. To our knowledge, this is the first framework of recommendations for innovation and entrepreneurship in NHs. **We hope that it will lay the foundations for innovation by providing a flexible structure of use to particularities in different settings or locations.**

8. Communication and dissemination activities

ProCon aims to disseminate the Framework for Innovation and Entrepreneurship in NHs at least in the following media:

I. Congresses and Conferences

a) Spanish Society of Geriatrics and Gerontology (SEGG). Barcelona, June 2025: communication of results from Spain.
b) International Congress, such as the International Association of Gerontology and Geriatrics (IAGG) Conference (Amsterdam, July 2026) Communication of international results (4 workshops).
c) U21 Early Career Researcher Workshop ‘Living Well Across the Life Course’. Nottingham, September 2025: Communication of results from Belgium and ProCon Framework.

II. Scientific publication

ProCon will aim to publish the full design, analysis and results of the Framework for Innovation in as a scientific publication, in a Journal Citation Reports indexed journal.

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III. Global Observatory of Long-Term Care (GOLTC)

ProCon members have promoted the creation of a Special Interest Group on Continence Care within the GOLTC. We aim to conduct a webinar to present the Framework for Innovation in Healthcare. A call is made to any professional with an interest in the topic to join the interest group on continence care for free.

IV. ProCon courses

The Framework for Innovation in Healthcare will be integrated in all ProCon educational courses, to be developed on continence care, resilience and flexible work practices, and innovation.

V. Social media channels

- Project website: https://www.proconproject.eu/
- Project Coordinator's official blog site: https://mon.uvic.cat/m3o/ProCon/
- YouTube: https://www.youtube.com/@ProConProject
- Instagram: https://www.instagram.com/procon_project/
- LinkedIn: https://www.linkedin.com/company/procon-project

9. Acknowledgements

The ProCon Consortium would like to acknowledge all workshop participants (and linked institutions) for their valuable contributions, as well as the European Commission for financial support, and give special thanks to our expert reviewers.

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10. Join our community

If you have an interest in continence care, we will be delighted to continue sharing thoughts with you through our social channels.

- Project website: https://www.proconproject.eu/
- Project Coordinator's official blog site: https://mon.uvic.cat/m3o/ProCon/
- YouTube: https://www.youtube.com/@ProConProject
- Instagram: https://www.instagram.com/procon_project/
- LinkedIn: https://www.linkedin.com/company/procon-project

Picture 8. International project team at the inaugural meeting held at University of Vic (Spain).

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Annex 1: Information sheet for participants.

This text was approved by the Ethics Committee in Spain and adapted, as required, by other workshop sites.

Information for participants

Members of the research group **Methodology, Models and Outcomes of Health and Sciences (M_3O)**, led by **Dr. Javier Jerez Roig**, are carrying out the ProCon project, entitled "Boosting innovation, entrepreneurship and training for PROmoting CONtinence in nursing homes" (NHs). The first output of this project is the c**o-creation of a Framework of Recommendations to Foster Innovation and Entrepreneurship in NHs.** This framework will be developed using the EntreComp framework as a guiding tool. It will focus on enhancing the capacity for innovation in NHs and will involve collaboration between stakeholders from various sectors.

This study will involve the organisation of four workshops in different countries: Spain, Canada, Belgium and Finland. During the workshops, interactive methods such as the "Turning Tables" brainstorming approach will be used to engage participants from diverse professional profiles and responsibilities to co-create this framework. In the context of this research, we request your collaboration to contribute your experience and experiences, since you meet the inclusion criteria defined in the project (being a student, researcher, or employee of the education sector or nursing homes).

This collaboration involves participating in a workshop where you can contribute ideas and be asked to give feedback on the most promising solutions. The workshop will last approximately 4-5 hours with breaks. Y and your input will help shape a framework of recommendations that will be widely disseminated and used as a guide for innovation in NHs.

The audio of the session will be recorded so that researchers can consult it to order all the information shared during the workshop. Once the necessary information has been recovered, the recordings will be destroyed. To guarantee the anonymity of all contributions, all participants

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will be assigned a code that makes it impossible to identify the participant with the answers given, thus guaranteeing total confidentiality. The confidentiality of the participants' data will be respected throughout the study, in compliance with Organic Law 3/2018, of 5 December, on the protection of personal data and guarantee of digital rights. The documentation related to the project will be archived in the Microsoft Office 365 cloud of the UVic-UCC, which complies with current regulations in terms of Security and only researchers of the ProCon project will have access to them. The data file of the study will be managed by and under the responsibility of the principal investigator. You may contact her at any time to exercise the rights established by Organic Law 3/2018, of 5 December, on the Protection of Personal Data and guarantee of digital rights and the General Regulation (EU) 2016/679, of 27 April 2016, on data protection and complementary regulations.

Please contact us if you have any questions arising from this information. You can contact us through the form on our website: https://mon.uvic.cat/m3o/ or by sending an e-mail to Dr. Meltem Yildirim (meltem.yildirim@uvic.cat) who is the leading researcher of this framework.
Thank you for considering participating in this important project.

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Annex 2: General Informed Consent sheet for participants.

This text was approved by the Ethics Committee in Spain and adapted, as required, by other workshop sites.

Informed consent

I, _____ [NAME AND SURNAME(S)], of legal age, with identification number _____ [IDENTIFICATION NUMBER],

Acting in my own name and on my own behalf

STATE THAT:

I have received information about the project **Cocreation of a framework of recommendations to foster innovation and entrepreneurship in nursing homes** in the information sheet attached to this consent form and my participation has been requested. I understand it, any doubts have been clarified, and the actions that are associated with this project have been explained to me. I have been informed of all aspects relating to confidentiality and data protection with regard to the management of personal data in this project and the guarantees given in compliance with Spanish Organic Law 3/2018, of 5 December, on Personal Data Protection and guarantee of digital rights, and the General Regulation (EU) 2016/679, of 27 April, on data protection and supplementary regulations.

My collaboration in the project is totally voluntary and I have the right to withdraw from it at any time, revoking this consent. In no circumstances will withdrawal from the project have any negative impact on me. If I withdraw from the project, I will have the right to remove my data from the data file of the study.

Likewise, I renounce any economic, academic or other kind of benefit that could result from the project or its results.

As a result of the above,

I GIVE MY CONSENT (please check all that apply for you):

- ❑ To participation in the project **Cocreation of a framework of recommendations to foster innovation and entrepreneurship in nursing homes**
- ❑ That the research team and **Dr. Meltem Yildirim** as lead researcher manage my personal data and publish information generated by the project. To measures to ensure that at all times my identity and privacy are preserved, with the guarantees established in the Spanish Organic Law 3/2018, of 5 December, on Personal Data Protection and guarantee of digital rights, and the General Regulation (EU) 2016/679, of 27 April, on data protection and supplementary regulations.
- ❑ That the research team keeps all the records made about me in electronic format, with the guarantees and deadlines provided for by law, if established, and in the absence of legal provision, for the time necessary to fulfil the functions of the project for which the data are collected.
- ❑ To the audio recording of the workshop to capture all the information provided for later consultation or clarifications. These recordings will be destroyed once the necessary information has been recovered.

_____ [CITY], on _____ / _____ / _____ [DAY/MONTH/YEAR]

[SIGNATURE OF PARTICIPANT] Dr. Meltem Yildirim

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Annex 3: End-of-workshop questionnaire for participants.

Workshop to cocreate a framework of recommendations to foster innovation and entrepreneurship in nursing homes.

END-OF-WORKSHOP QUESTIONNAIRE FOR PARTICIPANTS

1. **Please mark one box with an X to indicate the option that best describes your position:**

	I am a student in vocational / workplace–oriented school
	I am a student in university or other higher education institutions
	I am a healthcare professional working with older adults
	I am an expert, academic or researcher
	I work in policy making or organisational matters
	Other: please specify

2. **How many years of experience do you have in your current position? (include accumulated years, in this or other work settings):** _____
3. **How many years ago since you graduated in college? (optional):** _____
4. **Please circle your gender identification:** Male Female Other
5. **Please specify your age:** _____

6. **Now, rate your degree of SATISFACTION with the following items.**

Item	Very dissatisfied	Dissatisfied	Neither	Satisfied	Very satisfied
General satisfaction with the workshop	1	2	3	4	5
Communications for invitation	1	2	3	4	5
Length and time distribution	1	2	3	4	5
Explanations and support provided by the facilitator/s of the workshop	1	2	3	4	5
Workshop **design and methods**	1	2	3	4	5
Materials used	1	2	3	4	5
Usefulness for you **personally**	1	2	3	4	5
Usefulness for **your work**	1	2	3	4	5
Usefulness for **nursing homes** (in general)	1	2	3	4	5

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7. **Please rate how you value your LEARNING/AWARENESS on the different topics, after having participated in this workshop. When answering, think about the nursing home environment.**

Item	Strongly disagree	Partially disagree	Fair	Partially agree	Strongly agree
I have gained awareness on ways to foster **innovation**	1	2	3	4	5
I have gained awareness on ways to foster **entrepreneurship**	1	2	3	4	5
I have learned about **gerontechnology** in nursing homes	1	2	3	4	5
I have gained awareness on **green aspects and sustainability**	1	2	3	4	5
I have learned about **resilience skills** in regard to innovation and entrepreneurship	1	2	3	4	5

8. Please indicate **strengths or positive aspects** of the workshop:

9. Please indicate **limitations** or aspects that could have been improved:

Thank you very much for your participation

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Annex 4: Large-Sized Figure 3.

EntreComp competence areas and specific competences.

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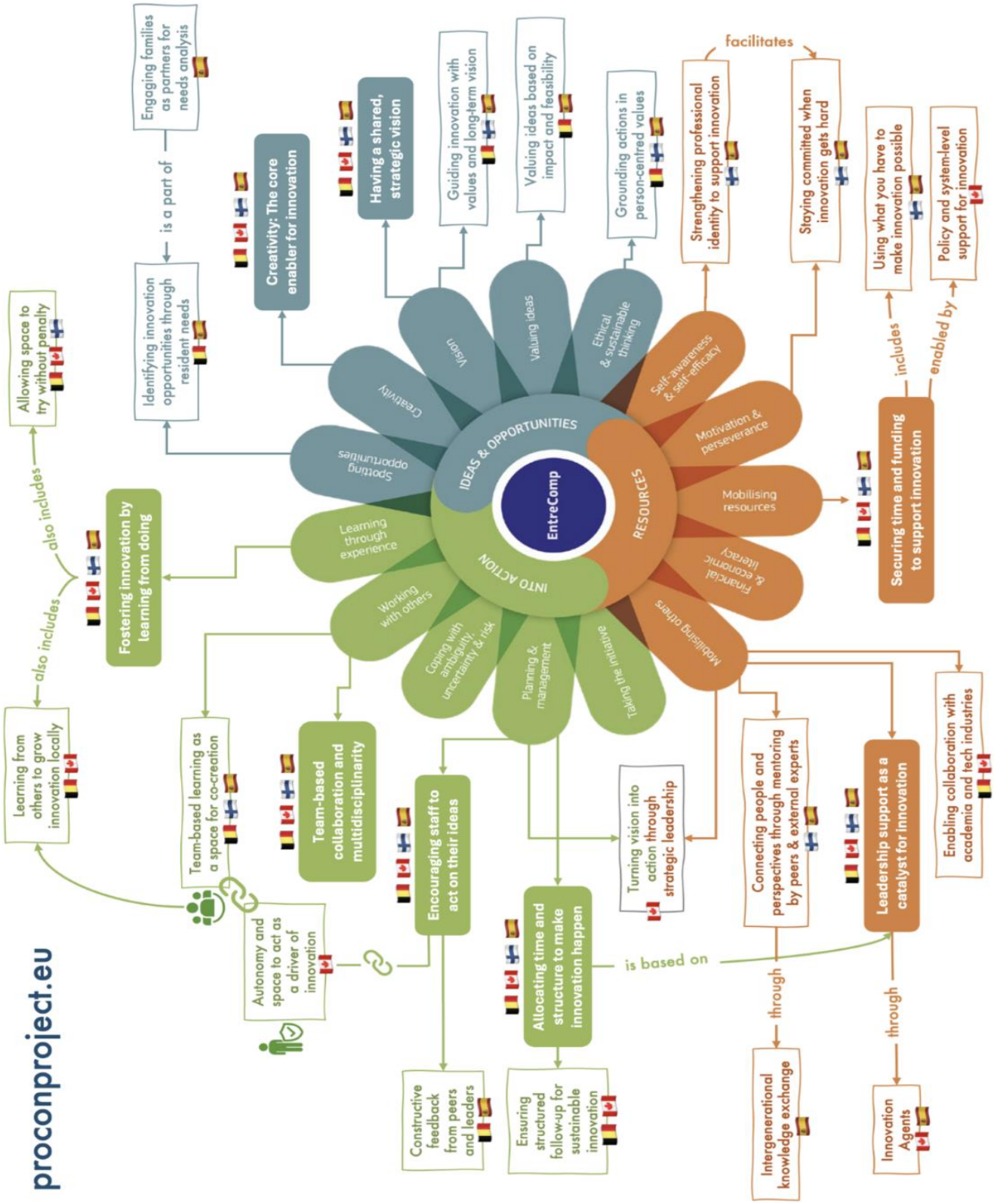
Annex 5: Large-Sized Figure 4.

Visual Map of Recommendations: Innovation & Entrepreneurship in NHs, relative to EntreComp.



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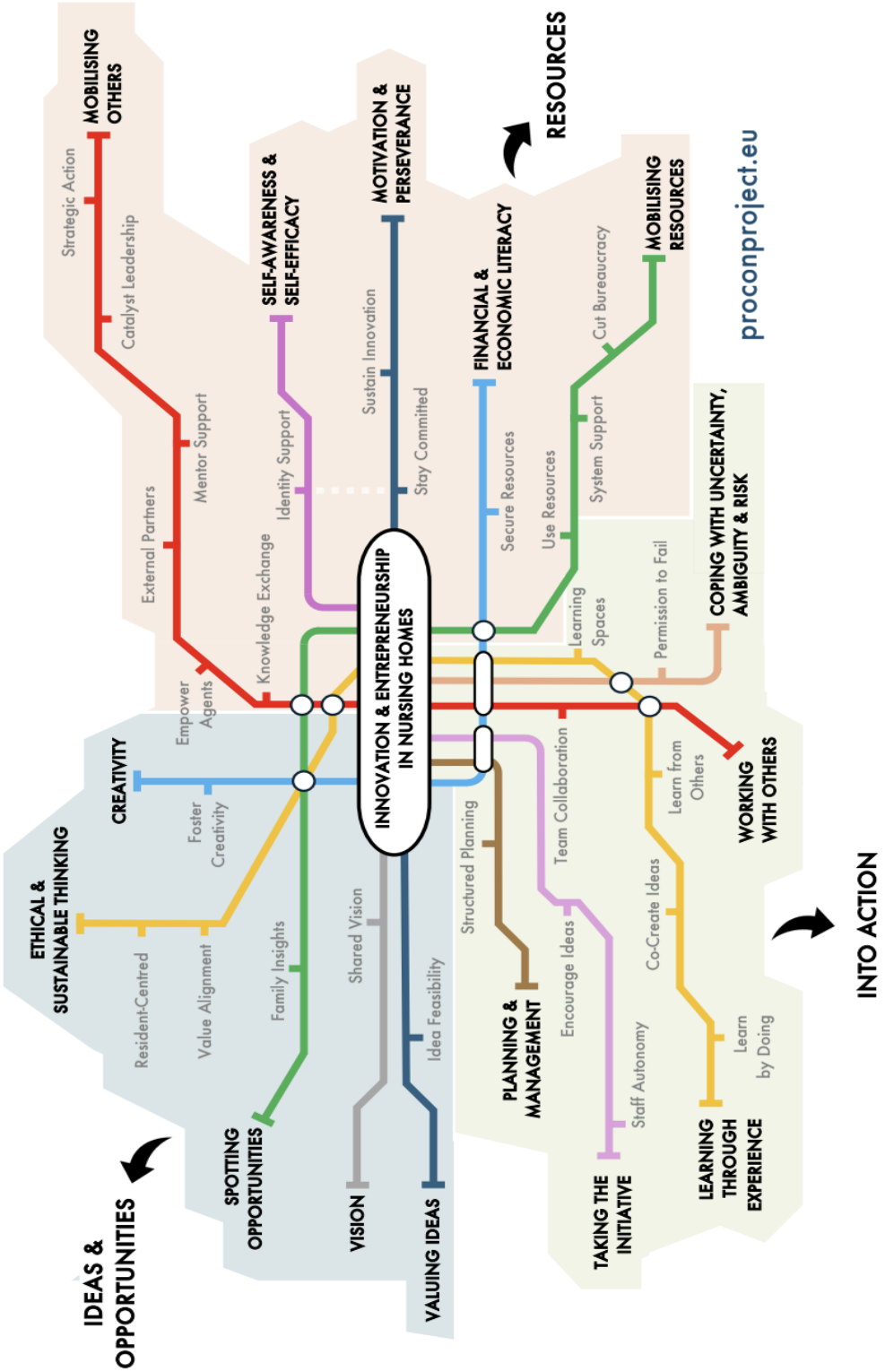
Annex 6: Large-Sized Figure 5

The ProCon Metro Map to Innovation in NHs.



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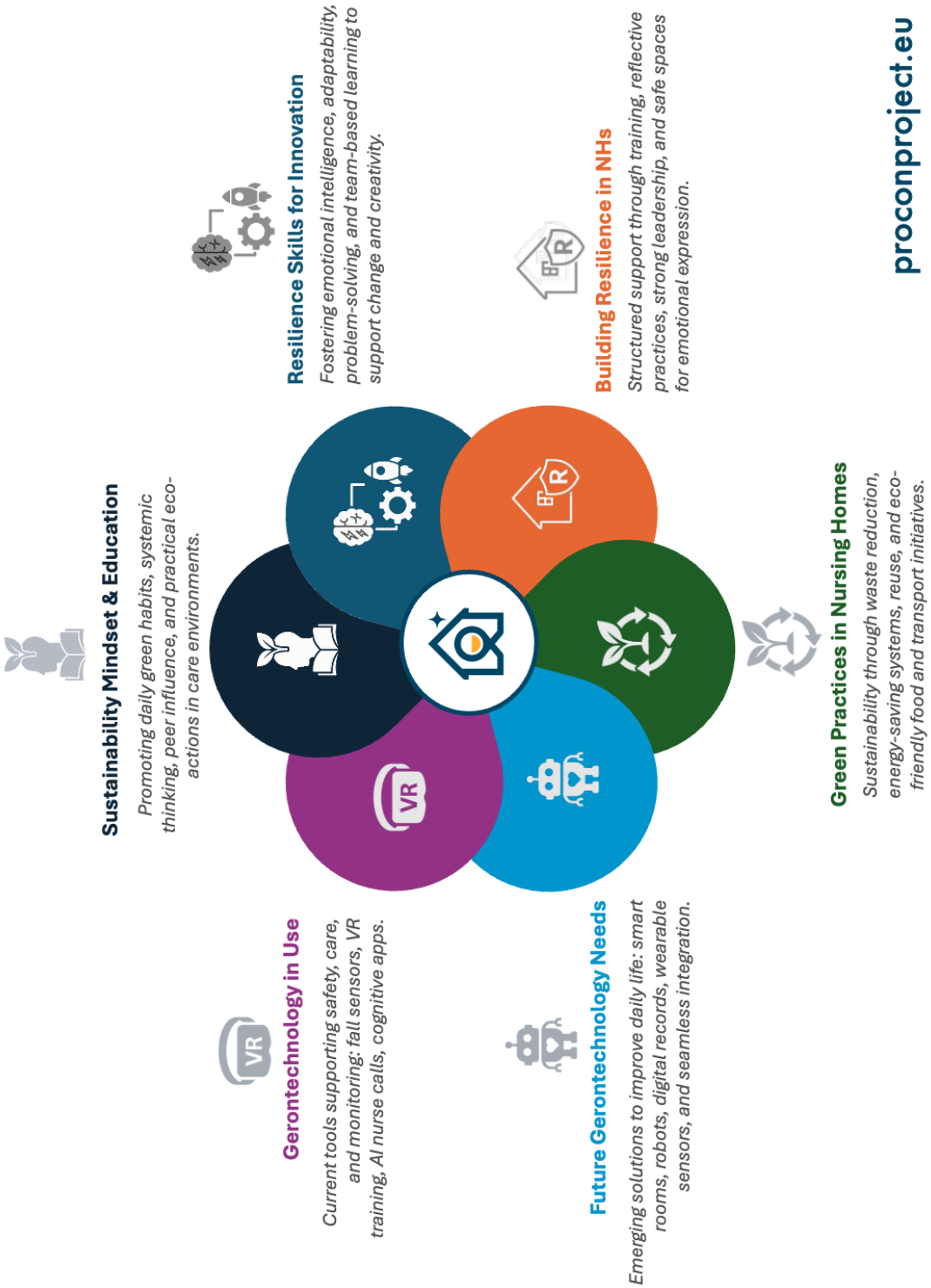
Annex 7: Large-Sized Figure 6

Key Areas for Adapting LTC: Insights on Gerontechnology, Sustainability & Resilience.



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Annex 8: Large-Sized Figure 7.

A snapshot of both the diversity and the common ground that exist across countries when it comes to adapting LTC services to current challenges in technology, sustainability, and staff well-being.

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