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## D5.3 Final Exploitation Plan



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The SENSE-GARDEN project is funded under the AAL Programme 2016 Call "Living well with dementia"

Dissemination Level		
<b>PU</b>	Public	<b>X</b>
<b>RE</b>	Restricted to a group specified by the consortium (including the Commission Services)	
<b>CO</b>	Confidential, only for members of the consortium (including the Commission Services)	

Version and contribution history				
Version	Date	Main author	Section	Notes
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## Deliverable Summary

This Final Exploitation Plan, delivered at project end, defines each partner's interest in using the project's results and a possible concretization of such activity by materializing the business plan defined in D5.5. This deliverable sets the framework for such Exploitation Plan and presents initial strategies already defined within the Consortium. Finally, it addresses the profit generation and expected revenue during the commercialization process.

The exploitation routes analysed in the Consortium took in consideration their main intention regarding project results, willingness to commercialise, organizational constraints and inherent competencies.

Three aspects have been considered in defining the exploitation strategy, namely: care service perspective, provided technology and user's needs.

In the discussions, the geographical location of the partners and its impact on the market sectors was explored.

## 1 Introduction

A IPR Agreement has been generated and presented in this report. This document, with light on the Consortium Agreement, sets the basis of cooperation for the willing parties of the project Consortium that will take part in the commercialization of the SENSE-GARDEN solution. The agreement establishes party participation in the exploitation of SENSE-GARDEN relating to IP rights. This deliverable sets light onto matters regarding the nature and composition of an entity to be defined, with legal substance or just supported by written partners agreement, hereafter designated as the Business Entity.

The General Assembly (GA) as the steering and strategic decision-making body has been responsible for the decisions regarding the Business Entity before project end. After project end, the Business Entity will steer the progression of the commercialization phase.

The decision mechanisms regarding the commercialization will be kept as simple and as direct as possible as they have been in the scope of GA meetings. Later on, based on the eventual success in participating to several investors' events, the Business Entity shall consider the possibility of a Start-up based on the gathered funds and involvement of angel or capital investors. A distribution of roles, responsibilities and shares will be again considered based on the negotiation done with the potentially interested investors.

## 2 Creation of a business entity based on market needs for technology-based therapies for dementia

Early competitor analysis shows of the care homes market shows needs at three levels

- 1) Personalized spaces dedicated to persons with dementia. The closest facility are the so-called "Snoezelen" rooms, offered in some institutions in Belgium and Norway, but almost inexistent in Romania and Portugal. Also, these are too generic as they cannot be personalized.
- 2) Effective non-pharmacological therapies for dementia. Reminiscence therapy is the most common, but its effectiveness is moderate as results do not show important benefits. Moreover, disparity on the interventions and poorly described protocols do not permit clear assessment of such benefits (Cochrane Systematic Review on "Reminiscence therapy for dementia", Cochrane Database Syst Rev. 2018).
- 3) Virtually adaptable spaces for persons with dementia. Dementia villages are being built in the Netherlands (The Hogeweyk) and projected in Norway, but these do not connect with the unique past memory of a person.

The solution presented by the SENSE-GARDEN project addresses these three needs (see deliverable D2.2 Service design and user needs). SENSE-GARDEN has at its core three aspects that constitute the product: a **technological platform**, including hardware, software (structure, processes, user interaction, media storage and management) and intelligence (learning with user experience); a **social service** provided to the residents (persons with dementia) and their informal caregivers (family/friends), consisting of a space for communication and connection, and a **therapy** based on adaptable and adaptive reminiscence supported by digital media (and therefore non-pharmacological).

A **societas Europaea** (SE; Latin pronunciation: [so'ki.e.ta:s ew.ro:'pae.a]); Latin for European society or company. is a public company registered in accordance with the corporate law of the European Union (EU). [Wikipedia]

This seems to be one possible appropriate model for the future of the SENSE-GARDEN Business Entity, in case legal substance comes to be required. The following text is based on the Wikipedia page on *Societas Europaea (SE)*.

SE was introduced in 2004 with the Council Regulation on the Statute for a European Company. Such a company may more easily transfer to or merge with companies in other member states.

As of April 2018, more than 3,000 registrations have been reported, including the following nine components (18%) of the Euro Stoxx 50 stock market index of leading Euro Area companies (excluding the SE designation): Airbus, Allianz, BASF, E.ON, Fresenius, LVMH Moët Hennessy Louis Vuitton, SAP, Schneider Electric and Unibail-Rodamco.

National law continues to supplement the basic rules in the Regulation on formation and mergers. The European Company Regulation is complemented by an Employee Involvement Directive that sets rules for participation by employees on the company's board of directors.

The Statute provides four ways of **forming a European limited company**:

1. By merger of national companies from different member states.
2. By the creation of a joint venture between companies (or other entities) in different member states.
3. By the creation of an SE subsidiary of a national company.
4. By the conversion of a national company into an SE.

Situation number 2 seem to be appropriate for SENSE-GARDEN as the interested partners are already formed as companies and a university.

Formation by merger is available only to public limited companies from different member states. Formation of an SE holding company is available to public and private limited companies with their registered offices in different member states or having subsidiaries or branches in member states other than that of their registered office. Formation of a joint subsidiary is available under the same circumstances to any legal entities governed by public or private law.

The SE must have a **minimum subscribed capital of €120,000** as per article 4(2) of the directive, subject to the provision that where a member state requires a larger capital for companies exercising certain types of activities, the same requirement will also apply to an SE with its registered office in that member state (article 4(3)).

The registration and completion of the liquidation of an SE must be disclosed for information purposes in the Official Journal of the European Communities. **Every SE must be registered in the State where it has its registered office**, in a register designated by the law of that State. The registered office of the SE designated in the statutes must be the place where it has its central administration, that is to say its true centre of operations.

The Statutes of the SE must provide as governing bodies the general meeting of shareholders and either a **management board and a supervisory board** (two-tier system) or an **administrative board** (single-tier system). Under the two-tier system the SE is managed by a management board.

## 3 IPR Agreement

A summary of the agreement terms is presented hereafter. A copy of the complete IPR Agreement is provided separately. This agreement was effective from the 1. April 2020.

### 3.1 Notes on the SENSE-GARDEN approach

#### 3.1.1 In what way is it an improvement over existing solutions?

A SENSE-GARDEN is a step-up from the "sensory rooms" (in Dutch "Snoezelen"). The term "Snoezelen" is a neologism formed from a blend of the Dutch "snuffelen" (to seek out, to explore) and "doezelen" (to doze, to snooze). It relates to the feelings of cozy, comfortable, soothing. A snoezel room allows the person to be comfortably lying or sitting, surrounded by soft sounds and melodies, accompanied by lighting effects. Sensory rooms aim at improving perception and relaxation. The facilities of the room usually include different light sources and projectors that produce various visual effects such as water columns. Sensory rooms are already common in elderly care facilities across Europe, usually offered to people with serious, or very serious, intellectual disability or advanced dementia. However, very few studies have yet been done in this area. Sensory rooms are very limited in the way that they are static, they do not adapt to the preferences, experiences, and memories of the users. The SENSE-GARDEN innovation is the total integration of the sensory environment with the memories of the user. Stimuli to these memories are gathered as films, pictures, smells, sounds and music, collected from places and epochs that relate to each specific and individual user. The space recognizes its users, and it adapts to their personal experiences. This is the main innovation in SENSE-GARDEN. The aim of SENSE-GARDEN is to improve the physical, mental and social well-being of people living with moderate to severe dementia. The intervention is designed for three types of users, namely: the person with dementia; a family member of the person with dementia (referred to as an "informal caregiver"); a professional member of staff within the care setting (referred to as a "formal caregiver"). It is intended that the person with dementia enters the SENSE-GARDEN room with a caregiver, and together they interact with the various activities and stimuli in the space. Activities include looking at family photographs on an interactive touchscreen ("memory lane"), listening to familiar music ("sounds surround me"), watching old film clips ("films of my life"), and looking at preferred scenery projected onto a large wall ("reality wall") accompanied by relevant scents ("scents to memories"). Additionally, there are physical activities such as playing an interactive game ("move to improve") and cycling on a stationary bike in front of a film of a familiar place ("life road"). It is hoped that the media and activities stimulate conversation between the person with dementia and the caregiver.

#### 3.1.2 What is the stage of development?

A prototype (Gold version 3) has been produced. The prototype has been installed and clinically evaluated in four sites: Norway, Belgium, Portugal and Romania.

#### 3.1.3 Ownership of results

Results of the project are owned by the project partner generating it. In order to accomplish with the obligations resulting from the CA, partners shall reach an agreement with their employees and other personnel as soon as the latter may be entitled to claim rights to results (subcontractors, students, end-users actively involved in the project etc.). Such agreements may include a formal transfer of ownership or granting of appropriate access rights with a right to sublicense.

Joint ownership of results: When results are generated jointly by partners and their respective share cannot be ascertained they shall have jointly ownership on such results, unless the partners agree on a different solution. Arrangements concerning joint ownership, including its shares, protection measures, distribution of responsibilities, costs and profit sharing, territorial division and possibilities of transfer will be negotiated separately and be subject to separate agreements.

Protection of results: Results that are capable of, or may reasonably be expected to be capable of

industrial or commercial application, shall be protected by adequate and effective means by their owner having due regard to its legitimate interests and to the legitimate interests of the other partners, particularly those commercial. Where a partner which is not the owner of the Results invokes its legitimate interest, it must, in any given instance, show that it would suffer disproportionately great harm.

This agreement subsumes the background as expressed in Attachment 1 of the Consortium Agreement "SENSE-GARDEN Version 2.6"

## 3.2 Future use

### 3.2.1 Use for exploitation

As established in Consortium Agreement "SENSE-GARDEN Version 2.6" (annexed): Access Rights to results if needed for exploitation of a partner's own results shall be granted on Fair and Reasonable conditions taking as recommendation the project's Exploitation Plan to be finalised in month 35 of project execution, in conformance to section "Exploitation" of this CA.

### 3.2.2 Use for research

A free access to the results exclusively to the purpose of further research may be granted by the IP owner of such results according to that established in this agreement.

### 3.2.3 Access to future versions

Any future implementation of the SENSE-GARDEN concluded in the following 5 years after the date of signature of this agreement, may be installed in any of the test sites, namely, UMFCD, CODA, SCML and VULPIA, free of charge. A fee for maintenance may be charged by the supporting partner or by an associated third party, which should be defined in the project's Exploitation Plan mentioned above.

## 3.3 Contributions

The Consortium members agree that the contributions given during the project are as follows:

UNN: SENSE-GARDEN concept and idea as described in the "Description of Work (DoW) Version 1.3.1 - 01. October 2018" (annexed). Inclusion of the seven activities and the further developments on their concepts, designed during the project, that are: memory lane, reality wall, scent to memories, sounds surround me, move to improve, life road and films of my life.

EPOINT: Implementation of the SPICE App component of the prototype for the management of content for the SENSE-GARDEN system by adding, updating and modifying image, video and audio files together with metadata (e.g. description, epoche, general labels). This component includes the functionalities: uploading content, adding labels to content, modifying existing content metadata, searching for content.

CPX: Implementation of the ERBS component of the prototype to configure the SENSE-GARDEN room with personalized flows for each user. This component includes the functionalities: creating/editing a user, creating a flow, creating a Live Session, viewing previous results.

UMFCD, ODDA, SCML and VULPIA: The test sites own all IP relating to the data resulting from tests conducted on the individual site. Following a policy for open research data, the anonymised data will be openly accessible.

## 3.4 Public domain knowledge

All published material is considered public domain with intellectual property rights belonging to the



authors and subject to the publishers' copyright and licensing restrictions and the adopted variants of open access when applicable.

## 4 The partnership

Four partners will be a part of the Business Entity

**E-point** – Belgium SME partner from the SENSE-GARDEN Consortium (capital owner partner)

**University spin-off** – Norwegian University (capital owner partner)

**UMFCD** – Romanian hospital partner from the SENSE-GARDEN Consortium (royalty-based)

**SCML** – Portuguese Care organization from the SENSE-GARDEN Consortium (royalty-based)

**Investor** - For the investor component there are 3 scenarios: 1) an external funding entity; 2) funding distributed by the other three actors; 3) a mixed model of 1) and 2)

In addition, there are open positions for companies to join the partnership. Desired competencies are at the moment architecture&design and construction. Revenue projection and profit analysis

This projection is based on a set of premises that took in consideration market and competitor analysis done under the Business Planning. Due to the innovative and disruptive nature of the proposed solution, the definition of plausible market figures is complex. However, the numbers used in the projection are considered as being conservative.

Two marketing strategies are proposed for the acquisition of the SENSE-GARDEN: onetime payment with monthly service fee, or a leasing contract.

The analysis is based on a fixed cost of 44 KEUR per SENSE-GARDEN. Such cost is based on today's technology and includes all the solution components: the construction of the physical space, all necessary hardware and software.

For the service fees the following components are considered (table 1): training of professionals on the therapy and use of the facilities, media content support and customer helpdesk and system maintenance (considered together for simplicity).

<b>Training of professionals on the therapy and use of the facilities</b>	<b>Media content support</b>	<b>Customer helpdesk and system maintenance</b>
145	145	500
<b>Total monthly cost</b>		<b>790</b>

Table 1. Monthly service fee components

The leasing contract, when based on a 5 years depreciation, amounts to just over 600 EUR per month (see table 2)

<b>Leasing</b>	<b>5 years</b>
Base calculation	44 000
Residual value (structure and equipment)	9 000
Binding time (=depreciation to residual value)	60
Risk margin and inflation	7%
<b>Monthly cost</b>	<b>624</b>

Table 2. Monthly cost of leasing contract (first 5 years)

For the leasing option, the monthly cost amounts to 1414 EUR (service fee plus leasing cost) during the first 5 years and only the service fee subsequently.





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## 4.2 Year two of deployment

	#S-G	Price per S-G		Cost per S-G		Commercial efforts	Further development	Profit from sale				
	15	44 000		22 000		3 000	4 000	15 000				
<b>Year 2</b>												
	Sales	Real cost	Training	Helpdesk and maintenance	Media content support	Commercial efforts	Further development	Gross income	Profit from sale	Profit from service	Total profit on year	Commulative profit
<b>Total</b>	660 000	330 000	26 100	90 000	26 100	45 000	60 000	802 200	225 000	237 000	462 000	606 800
E-point					26 100	20 250	9 000	134 100	78 750	35 550	114 300	146 020
Compexin				90 000		11 250	33 000	168 000	33 750	82 950	116 700	157 380
NTNU			26 100			13 500	18 000	125 100	67 500	71 100	138 600	182 040
Investor									45 000	47 400	92 400	121 360
<b>SENSE-GARDENs built</b>												25



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### 4.3 Year three of deployment

	#S-G	Price per S-G		Cost per S-G		Commercial efforts	Further development	Profit from sale				
	20	44 000		22 000		3 000	4 000	15 000				
<b>Year 3</b>												
	Sales	Real cost	Training	Helpdesk and maintenance	Media content support	Commercial efforts	Further development	Gross income	Profit from sale	Profit from service	Total profit on year	Commulative profit
<b>Total</b>	880 000	440 000	34 800	120 000	34 800	60 000	80 000	1 069 600	300 000	426 600	726 600	1 333 400
E-point					34 800	27 000	12 000	178 800	105 000	63 990	168 990	315 010
Compexin				120 000		15 000	44 000	224 000	45 000	149 310	194 310	351 690
NTNU			34 800			18 000	24 000	166 800	90 000	127 980	217 980	400 020
Investor									60 000	85 320	145 320	266 680
<b>SENSE-GARDENs built</b>												45



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#### 4.4 Year four of deployment

	#S-G	Price per S-G		Cost per S-G		Commercial efforts	Further development	Profit from sale				
	25	49 000		21 000		1 500	2 000	24 500				
<b>Year 4</b>												
	Sales	Real cost	Training	Helpdesk and maintenance	Media content support	Commercial efforts	Further development	Gross income	Profit from sale	Profit from service	Total profit on year	Commulative profit
<b>Total</b>	1 225 000	525 000	43 500	150 000	43 500	37 500	50 000	1 462 000	612 500	663 600	1 276 100	2 609 500
E-point					43 500	16 875	7 500	282 250	214 375	99 540	313 915	628 925
Compexin				150 000		9 375	27 500	278 750	91 875	232 260	324 135	675 825
NTNU			43 500			11 250	15 000	253 500	183 750	199 080	382 830	782 850
Investor									122 500	132 720	255 220	521 900
<b>SENSE-GARDENs built</b>												70



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#### 4.5 Year five of deployment

	#S-G	Price per S-G	Cost per S-G	Commercial efforts	Further development	Profit from sale					
	25	49 000	21 000	1 500	2 000	24 500					
	<b>Year 4</b>					<b>Year 5</b>					
	Sales	Real cost	Training	Helpdesk and maintenance	Media content support	Commercial efforts	Further development	Gross income	Profit from sale	Profit from service	Total profit on year
<b>Total</b>	1 225 000	525 000	43 500	150 000	43 500	37 500	50 000	1 462 000	612 500	900 600	1 513 100
E-point					43 500	16 875	7 500	282 250	214 375	135 090	349 465
Compexin				150 000		9 375	27 500	278 750	91 875	315 210	407 085
NTNU			43 500			11 250	15 000	253 500	183 750	270 180	453 930
Investor									122 500	180 120	302 620
<b>SENSE-GARDENS built</b>											95

#### 4.6 Revenue and profit after 5 years deployment

	Revenue (gross income) after 5 years	Profit from sales after 5 years	Profit from service after 5 years	Total profit after 5 years
<b>Total</b>	5 330 600	1 800 000	2 322 600	4 122 600
E-point	948 300	630 000	348 390	978 390
Compexin	1 079 000	270 000	812 910	1 082 910
NTNU	873 300	540 000	696 780	1 236 780
Investor		360 000	464 520	824 520
<b>SENSE-GARDENS built</b>		Total number of S-G sold		95