

SOCIABLE DELIVERABLE D2.2

“SOCIABLE services definition”



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Abstract

The present deliverable focuses the results of subtasks T2.3 and T2.4, whose objectives were the definition of the cognitive training games and other mental activation services, and the social activation and support services to be offered by the SOCIABLE platform.

The document also explains how SOCIABLE will operate as a combination of human mediated and ICT based services in order to boost/provide mental activation. Hence it illustrates the SOCIABLE care service provisioning model and positions the SOCIABLE services (cognitive games and social interaction applications) in this model.

Given the plethora of cognitive training games (in the relevant literature), the deliverable presents also the methodology used to select the cognitive games that will be integrated in the SOCIABLE platform.

Moreover, it presents a general description of the back-office functions that will be developed to support medical experts and caregivers in the preparation, management and data processing of the training cognitive sessions.

Note that the deliverable emphasizes on the definition of the services, rather than on their detailed technical/technological specification, which is a subject of WP3 of the project.

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Executive Summary

The main objective of the SOCIABLE project is to introduce and pilot a novel ICT-enabled service for assessing and accordingly reinforcing the mental state of the elderly through pleasant gaming activities for cognitive training and, at the same time, boosting their social networking and activating their day-to-day interpersonal interactions. The present deliverable aims to define in detail the mental activation and social support services that the SOCIABLE platform will provide. This activity is preparatory to technical/technological specifications, which will be described in WP3, and to implementation, testing and integration activities, that take place in WP4.

The first part of the document is devoted to describing the overall service provisioning model, that starts with a cognitive, affective and functional assessment for classifying the elderly in one of the three SOCIABLE target groups, (normal/healthy elderly, elderly with MCI, elderly with mild AD), followed by a number of preparatory activities and, finally, the execution of the SOCIABLE programme comprising several sessions based on cognitive training games and/or the Book-of-Life application for social activation. The completion of a SOCIABLE programme is followed by a leaker test to get users' feedback on the procedure and by a cognitive, functional and affective assessment of the elderly in order to access the positive effects of the programme. The process ends (approximately three months later) with a follow-up assessment of the elderly, outside the scope of the programme, in order to evaluate/assess the longer term impact of the SOCIABLE intervention.

The deliverable continues illustrating the SOCIABLE Target Cognitive Skills indicated by the medical experts (Attention, Executive functions, Language, abstract reasoning, Verbal memory, Orientation, Visuo-spatial memory/ability, Constructional praxis, Affective status, Functional assessment) and the selection methodology of the Cognitive Training Games: the partners selected, from their experience and/or literature, about ninety games; among this long list, the SOCIABLE consortium had to select the games to be included in the platform, taking into account a series of criteria, which are thoroughly described in the document.

Taking into account these criteria, based on the judgment of the appropriate stakeholder for each criterion, twenty-seven games for integration in the SOCIABLE platform have been selected. These games are deemed sufficient to full support the SOCIABLE pilot operations, since they fulfill all the above-mentioned criteria.

The process of integrating them in the SOCIABLE platform is then presented. This integration is a collaborative process, involving multiple stakeholders in a way similar to the games selection methodology. The methodology for games development includes several steps, to be carried out for each one the games to be integrated, and involves: the game designer (AIJU) for the game definition and specification, the medical experts (AUSL, FSL, HYGEIA) for a first review, again the game designer to prepare the second version and the medical experts for a further review, one last time the game designer for the final version of the game to be released to the

development team (SLG, UPV, CEDAF), that will proceed with the development of the game and its integration in the SOCIABLE ICT platform.

It follows the complete list of the Cognitive Training Games (per Cognitive Skill) and a tabular description of the selected games in terms of some significant parameters (a unique identifier, a descriptive name, a short description, the cognitive skills and the target groups to which the game is addressed).

The last section of the deliverable describes services/functionalities offered by the "SOCIABLE back-office environment", devoted to supporting the management activities of the professional (medical experts, caregivers, etc.).

This environment illustrates the features required for the SOCIABLE system administration including, apart from the functionalities of system administration in the strict sense of the word, the administration of personal data of users and patients, the management of the games and of the book of life of patients themselves. The features are divided in two main classes:

- Administrator, with functionalities for "General Administration" and "System Administration",
- Medical expert/caregiver with functionalities for "Patients Administration", "Games Administration" and "Book of Life Administration".

In the appendix the description of the "non-selected" games is reported.

1. Introduction

SOCIABLE will pilot a novel model for ICT assisted cognitive training and social activation for a wide range of senior citizens including normal elderly, older adults with mild cognitive impairment, as well as patients suffering from mild Alzheimer disease. Pilot operations will be organized across various sites in four European countries (Greece, Italy, Norway and Spain). Senior citizens will participate to the SOCIABLE pilots within leisure/care centres, as well as within their homes. Overall, the organization of the pilot operations is associated with a host of different issues, spanning the administrative, organizational, technical, technological and medical perspectives. From an administrative and organization perspective, the various sites will have to secure the appropriate resources (i.e. human resources and materials) in order to successfully organize and carry out the pilots.

From a technical/technological perspective, the sites will have to deploy the SOCIABLE ICT infrastructure in order to blend innovative ICT activities in their existing care services offerings. Finally, from a medical perspective each site will have to define the medical-related activities that will be associated with the tasks of applying the SOCIABLE activities in a way that maximizes the positive effects on the target elderly participants/users.

This deliverable defines the mental activation and social support services to be provided by the SOCIABLE platform; these services are preparatory to the technical/technological specifications which are the object of the subsequent work package 3 and to the implementation, testing and integration in the ICT SOCIABLE technology platform, activities that represents the objective of work package 4.

These services support the provisioning model for the elderly (cognitive assessment, pre and post cognitive assessment activities, cognitive training program, follow up activities) taking into account also the need for the management of the SOCIABLE platform by medical experts and caregivers.

Wide space is then devoted to the classification and taxonomy of the cognitive skills, their correlation with a large number of cognitive games and the criteria for the selection of the games to be included in the SOCIABLE platform; twenty seven games have been selected and of each of them a tabular description with a few significant parameters is presented. Out of the twenty-seven selected games, eighteen games will be implemented and integrated in the first version of the SOCIABLE platform, which will be available prior to the commencement of the pilot operations. Finally the services for the professionals (back-office administration features are illustrated. The deliverable is structured as follows: Section 2 following this introductory section describes the overall SOCIABLE service provisioning and pilots paradigm and positions the services in this context. Section 3 describes the services offered to elderly end-user, emphasizing cognitive training games, the book-of-life and communication services. Furthermore, it describes the games selection methodology used to select the games, but also established to enable future enhancements of the platform with additional games. Section 4 describes the services offered to health professionals, in terms of supporting and managing the SOCIABLE sessions. Finally, section 5 concludes the deliverable.

2. Overview of SOCIABLE Services

2.1 Service Provisioning Overview

The SOCIABLE services are part of the project's overall service provisioning model, which is depicted in the figure below (Figure 1) and involves the following phases:

- The process starts with a cognitive, affective and functional assessment of the elderly, which is based on the SOCIABLE neuropsychological battery (illustrated in Deliverable D2.1). The battery is administered to the elderly users prior to his/her inclusion in a SOCIABLE programme. The assessment of the elderly serves as a vehicle for classifying the elderly in one of the three SOCIABLE target groups, (normal/healthy elderly, elderly with MCI, elderly with mild AD) and deciding his/her inclusion in the programme. Furthermore, the neuropsychological tests will result in an assessment of the cognitive skills of the elderly, which will be later used to shape the SOCIABLE programmes administered to the user.
- Following the cognitive, functional and affective assessment of the elderly, and assuming the successful the health professional carries out a number of preparatory activities towards the SOCIABLE sessions. These activities include briefing/training the elderly in the use of the SOCIABLE surface platform, while also preparing his/her sessions on the basis of the cognitive record of the user.
- Execution of a SOCIABLE programme comprising several sessions. Each of the session involved cognitive training games and the Book-of-Life application for social activation. Furthermore, the elderly is given the opportunity to interact with other elderly via a set of communication applications and services. Overall, the typical duration of a programme is 3 months. In the scope of this programme the elderly attend to two sessions per week. The typical duration of a session is 45 min. A detailed specification of the session durations and the number of sessions per pilot site, have been given in the scope of Deliverable D1.3.
- A leaker test will follow the completion of a SOCIABLE programme, in order to get users' feedback on the procedure. This leaker test will be an element of the users' evaluation of the SOCIABLE approach.
- A cognitive, functional and affective assessment of the elderly will follow the leaker tests in order to access the positive effects of the programme on the elderly users.
- A follow-up assessment of the elderly, outside the scope of the programme, will be carried out (approximately three months after the end of the programmes in order to evaluate/assess the longer term impact of the SOCIABLE intervention.

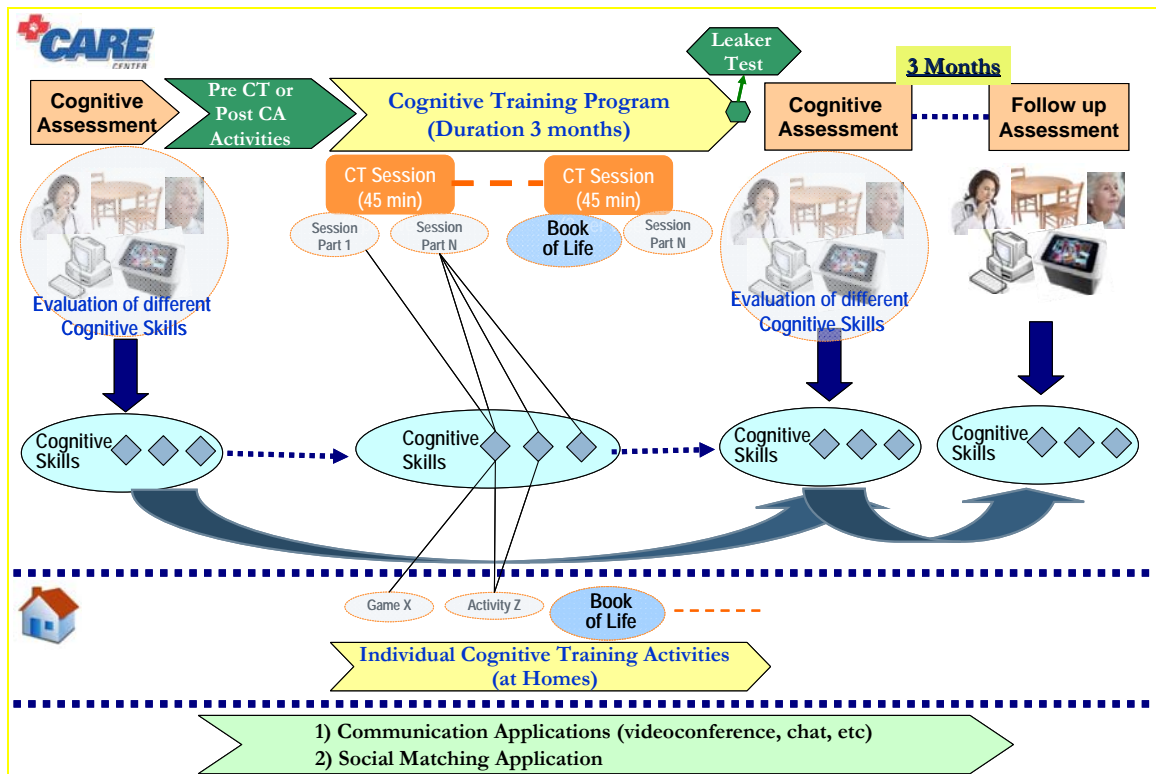


Figure 1 : Overview of the SOCIABLE Care Services

The above workflow is supported by the SOCIABLE platform in the following aspects:

- The elderly participation in the cognitive gaming and social interaction activities. In particular, elderly users will engage in the cognitive training and social interaction activities through the surface computing platform of the project.
- Health professional's access to and management of data associated with the SOCIABLE programmes. These include the elderly cognitive record, as well as data associated with the configuration, setup and organization of the SOCIABLE sessions.

As a result the SOCIABLE platform provides and supports the following types of services:

- Cognitive Training Services: The platform provides a number of cognitive training services in the form of cognitive training games, which will be administered to the elderly participants.
- Social Interaction Services: The SOCIABLE platform provides services boosting the social interaction of the elderly. These include:
 - The Book-of-Life application, which allows the elderly to create a personal diary via the SOCIABLE ICT platform.
 - A set of communication applications enabling the communication and interaction of the elderly through the network of SOCIABLE platforms.
- Services for the Health Professionals: SOCIABLE provides a set of back-office applications enabling health professionals to manage the elderly data, configure the SOCIABLE sessions and producing reports.

Note that cognitive training and social interaction services will be offered to the elderly, while back-office applications will serve the health professionals. The above services are in more detail defined in the following sections.

3. SOCIABLE Services for the Elderly

3.1 Cognitive Training Games and Services

3.1.1 SOCIABLE Target Cognitive Skills

The medical experts of the consortium have come up with a standardized taxonomy of cognitive skills used to classify cognitive games within the SOCIABLE platform. The same taxonomy was used as a guide during the neuropsychological tests selection process. This specific taxonomy was selected as the most appropriate for the purposes of the SOCIABLE project, since it allows the medical experts to detect even minor changes in the cognitive abilities of the elderly users attributed either to the normal aging process or to subtle neurodegenerative mechanisms underlying MCI and AD. The cognitive functions status of the users will be assessed both pre- and post-intervention so as to identify those games which are more successful in strengthening each cognitive skill.

The cognitive skills classification/taxonomy is analyzed in the sequel:

- Attention
- Executive functions
- Language
- Abstract reasoning
- Verbal memory
- Orientation
- Visuo-spatial memory/ability
- Constructional praxis
- Affective status
- Functional assessment

Among these cognitive skills, the SOCIABLE medical experts made a prioritization as follows (in the order of importance):

- Memory
- Executive Functions
- All the rest
- Orientation (least important)

This prioritization was used to drive the selection of the games, in particular to determine the number of games that it was appropriate to attribute to each skill. Furthermore, it will also drive the delivery of cognitive games from the platform i.e. more games will be available and delivered from the highest priority categories.

3.1.2 Selection Methodology for SOCIABLE Cognitive Training Games and Services

3.1.2.1 Initial List of Games

A large number of cognitive training exercises have been proposed in literature and are widely used in hospitals and care/leisure centers for tasks like cognitive training, mental simulation and cognitive rehabilitation. Also, several ICT based games have been recently developed and administered to elderly in the scope of medical and research initiatives, including several EU projects such as ElderGames (<http://www.eldergames.org>), VitalMind (www.vitalmind-project.eu/), OASIS (<http://www.oasis-project.eu/>) and HERMES (<http://www.fp7-hermes.eu>). Given the plethora of cognitive games, there are a host of options for integrating games as services into the SOCIABLE platform. Indeed, the SOCIABLE partners compiled a long list of cognitive games for potential integration in the SOCIABLE platform, based on the following sources of games and related inspiration:

- Existing paper & pencil games, which are commonly used by the health professional of the consortium in the scope of their cognitive gaming sessions. Such games were mainly proposed by HYGEIA, AUSL and FSL, on the basis of their experience in organizing and running related sessions.
- ICT based games from other ICT based platforms and projects, including board games and games suggested by the ElderGames partners.
- New ideas about games that could be appropriate for ICT implementation, while also taking advantage of the added-value features of the SOCIABLE surface computing platform. These ideas were in most cases provided by the health professionals / medical experts of the consortium, who tend to be more experienced in cognitive gaming comparing to the rest stakeholders.

A list of ninety games was compiled based on games selected from the above sources. Games within this list were described and documented in fair detail, including the game scenarios, the game scoring and target, as well as in terms of the cognitive skills, which they target.

3.1.2.2 Selection Criteria and Process

In view of the long-list of games, the SOCIABLE consortium had to select the games to be included in the platform, taking into account the following criteria:

- The total number of games that should be selected/specified for inclusion in the SOCIABLE platform. For each cognitive skill a different number of target games was defined as also explained below.
- The cognitive skills that they target, which have to match the cognitive skills targeted/specified by the SOCIABLE project. Hence, the distribution of the cognitive skills targeted by the selected games, should match the distribution of the various cognitive skills, taking also into account the prioritization of the various skills (e.g., more memory games are needed than orientation games).
- The appropriateness of the games for integration in an ICT platform. This relates to technical parameters (e.g., technical implementation feasibility), as well as to the overall efficiency of transferring a given paper & pencil game to the ICT

platform. The later applies to games inspired by conventional paper & pencil games.

- The possibility of adapting or associating the games to the real-life activity of the elderly, which has been proven to result in more motivating and pleasant games.
- The ability of a game to take advantage of added-value features of the SOCIABLE surface computing platform, such as the multi-touch features and/or the mixed reality functionalities blended the physical world into the ICT platform.
- The potential of the games to lead to a pleasant, fun, user-friendly and ergonomic implementation on the ICT platform. This is also associated with the need and possibility to design the games (i.e. in terms of content and graphics), as required for an ICT implementation.
- The need for a balanced coverage between individual and group games, since there are requirements for both gaming modalities.
- The coverage of all three SOCIABLE target groups of elderly.
- The efficiency of the games from a medical perspective, according to the opinion of medical experts. The selected games should be the most efficient for the targeted elderly groups.

Several of the above criteria are a direct result of the requirements that resulted from end-user and care-services providers' requirements engineering processes, as these processes are reflected in SOCIABLE deliverables D1.1 and D1.2 respectively. Note that games selection based on the above criteria requires the participation and the collaboration and the consultation between medical experts, game designers and game developers/integrators, given that the above criteria include technical/technological, medical and game design aspects.

In order to take into account the above-mentioned criteria, based on the judgment of the appropriate stakeholder for each criterion, the following process was applied:

- The target number of games (per cognitive skill) was specified. This number per skill was specified taking into account the duration and organization of the SOCIABLE pilots in particular that:
 - Each end-user will participate in the SOCIABLE programme for three months.
 - The SOCIABLE programme foresees 2-3 sessions per week for each users.
 - Each training/gaming session has a 45' minute duration.
 - A typical game has a 10' minute duration (including the overhead of explaining or reminding things about the surface platform).
 - A fair replay of some games is allowed during the course of a user's participation in a three-month SOCIABLE programme.
- A scoring, ranking and prioritization process of the initial list of games was carried out independently by medical experts, game designers and technology experts of the consortium. As a result of this process, each stakeholder prioritized the various games for each cognitive skill, thereby creating a ranking of games for each cognitive skill (i.e. one ranking for memory games, another ranking for attention games etc.).
- A global ranking of games per cognitive skill was produced, through combining (i.e. multiplying) the ranks given by the different stakeholders. This step resulting in a consolidated ranking of all memory games, a consolidated ranking

of all “executive functions” games etc. i.e. one consolidated ranking per different cognitive skills.

- A physical meeting between the various stakeholders was held to decide, agree and endorse the final selection of games for each cognitive skill, based on the consolidated ranking. During the physical meeting, minor deviations from the ranking occurred, based however on adequate justifications by the stakeholders that proposed the deviation.

The result of the process was the selection of twenty-seven games for integration in the SOCIABLE platform. These games are deemed sufficient to full support the SOCIABLE pilot operations, since they fulfill all the above-mentioned criteria. Note that out of the list of twenty-seven (27) games, eighteen (18) will be integrated in the first version of the SOCIABLE platform prior to the commencement of the pilots. The rest nine (9) (and any additional ones) will be gradually integrated till the end of the project.

These eighteen (18) games constitute the minimum set of games required for commencing pilot operations, according the experience and opinion of the medical experts. This minimum set is also appropriately distributed across the various cognitive skills, given that it must cover all the skills according to their relevant importance.

The number of selected games per cognitive skill is illustrated in the following table, which also depicts the number of games from each skill which will be implemented in the first phase (i.e. as part of the minimum set):

Cognitive Skill	Minimum Required Number (integrated in the first/interim version of the SOCIABLE Platform)	Total Number (integrated in the final version of the SOCIABLE Platform)
Memory	5	8
Executive Functions	4	5
Executive functions/Logical Reasoning	1	1
Attention	2	4
Language	2	3
Logical Reasoning	1	2
Reasoning	1	1
Visuospatial abilities	1	1
Orientation	1	2
Total	18	27

Table 1: Selected Games per Cognitive Skill

Note however, that minor adjustments to the list (including slight augmentation/enhancement of the list, minor shrinking/reduction of the list and/or few (1-2) game changes) might occur at later stages of the project on a merit and need basis and based on feedback from the pilot operations. The above adjustments is foreseen in the SOCIABLE workplan as part of WP6 and the continuous service improvement process. Later paragraphs in the section describe the selected games in detail.

3.1.2.3 Standardization/Formalization of the Game Selection Methodology

The process is illustrated above is schematically depicted in the following figure, which presents schematically the methodology that has been adopted for the selection of the cognitive training games. In summary the methodology involves the following steps:

- The compilation of a list of candidate cognitive training games for integration in the SOCIABLE platform. The list may comprise existing paper & pencil activities, ICT based cognitive games, as well as new ideas for games tailored to the objectives and capabilities of the SOCIABLE approach.
- The application of the above-mentioned ranking processes, subject to the discussed criteria and based on the games ranking evaluation by stakeholders (game designers, medical experts, game developers).

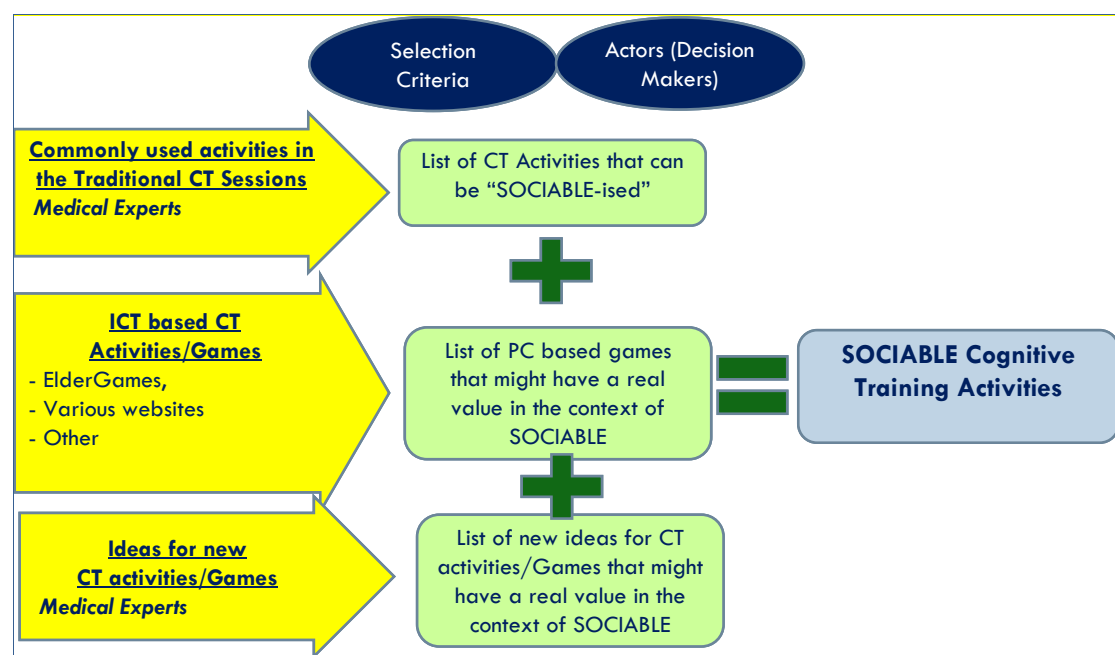


Figure 2: Cognitive Training Games Section Process

This methodology has been formalized by the SOCIABLE consortium, for use both within the project's lifetime, but also beyond the completion of the project. In particular:

- In the scope of the project the methodology has already been applied for the game selection, while it could be also applied in the future in order to enrich the platform with additional games (e.g., based on new ideas or with a view to covering new needs).
- Following the end of the project, during the execution of the SOCIABLE exploitation, sustainability and business plans. As part of these plans, stakeholders will be offered with a methodology leading to effective added-value games.

3.1.3 SOCIABLE Games Design and Pre-Development Process (Scenario, Graphics, Workflow)

Following the selection of games, SOCIABLE has commenced the process of integrating them in the SOCIABLE platform. This integration must also be a collaborative process, involving multiple stakeholders in a way similar to the games selection methodology.

This is because the various stakeholders should ensure that game development and integration evolves in-line with their envisaged objectives. To this end, SOCIABLE has also specified a collaborative games development and integration process. While the development of such a process falls under WP4, we herewith highlight the main points, mainly because this process complements the selection process outlined above. Hence, the methodology for games development involves the following steps, which will be carried out for each one the games to be integrated:

- Step 1: The consortium game designer (AIJU) accesses the game definition and specification (as provided in this deliverable). The game definition will be then used (by the game designer) in order to prepare the first version of the game scenario and workflow (in the form of a flow chart). Furthermore, the game designer will also prepare the graphics (i.e. game layout and other graphics) to be used by each specific game.
- Step 2: The medical experts of the consortium (i.e. AUSL, FSL, HYGEIA) will review the first version of the game design and must provide early comments (within 2-3 working days).
- Step 3: Following the comments, the game designer will prepare the second version of the game scenario and graphics (within 3-4 working days).
- Step 4: The medical experts will review the second version and send their comments (within 2 working days).
- Step 5: The game designer will take into account the medical experts' latest comments and will prepare the final version of the game scenario and graphics (in the appropriate for the developer team format). This step will be completed in three working days (at most).
- Step 6: The development team will proceed with the integration of the game in the SOCIABLE ICT platform based on appropriate reuse of the platform vendors' components, games and/or through leveraging similar (already developed) games.

It should be outlined that in the scope of the above process the following pre-development issues will be also finalized:

- The selection of the game content.
- Any required localization of the game content.
- The selection of the game object in case of mixed reality (i.e. use of real objects in the gaming process).

Overall, the per-development process is a collaborative process, which ensures that the SOCIABLE technical development team is provided with all the details required to ensure the graceful and fast implementation.

3.1.4 Global List of SOCIABLE Cognitive Training Games (per Cognitive Skill)

Here below we propose some examples of cognitive games divided per cognitive skill; it is a list of almost 75 games (whose description is given in Annex 1) among whom, after long and “fought” discussions among the medical experts, about 30 games that will form the initial equipment of the cognitive training of SOCIABLE have been selected. These games are widely illustrated in the following chapter 3.2.

It’s of importance to underline that all the cognitive games/activities identified and proposed represent early suggestions, ideas derived from the practice and knowledge of medical experts about traditional cognitive activities and from analysis of existing computer cognitive games, in order to provide hints to the technical partners for creating the SOCIABLE games. It means that these games/activities should be taken as examples and can/must be modified and readapt to the SOCIABLE technology, in order to create new games more suitable and attractive to be implemented.

3.1.4.1 Games Targeting Attention

- | | |
|---------------------------|-----------------------------|
| 1. Guess what? | 8. Cazabolas |
| 2. Guess who? | 9. Differences |
| 3. Choose the right words | 10. Kaleidos |
| 4. Switching | 11. Guacamole |
| 5. Secret Drawers | 12. Interactive Word Search |
| 6. Color Match | 13. Gran Lince |
| 7. Common Particulars | |

3.1.4.2 Games Targeting Executive Functions

- | | |
|--|---|
| 1. Analogies | 11. Master Mind |
| 2. Similarities/Differences | 12. Associations |
| 3. Scrambled words/sentences | 13. Scrable |
| 4. Which belongs where? | 14. Six Up |
| 5. Take away menu | 15. Quadrix |
| 6. Interpret the proverb | 16. Get Right |
| 7. Dilemmas | 17. Sinking The Fleet |
| 8. Plan your day at... | 18. Domino |
| 9. From the less complete to the more complete | 19. Ziggurat |
| 10. Incomplete grids | 20. Ask for objects used daily activities |

3.1.4.3 Games Targeting Language

- | | |
|-----------------------------|------------------------|
| 1. Name the object | 9. Rummikub Words |
| 2. Word/sentence completion | 10. Tabu |
| 3. Categorizing | 11. Search Puzzle |
| 4. Synonyms/Antonyms | 12. Bookworm |
| 5. Crossword | 13. Test Express |
| 6. Tic Tac Boom | 14. The intruder |
| 7. Scattergories | 15. Fist to the Buzzer |
| 8. Paspalabra | |

3.1.4.4 Games Targeting Reasoning

1. Scrambled story
2. By the rules
3. Word sort

3.1.4.5 Games Targeting Memory

1. Remember the story
2. Who belongs where?
3. Remember the design
4. Do you remember your order?
5. Reading comprehension
6. Match the voice
7. Hide and seek
8. Don't forget!
9. What is the scene?
10. Memory matrix
11. Simon
12. TACTIL MEMORY GAME
13. Par and Par
14. Colour Sequences
15. Superbrain
16. Learning Various Issues

3.1.4.6 Games Targeting Orientation

1. Up, down, right, left
2. My home

3.1.4.7 Games Targeting Visuospatial abilities

1. Half-hidden objects
2. Entangled figures
3. Whose shadow is this?
4. Puzzles
5. Time Identification
6. How many can you see?
7. Spatial speed match

3.1.5 Parameters of the SOCIABLE game description

Following paragraphs provide a tabular description of the selected cognitive games in terms of the following parameters:

- A unique identifier for the game.
- A descriptive name of the game.
- A short description of the game.
- The cognitive skills addressed by the game.
- The origin of the game i.e. whether it is based on existing cognitive training activities, existing PC based games or a new game idea.
- A set of metrics that could be used to assess the user's performance in the game.
- A description of possible difficulty levels that will be realized.
- A description of whether the games need to be localized.
- A description of whether the game can leverage mixed reality features (i.e. blending of real with computer based objects)¹.

The above parameters provide a comprehensive description of each game, which will drive the games, development and customization process. Note however, that the above mentioned properties of the various games are subject to minor revisions and fine-tuning during the development, deployment and pilot processes. Relevant

¹ On the basis of the mixed reality features of the Microsoft Surface Platform

revisions will be reported in future deliverables. It should be also note that the complete set of attributes is provided only for the selected games and not for the wider set of games included in the Appendix.

3.2 SOCIABLE Cognitive Training Games

The games below will be included in the first version of SOCIABLE, as decided by the medical experts at the meeting in Rome.

3.2.1 Hide and seek

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Hideandseek-1.0
Name	Hide and seek
Short Description	The user is asked to hide objects and recall their location after 15-20 minutes.
Analytical Description	The user is shown of a fully-furnished and fully-decorated room (e.g. living room) and is asked to hide 5-10 items (e.g. money, facority watch, granddaughter's present, car keys etc) in there before leaving for summer vacations. After a 15-20 minute delay, he is asked to recall where he has hidden the valuable objects.
Target Groups	Groups A, B and C
Number of Participants	1
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Memory
Game Origin	New idea on PC games
Metrics/Performance of the game	<ul style="list-style-type: none"> • Number of objects found • Number of objects hidden • Total Time to finish the exercise or Number of objects to finish the exercise
Difficulty levels and their description	Different difficulty levels are possible based on the number of objects hidden
Localization Needs	This games does not need localization
Mixed Reality Possibilities	It is possible to blend real objects with computer based objects and related interactions

Table 2: Hide and Seek Game Description

3.2.2 Remember the story?

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Rememberthestory-1.0
Name	Remember the story
Short Description	The user is asked to carefully watch a video and answer relevant questions.
Analytical Description	The user is asked to carefully watch the video presented. Then, a) he has to answer questions on the story, b) is shown various objects and asked to identify (touching with his finger) the objects shown in the video and c) is asked to give an end to the story he saw before.
Target Groups	Groups A, B and C
Number of Participants	1 or more
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Memory
Game Origin	CT activity
Metrics/Performance of the game	<ul style="list-style-type: none"> • Number of questions answered correctly • Number of objects correctly identified
Difficulty levels and their description	Different difficulty levels can be defined on the basis of the complexity of the questions
Localization Needs	This is a text-based game, which needs to be localized
Mixed Reality Possibilities	There are no obvious possibilities for mixed reality features

Table 3: Remember the story?

3.2.3 Who belongs where?

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Whobelongswhere-1.0
Name	Who belongs where?
Short Description	The user has to recall the profession of famous people.
Analytical Description	A slightly differentiated version of the previous game. The user is presented with images of famous people of present and past (country-specific) and has to break them down into chunks or different categories based on their profession.
Target Groups	Groups A, B and C
Number of Participants	1 or more
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Memory, Executive Functions
Game Origin	Manual CT activity
Metrics/Performance of the game	Number of images correctly categorized
Difficulty levels and their description	Different difficulty levels can be defined on the basis of the number of images to be categorized
Localization Needs	The games needs localization in the target languages
Mixed Reality Possibilities	There is room for blending real images with computer based images

Table 4: Who belongs where?

3.2.4 Remember the design

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Rememberthedesign-1.0
Name	Remember the design
Short Description	Visual memory game
Analytical Description	The user is presented for 60 seconds with a design drawn on a 9-dot matrix. Then, he has to "draw" with his finger the design he saw before on a 9-dot matrix provided. Each time, the user is presented with 10 different designs of varying difficulty.
Target Groups	Groups A, B and C
Number of Participants	1
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Memory
Game Origin	Manual CT activity
Metrics/Performance of the game	Number of mistakes
Difficulty levels and their description	Different difficulty levels are possible on the basis of simple and more complex designs
Localization Needs	There are no localization needs
Mixed Reality Possibilities	It is possible to have mixed reality features (based on given real designs)

Table 5: Remember the design

3.2.5 Do you remember your order?

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Do you remember your order-1.0
Name	Do you remember your order?
Short Description	An extension of the game "Take away menu"
Analytical Description	After a 15-20 minutes delay, the user is presented once more with the take-away menu and has to indicate (touching with his finger) the items he ordered before. In this case, at the end of the first phase of the game, the user is asked to memorize his order and warned that he will be later asked to recall the items he ordered.
Target Groups	Groups A, B and C
Number of Participants	1
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Memory
Game Origin	Manual CT activity
Metrics/Performance of the game	Number of correct responses / Number of mistaken responses
Difficulty levels and their description	Different difficulty levels are possible on the basis of Long and short list of items (depending on predefined criteria)
Localization Needs	The game needs localization.
Mixed Reality Possibilities	There are no obvious mixed reality functionalities

Table 6: Do you remember your order?

3.2.6 Don't forget!

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Don'tforget-1.0
Name	Don't forget!
Short Description	The user has to remember to do something at a specific time during the session.
Analytical Description	At the beginning of the session, the user is asked to remember to do something at a specific time. The instruction is presented on the computer screen (e.g. remember to place your identification card on the screen on 11.30). The PC gives "funny" feedback to the user depending on his ability to remember what he was told (e.g. applause).
Target Groups	Groups A, B and C
Number of Participants	1 or more
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Memory
Game Origin	Prospective memory test
Metrics/Performance of the game	The ability to remember to do what he/she was asked to during the session (boolean metric)
Difficulty levels and their description	Complexity of the instructions given to the end-user
Localization Needs	The games need localization
Mixed Reality Possibilities	Mixed reality capabilities are possible

Table 7: Don't forget!

3.2.7 What in the scene?

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Whatinthescene-1.0
Name	What in the scene?
Short Description	Recognize the objects in the scene
Analytical Description	A complex scene is showed to the user for some seconds, then images of different objects are shown and the user has to recognize the objects of the scene between those distracting.
Target Groups	Group A, Group B and Group C
Number of Participants	1-4
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Memory (verbal memory)
Game Origin	Idea from traditional cognitive training activities
Metrics/Performance of the game	<ul style="list-style-type: none"> Number of objects corrected recognized Number of mistakes Total time to finish the game (applicable to individual sessions only)
Difficulty levels and their description	Different difficulty levels are possible based on: <ul style="list-style-type: none"> The Complexity of the scene The number of objects to be recognized The number of distractors
Localization Needs	No localization needs
Mixed Reality Possibilities	Mixed reality is possible (use of real objects)

Table 8: What in the scene?

Figure 3 illustrates an example of this game (traditional version).

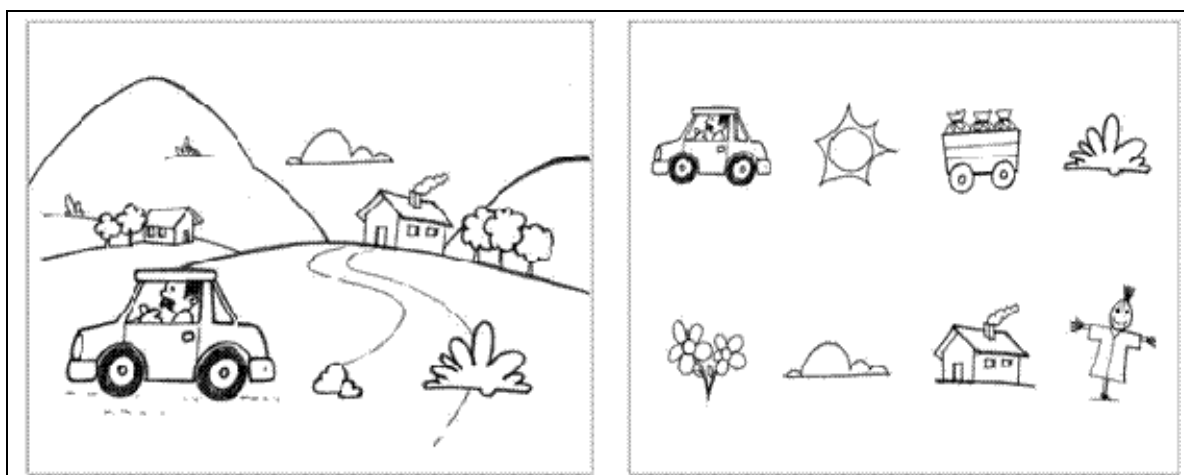


Figure 3: example of images to be used in the “What in the scene?” Game

3.2.8 PAR AND PAR

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Parandpar-1.0 (Original Version)
Name	Par and Par
Short Description	Memory game where players have to find the pairs that match the images.
Analytical Description	The game is made up of 38 pieces having different images. At the start of the game all the pieces are face down. The player/players have to find to find the pair to match the image, but can only turn over two cards at once.
Target Groups	Group A and B
Number of Participants	2- 4 players
Target Platform	Microsoft Surface and Tablet PC, both
(Cognitive) Skills Addressed	Memory
Game Origin	The game is an existing activity
Metrics/Performance of the game	<ul style="list-style-type: none"> • Number of correct responses(pairs) • Number of mistaken responses (pairs)
Difficulty levels and their description	The difficulty levels can be defined on the basis of the complexity of the relationship
Localization Needs	There are no localization needs
Mixed Reality Possibilities	There is possibility for mixed reality functionalities

Table 9: Par and Par

3.2.9 Analogies

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Analogies-1.0
Name	Analogies
Short Description	The user has to find word/picture analogs
Analytical Description	The patient is given two pairs of words/pictures. The second word/picture from the second pair of words is missing. In each question the patient has to determine the relationship between the first two words and then find the word/picture that completes the second analogy. The relationship should be similar in both cases.
Target Groups	Groups A, B and C
Number of Participants	1
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Executive Functions
Game Origin	Manual CT activity
Metrics/Performance of the game	Number of Correct Responses
Difficulty levels and their description	Different difficulty levels are possible based on the complexity of the relationship/analogy
Localization Needs	No localization is needed
Mixed Reality Possibilities	No obvious mixed reality features are possible

Table 10: Analogies

3.2.10 7 Differences

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-7differences-1.0 (Original Version)
Name	7 differences
Short Description	Consists of finding the seven differences in two apparently identical images.
Analytical Description	Consists of finding the seven differences in two apparently identical images.
Target Groups	Group A and B
Number of Participants	1 players
Target Platform	Microsoft Surface and Tablet PC, both
(Cognitive) Skills Addressed	Selective Attention
Game Origin	The game is an existing activity
Metrics/Performance of the game	Number of Correct Responses
Difficulty levels and their description	Different difficulty levels are possible based on the complexity of the relationship/analogy
Localization Needs	No localization is needed
Mixed Reality Possibilities	No obvious mixed reality features are possible

Table 11: 7 differences

3.2.11 Take-away menu

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Takeawaymenu-1.0
Name	Take away menu
Short Description	The user has to order for his family/friends from a take-away menu based on predefined criteria.
Analytical Description	The user is presented with a take-away menu and is asked to make an order based on predefined criteria (the more the criteria, the more difficult the game level): e.g. order for him and his wife vs for them and 2 more friends, order light dishes vs meat dishes, pay a maximum of 30 euros, etc
Target Groups	Groups A, B and C
Number of Participants	1
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Executive Functions
Game Origin	Manual CT activity
Metrics/Performance of the game	Number of mistakes
Difficulty levels and their description	Number of predefined criteria (i.e. more or less criteria)
Localization Needs	Localization is required
Mixed Reality Possibilities	No obvious mixed reality features are possible

Table 12: Take away menu

3.2.12 Dilemmas

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Dilemmas-1.0
Name	Dilemmas
Short Description	The user is asked to indicate the best possible option in a given situation, based on predefined criteria.
Analytical Description	The user is presented with a problem that may occur in everyday life (e.g. You are thinking of renting an apartment). He is given specific criteria (e.g. 1. you can pay up to 700 €/month, 2. You love gardening, 3. Your old mother will stay with you and your family, 4. You have a big piano). Then he is shown 5 different options (picture and info, both general and particularly relevant to the predefined criteria in the form of a small paragraph) and asked to choose the best option.
Target Groups	Groups A, B and C
Number of Participants	1
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Executive Functions
Game Origin	Manual CT activity
Metrics/Performance of the game	Number of mistakes
Difficulty levels and their description	Different difficulty levels are possible based on: (a)The number of criteria (more vs less), (b)The difficulty of the criteria (easily met vs difficult to meet), (c) Easy vs difficult to eliminate options
Localization Needs	Localization is required
Mixed Reality Possibilities	It is possible to have mixed reality characteristics

Table 13: Dilemmas

3.2.13 Plan your day at ...

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Planyourdayat-1.0
Name	Plan your day at...
Short Description	The user has to plan his day at a specific place (e.g. zoo, Athens, mall etc) using a map and a timetable, taking into account the predefined requirements for the day.
Analytical Description	The user is presented with a) a simple map (of city, a place such as a mall etc), b) the things he wants to do during the day and c) a timetable and is asked to complete the time table taking into account the info given (e.g. the train leaves the station at 7 am, the shops are open until 6 pm, he must be back by 10 pm to take his medication, he has to allow 10 minutes to walk between any two points on the map etc.
Target Groups	Groups A and B
Number of Participants	1
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Executive Functions
Game Origin	Manual CT activity
Metrics/Performance of the game	Number of mistakes
Difficulty levels and their description	More or less requirements can be used to define several difficulty levels
Localization Needs	Localization is required
Mixed Reality Possibilities	No obvious possibilities exist

Table 14: Plan your day at...

3.2.14 Guess who?

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Guesswho-1.0
Name	Guess who?
Short Description	Identify the correct person among others
Analytical Description	Each player starts the game with a board that includes images of people and their first names. The PC gives clues (one by one) to eliminate candidates, starting with clues on obvious outward appearance characteristics of the person selected (e.g. the character selected is a man / wears glasses etc) and continuing with questions based on the personalities (the character seems angry) or personal histories (the character is a wealthy lawyer) of the character. The user identifies (touching with his finger) images one by one to eliminate candidates.
Target Groups	Groups A, B and C
Number of Participants	1
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Attention
Game Origin	A differentiated version of the children's guessing game "Guess who?"
Metrics/Performance of the game	<ul style="list-style-type: none"> • Number of mistakes • Time to complete the task (applicable to individual sessions only)
Difficulty levels and their description	Different difficulty levels can be defined based on: <ul style="list-style-type: none"> • The number of images (More or less) • The use of simple vs. more complicated questions
Localization Needs	No localization is needed
Mixed Reality Possibilities	No obvious possibilities exist

Table 15: Guess who?

3.2.15 Switching

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME- Switching-1.0
Name	Switching
Short Description	The user has to choose images while alternating/switching between two predefined categories.
Analytical Description	The user is presented with images of various objects and is asked to indicate (touching with his finger) objects while alternating/switching between two different categories, e.g. switch between animals and furniture or switch between objects starting with a vowel and a consonant or switch between images from places in Greece and images from places in other countries of the world etc. The exercise may or may not be timed.
Target Groups	Groups A, B and C
Number of Participants	1
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Attention
Game Origin	Manual CT activity
Metrics/Performance of the game	<ul style="list-style-type: none"> • Number of mistakes • Time to complete the task
Difficulty levels and their description	Different difficulty levels can be based on: <ul style="list-style-type: none"> • The use of easy vs. complex rules • Asking the user to complete the exercise as fast as he can or not • The use of more or less images.
Localization Needs	No localization is required
Mixed Reality Possibilities	There are possibilities for mixed reality features

Table 16: Switching

3.2.16 Lost in migration

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Lost in migration-1.0
Name	Lost in migration
Short Description	Pay attention to the central bird
Analytical Description	A flock of birds will appear in the screen; the user must focus his attention to the central bird, identifying its direction without being distracted by the other birds, in the less time is possible
Target Groups	Group A, Group B and Group C
Number of Participants	1
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Attention
Game Origin	Existing PC game (from www.lumosity.com)
Metrics/Performance of the game	<ul style="list-style-type: none"> • Number of mistakes • Time to complete the task
Difficulty levels and their description	Difficulty levels can be based on the number of birds used as distractors
Localization Needs	No localization is required
Mixed Reality Possibilities	No obvious possibilities

Table 17: Lost in migration

3.2.17 Scrambled Story

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Scrambled words/sentences-1.0
Name	Scrambled words/sentences
Short Description	
Analytical Description	The patient has to put in the correct order letters / words in order to form concrete words / sentences.
Target Groups	Groups A, B and C
Number of Participants	1
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Executive Functions
Game Origin	Manual CT activity
Metrics/Performance of the game	<ul style="list-style-type: none"> • Number of mistakes • Time to complete the task
Difficulty levels and their description	Difficulty levels can be based on the number of sentences and pictures used in the game
Localization Needs	Localization is required
Mixed Reality Possibilities	There are possibilities for mixed reality features

Table 18: Scrambled words/sentences

3.2.18 Incomplete grids

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Incomplete grids-1.0
Name	Incomplete grids
Short Description	Complete a predefined grid
Analytical Description	The user is asked to choose the figure that complete, according with a specific logic, the grid
Target Groups	Group A, Group B and Group C
Number of Participants	1-4
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Executive Functions – Logical Reasoning
Game Origin	Idea from traditional cognitive training activities
Metrics/Performance of the game	<ul style="list-style-type: none"> • Number of mistakes • Number of correct answers • Time to complete the task
Difficulty levels and their description	Difficulty levels can be defined based on the complexity of grids and the difficulty of the logical criteria used
Localization Needs	No localization is required
Mixed Reality Possibilities	There is a possibility for mixed reality features using cards

Table 19: Incomplete grids

Figure 4 illustrates an example of this game (traditional version).

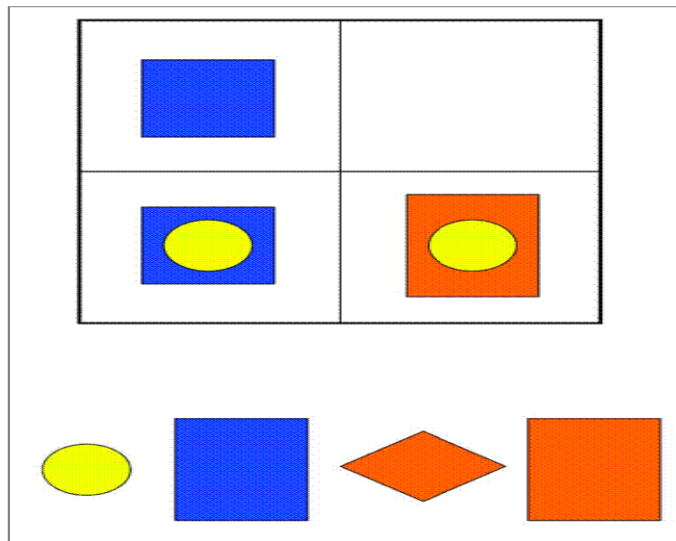


Figure 4: example of image to be used in the “Incomplete grids” Game

3.2.19 Word/sentence completion

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Wordsentencecompletion-V1.0
Name	Word /sentence completion
Short Description	
Analytical Description	The patient has to complete the missing letter / word(s) in the given word / sentence.
Target Groups	Groups A, B and C
Number of Participants	1 or more
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Language
Game Origin	Manual CT activity
Metrics/Performance of the game	Number of mistakes
Difficulty levels and their description	Difficulty levels can be based on the complexity (i.e. simple vs. complex) of the sentences/words used
Localization Needs	Localization is required
Mixed Reality Possibilities	No obvious possibilities

Table 20: Word/sentence completion

3.2.20 Synonyms/Antonyms

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-SynonymsAntonyms-V1.0
Name	Synonyms/Antonyms
Short Description	The user has to connect with a line words that mean the same / the opposite.
Analytical Description	The user is presented with two lists of words and is asked to draw a line (using his finger) between the words that have the same / the opposite meaning.
Target Groups	Groups A, B and C
Number of Participants	1
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Language
Game Origin	Manual CT activity
Metrics/Performance of the game	Number of mistakes
Difficulty levels and their description	Difficulty levels can be based on frequency i.e. frequently vs. rarely used words
Localization Needs	Localization is required
Mixed Reality Possibilities	Mixed reality features are possible

Table 21: Synonyms/Antonyms

3.2.21 The intruder

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Theintruder-1.0
Name	The intruder
Short Description	Identify the intruder word
Analytical Description	The elderly has to identify the intruder word among a list of words belonging to the same semantic category
Target Groups	Group A, B, C
Number of Participants	1-4
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Language- verbal memory
Game Origin	Idea from traditional cognitive training activities
Metrics/Performance of the game	<ul style="list-style-type: none"> • Number of mistakes • Number of correct answers • Time to complete the task/game
Difficulty levels and their description	Difficulty levels can be based on the number of words and number of intruders used in a given game
Localization Needs	Localization is needed
Mixed Reality Possibilities	No obvious mixed reality possibilities

Table 22: The intruder

Figure 5 illustrates an example of this game (traditional version).

FEBBRAIO - MAGGIO - LUNEDÌ - AGOSTO	<i>February - May - Monday - August</i>
RETTANGOLO - SCATOLA - TRIANGOLO - QUADRATO	<i>Rectangle - Box - Triangle - Square</i>
ORATA - BRANZINO - GABBIANO - TONNO	<i>Sea bream - Sea bass - Seagull - Tuna fish</i>
MARE - FIUME - COLLINA - LAGO	<i>Sea - River - Hill - Lake</i>
ANNAFFIATOIO - CESCOIE - RASTRELLO - COCCINELLA	<i>Watering can - Shears - Rake - Ladybird</i>
LEONE - MUCCA - GIRAFFA - ZEBRA	<i>Lion - Cow - Giraffe - Zebra</i>
MARTA - VERONICA - SOFIA - DINO	<i>Marta - Veronica - Sophie - Dino</i>
VENERDÌ - MARTEDÌ - MAGGIO - LUNEDÌ	<i>Friday - Tuesday - May - Monday</i>
MERINGATA - ZUCCHERO - TIRAMISÙ - CROSTATA	<i>Meringue - Sugar - Tiramisu - Tart</i>
COLTELLO - FRIGORIFERO - TOSTAPANE - FRULLATORE	<i>Knife - Refrigerator - Toaster - Blender</i>
MONOPATTINO - AUTOMOBILE - BICICLETTA - TRICICLO	<i>Scooter - Car - Bike - Tricycle</i>
SOGGIORNO - CUCINA - BAGNO - GIARDINO	<i>Living room - Kitchen - Bathroom - Garden</i>
ROSMARINO - BASILICO - ORIGANO - SALE	<i>Rosemary - Basil - Oregano - Sale</i>
MILANO - SARDEGNA - NAPOLI - ROMA	<i>Milan - Sardinia - Naples - Rome</i>
PESCA - PERA - ALBICOCCA - LATTUGA	<i>Peach - Pear - Apricot - Lettuce</i>
MESTOLO - PENTOLA - FORCHETTA - CUCCHIAIO	<i>Ladle - Pot - Fork - Spoon</i>

Figure 5: example of the "The intruder" Game

3.2.22 By the rules

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME- By the rules-1.0
Name	By the rules
Short Description	Identify the secret rule
Analytical Description	The user has to recognize patterns, looking at cards and determining the secret rule using the process of elimination
Target Groups	Group A, B, C
Number of Participants	1-4
Target Platform	Microsoft Surface, Tablet PC)
(Cognitive) Skills Addressed	Logical reasoning, Executive functions
Game Origin	Existing PC game from www.lumosity.com
Metrics/Performance of the game	<ul style="list-style-type: none"> • Number of mistakes • Number of correct answers • Time to complete the task/game
Difficulty levels and their description	Different difficulty levels can be based on: <ul style="list-style-type: none"> • The use of easy vs. complex rules • Asking the user to complete the exercise as fast as he can or not
Localization Needs	No localization is required
Mixed Reality Possibilities	It is possible to have mixed reality capabilities based on cards

Table 23: By the rules

3.2.23 Word sort

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Wordsort-1.0
Name	Word sort
Short Description	Figure out the hidden rule
Analytical Description	The user has to identify the hidden rule and put each word in the proper pile
Target Groups	Group A, B, C
Number of Participants	1-4
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Logical reasoning, Executive functions
Game Origin	Existing PC game from www.lumosity.com
Metrics/Performance of the game	<ul style="list-style-type: none"> • Number of mistakes • Number of correct answers • Time to complete the task/game
Difficulty levels and their description	Different difficulty levels can be based on: <ul style="list-style-type: none"> • The use of easy vs. complex rules • Asking the user to complete the exercise as fast as he can or not
Localization Needs	Localization is required
Mixed Reality Possibilities	It is possible to have mixed reality capabilities based on cards

Table 24: Word sort

3.2.24 Domino

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Domino-1.0 (Original Version)
Name	Domino
Short Description	The aim is to join tiles having the same number of spots on one of their sides.
Analytical Description	Game consisting of 28 rectangular tiles cut in two with one to six spots on them or in blank. The aim is to join tiles having the same number of spots on one of their sides.
Target Groups	Group A and B
Number of Participants	2-4 players
Target Platform	Microsoft Surface and Tablet PC, both
(Cognitive) Skills Addressed	Executive Functions
Game Origin	The game is an existing activity
Metrics/Performance of the game	<ul style="list-style-type: none"> • Number of mistakes • Number of correct responses (pairs)
Difficulty levels and their description	Difficulty levels can be defined on the basis of the complexity of the relationship i.e. easily vs. more difficult to determine relationship
Localization Needs	No localization is required
Mixed Reality Possibilities	It is possible to include mixed reality features

Table 25: Domino

3.2.25 Puzzle

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Puzzle-1.0
Name	Puzzle
Short Description	Puzzle game
Analytical Description	The user is asked to piece together puzzles of varying difficulty.
Target Groups	Groups A, B and C
Number of Participants	1 or more
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Visuospatial abilities, Executive functions
Game Origin	Traditional board game.
Metrics/Performance of the game	<ul style="list-style-type: none"> • Number of mistakes • Time to complete the task
Difficulty levels and their description	The number and complexity of pictures can be used to define varying difficulty levels
Localization Needs	No localization is required
Mixed Reality Possibilities	It is possible to include mixed reality features

Table 26: Puzzle

3.2.26 A modified version of “An American in Paris”

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-An American in Paris-1.0
Name	An American in Paris
Short Description	Memorize the monuments and their locations
Analytical Description	An American comes to Paris for a few days and wants to see the main monuments. The user has to be his guide, learning the location and landmarks on a city map, and mapping a route between them.
Target Groups	Group A, Group B and Group C
Number of Participants	1-4
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Orientation - Visuo-spatial abilities – Visual Memory
Game Origin	Idea from traditional cognitive Training Activities and Existing PC games (from www.happy-neuron.com)
Metrics/Performance of the game	<ul style="list-style-type: none"> • Number of mistakes • Time to complete the task
Difficulty levels and their description	Difficulty levels can be based on the complexity of the map and the route to be mapped
Localization Needs	No Localization is required
Mixed Reality Possibilities	There is no obvious possibility for mixed reality functionalities
Notes	It should be appropriate to create modified version of the game, set in the different cities of the SOCIABLE partners, with different degrees of difficulty

Table 27: A modified version of An American in Paris

3.2.27 My home

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Myhome-1.0
Name	My home
Short Description	Show the direction
Analytical Description	A map of an apartment divided by rooms (e.g. bedroom, bathroom, kitchen, dining room...) is shown and the user is asked to identify and show the correct direction to go from a room to another
Target Groups	Group A, Group B and Group C
Number of Participants	1-4
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Orientation (spatial orientation)
Game Origin	Idea from traditional cognitive training activities
Metrics/Performance of the game	<ul style="list-style-type: none"> • Number of mistakes • Time to complete the task
Difficulty levels and their description	The complexity of the plan can be used to define difficulty levels
Localization Needs	Localization is required
Mixed Reality Possibilities	No obvious possibility for mixed reality functionalities exists

Table 28: My home

Figure 6 illustrates an example of this game (traditional version).

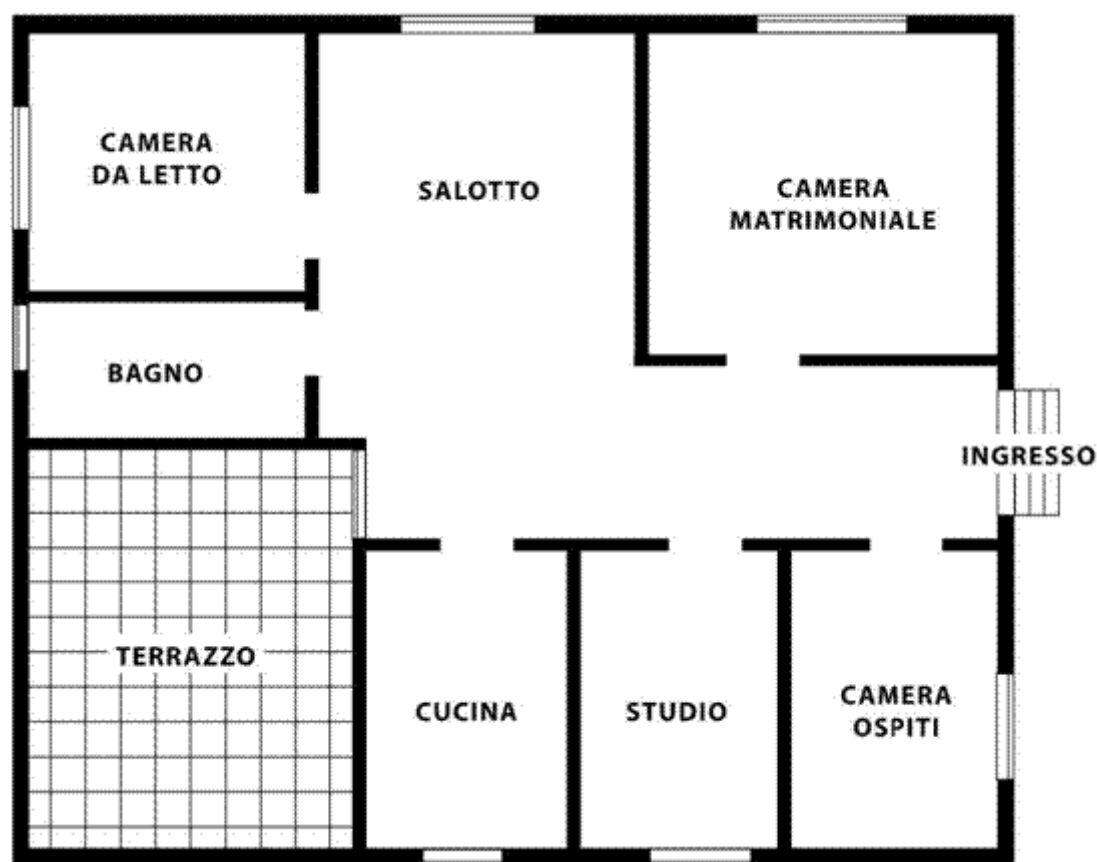


Figure 6: example of image to be used in the “My home” Game

3.3 SOCIABLE Activation Services

The SOCIABLE approach for social activation of the elderly will be based on a set of services that will be part of the Sociable Social Activation System (SSAS).

The SSAS will offer several advantages. For the caregiver and the geriatric hospital, SSAS will offer an early detection of the elderly emotional state, while also providing therapeutic tools in order to improve the mood and prevent the social isolation.

The objectives of the SSAS rest in the following assumptions:

- The general framework is a biosocial model that assumes that health is linked to biological, psychological, and social aspects.
- The process of aging is not uniform, there are individual differences. Elderly people present a heterogeneous set of problems depending on the medical, financial, work, psychological status, etc.
- The focus of the system is the normal process of aging, that is, the different life situations and psychological conditions associated to the process of getting old. Aging is related to impairment in several areas of functioning but it is assumed that psychological growing is possible in elderly people.

The focus of the SSAS is to optimize the abilities in this life stage, creating and adapting contexts that allow to improve the social status promoting quality of life and, as a consequence, mental and physical health.

SSAS provides 3 different services that can be use within a Social Activation session at the care centre or at home. The services included in the SSAS are: book of life, communication application and social matching. During a session the user or the caregiver can choose to use one of these three services or several of them.

At the care centre the social activation services will be accessed using a Microsoft surface or a Tablet PC, at home the services will be accessed using a TabletPC.

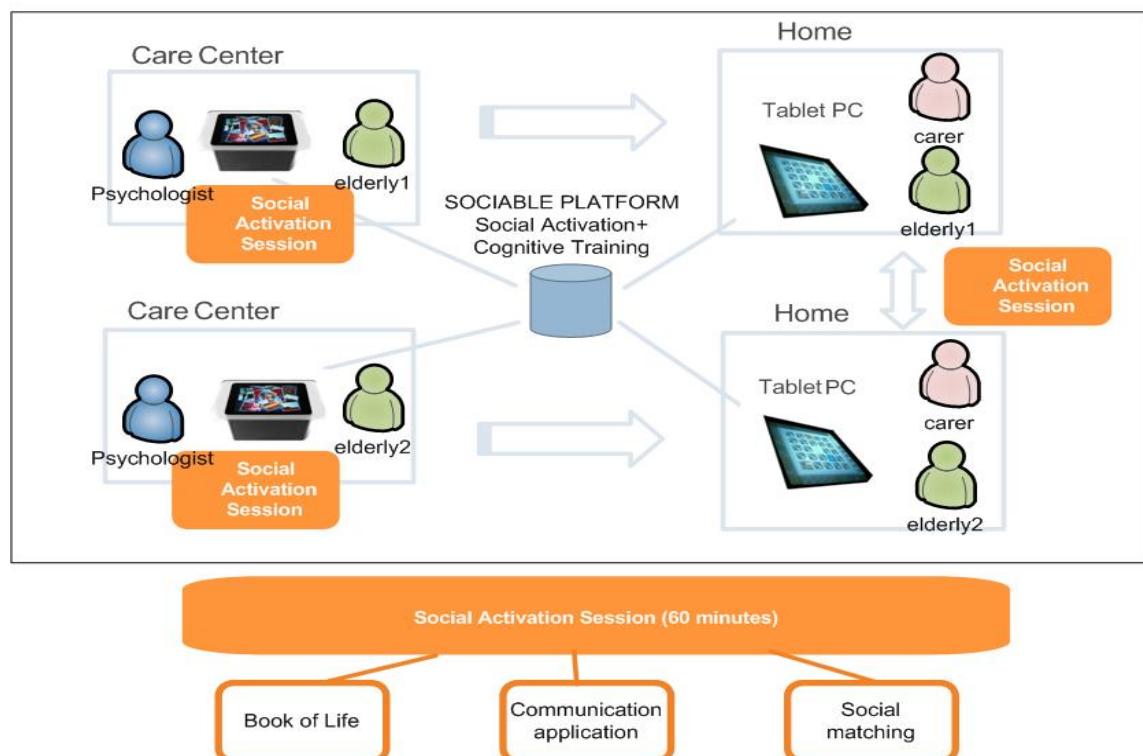


Figura 7: Social Activation Sessions in the SOCIABLE context

3.3.1 Book of Life

The Book-of-Life will be a personal diary, which will be created by the elderly user through the SOCIABLE ICT platforms. In creating his/her "Book-of-Life" the elderly will make use of his/her life experiences, emotions and thoughts.

The book will serve as both a collective memory and an individual memory, which will help the elderly to improve its communication capabilities and/or increase the number of his/her social contacts.

The aim will be to enhance self-concept and self-esteem, improve mood states, and prevent social isolation.

Through the book of life, elderly users will be able to share information about their life (e.g., photos, videos) with other users. Furthermore, the application will facilitate user in finding other users with the same kind of hobbies, interests, etc.

The application will enable customization of the content of the different chapters. Each chapter will practically correspond to different aspects or events of the user's life. Hence, each chapter will focus in promoting specific psychological strengths achievement, gratitude, giving to others, beauty and more.

Working on these strengths means taking care of the user's psychological health. Making our minds stronger makes it easier to confront and overcome daily challenges and difficulties.

While it will be possible to write in the Book of Life as in a traditional diary, elderly users will be also allowed to incorporate multimedia elements as well, including images, music, sounds, and videos.

Thus, the elderly will be able to introduce different objects: images, pictures, sounds, texts, etc in the book.

Users will be also directed to fill-in their book-of-life using questions such as:

- (a) Which is the nicest situation that you remember in your childhood?
- (b) Did you remember a fun situation experienced with your father and mother when you were a child/adolescent?
- (c) Do you remember anything that you did for somebody that made you feel deep satisfaction?
- (d) Describe something that constituted a benefit for other people and made you feel proud (What happened? What did you do? Who did you do it for? What did you feel when you did it? What did you think? What words came to your mind? What were the benefits for other people?)

The book of life is a private space where the user can record important events of his/her past and present.

It is possible to go back to the Book of Life as many times as the user wish to enjoy the information that he/she has included in it.

From a technical viewpoint the Book-of-Life will be an internet-based tool with a 3-D representation of a book divided in chapters and pages that correspond to different stages or events in the life of the elderly person.

Note that in-line with the SOCIABLE pilots concept and organization it will be possible to use the tool both in individualized mode (individual Book of life) and in a group mode (Group Book of Life), in order to support both individual and group sessions.

3.3.2 Communication Application/Service

The communication applications will enable the elderly to communicate with other SOCIABLE elderly/users (deploying the SSAS) including family, friends and caregivers. The aim of this application is to promote social activation, helping to maintain the already existing relationships, and also to start new relationships with other SSAS users (i.e. from other centers).

The tool will act as a collaborative environment using the Internet as a communication link between user-therapist and user-user, in geriatric centers and/or in the users' homes. Hence, the application will allow the communication between users located in different sites (communication between elderly people, between elderly people and their family, between elderly people and health professionals, etc.) in order to promote social activation.

The application will include several tools supporting:

1. Sending and receiving messages (e.g., e-mail).
One of the objectives of this tool is the intercommunication between the different users of the system, so one way is to use email. Each user is assigned an email account (mail1@sociable.com). This requires a mail server for the creation of accounts, message management, storage, etc.
2. Video-conferencing.
The user will be able to call other users or relatives. One of the problems found with the video conference is that we cannot know the customer infrastructure (i.e. we do not know if he is behind a firewall, router, the kind of security he has, etc). For this reason we cannot use a client-to-client connection since we had to open ports on a network not controlled by us. To avoid this problem we will use a solution based on a Flash server which will allow us to communicate two users using the server without the need of opening ports.
3. Internet Navigation.
The user will be able to open a browser and navigate through internet.

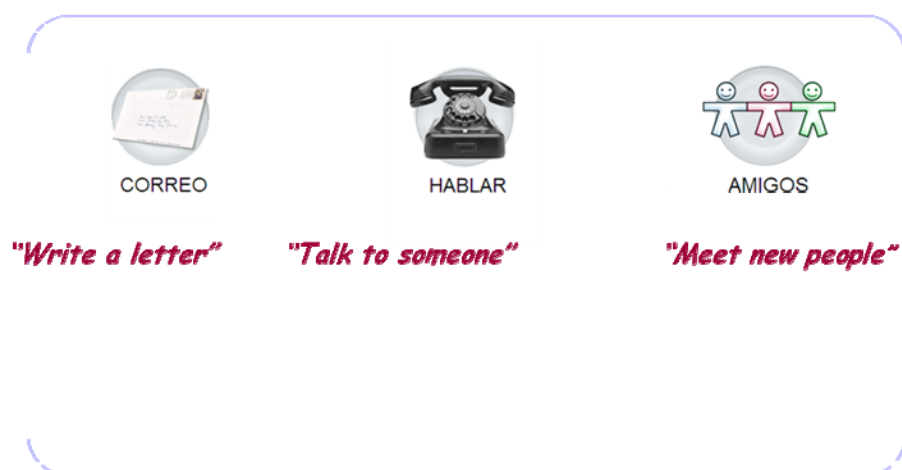


Figure 8: Communication in SSAS

3.3.3 Social Matching Service

The matching application will allow the experts and the social-health careers to understand users' preferences and to organize some activities in the centers with the aim of increase social interactions among the users.

The application will maintain a list where the user will include preferred activities and hobbies. Each use will make his/her list at the beginning of the social activation program.

This information will be stored in the system.

The experts and social workers could have access to valuable information like the most preferred activities among the users.

With this information experts and social workers will be able to program activities that will be meaningful for the users.

For example, if most users chose attending a concert as a preferred activity, the staff could program this activity in the near future.

4. SOCIABLE Services to Health Professionals

This chapter describes services/functionalities offered by SOCIABLE back-office environment, devoted to supporting the management activities of the professional (medical experts, caregivers, etc.).

The application will consist of a web application usable from any computer connected to Internet and equipped with one of the most popular browsers (Internet Explorer, Mozilla Firefox, Opera, Google Chrome).

The application will expose all the features required for the system administration of SOCIABLE including, apart from the functionalities of system administration in the strict sense of the word, the administration of personal data of users and patients, the management of the games and of the book of life of patients themselves.

The features are intended for the “actors” listed below:

- Administrator
- Medical expert/caregiver

The administrator’s job is to manage the system in terms of:

- General Administration
- System Administration

The medical expert/caregiver will have the tools for the management of the patients and the monitoring of the evolution of the patient's mental state during the training sessions; therefore the functionalities released will be:

- Patients administration
- Games administration
- Book of life administration

Of course when we speak of “actors” we refer to the role that a particular user plays in the use of the application; there are no problems to users who play multiple roles simultaneously.

This subdivision is indicative and may still be changed at the time of the system installation or later, assigning the appropriate permissions to the various features of the system by the functions made available by the system itself.

In the next paragraphs the different subareas will be illustrated in detail.

4.1 *General administration*

The general administration implies the management of all personal information somehow related to the patients and depends on a user who has assumed the role of system administrator.

The functionalities provided by the system will allow the administrator to:

- create and edit the folders of the personnel involved;
- create and edit the different professions (medical expert, caregiver, etc.);
- create and edit care centers;
- create and edit the registry of towns, regions and countries.

4.2 System administration

The system administration allows to manage all the supporting information for the use of the system; in particular it allows to manage all information relating to the users of the system, to assigned roles and permissions of different functionalities enabled by the role.

The system administrator will avail of functionalities for:

- create and edit a user of back-office functionalities;
- create and edit a role;
- assign a role to a user;
- associate permissions to a role for a particular feature of the system (associated with a menu item);
- install a game on the system; installing a game is an activity strictly connected with the skill of a system engineer and is then separated from the games administration, that is more strictly tied to the medical domain and will be described in a following section.

4.3 Patients administration

The patients administration manages all aspects connected with personal data handling, creation of the training sessions, monitoring of progress achieved as a result of the use of games proposed in the training sessions. The patient administration depends on medical experts.

The main specific functionalities provided by the system will be:

- creation and modification of the personal data folder of a patient;
- creation and modification of medical case history of a patient;
- creation and modification of a training program, in turn consisting of training sessions;
- creation and modification of a training session; the training sessions will consist of a series of specific activities that patients will have to play, after which the results will be automatically recorded by the system and will later be accessible.
- consultation of the results of games staging; according to these results, the sessions that compose a training program could be recalibrated.

4.4 Games administration

The capabilities of games administration consist of all the activities that allow a medical expert/caregiver to prepare games and activities that will belong to the training program for the different patients.

In particular, the specialist will be tasked to identify each game's characteristics that distinguish it in terms of cognitive skills and difficulty level required for the execution of the game himself.

The different cognitive abilities required for the various games will be decided in advance and incorporated into the system.

This important assessment of the characteristics of each game should be done carefully since it affects the subsequent creation of all training programs for the patients.

The other macro activity planned in the games administration is the creation and edit of tests; the tests consist of a series of questions that the specialist must enter the system. The tests will become part of the training program of the patient.

During the test the system stores the answers and allows the medical expert/caregiver to review the results at any time thereafter.

The functionalities of this part of the system will allow the medical expert/caregiver to:

- create and edit an activity;
- create and edit a cognitive skill;
- associate a cognitive skill to a game;
- create and edit the game theme;
- create and edit a test and the related questions;
- create and edit the test results.

4.5 Book of life administration

For the administration of the "book of life" the back-office provides the medical expert/caregiver some basic features aimed mainly at consulting and research of patient interests and characteristics.

The main activities of creation and editing of the book of life will be carried out by the appropriate application, that is not part of the back office, but directly available to patients and specialists.

The functionalities of this part of the system will allow the medical expert/caregiver to:

- retrieve patients by hobbies, town of residence, birth town, etc.
- define hobbies and friends of a patient.

4.6 Reports

Assessment reports and information processing (ranging from simple queries to data mining) will be produced and made available to the experts.

This information will be valuable towards assessing the platform, as well as to evolve, customize and personalize training and care activities during the course of the pilot operations in the various sites.

Specific reports and information tools will be prepared on the advice of the medical experts in conjunction with the activities of work package 7 (Progress Evaluation and Assessment), where evaluation methodologies, benchmarks and metrics will be defined.

The system will make available a function to export all the reports in csv/xls/txt files.

5. Conclusions

This deliverable has defined in detail the services that will be offered by the SOCIABLE platform during the pilot operations of the project. Furthermore, it has put these ICT services in the overall context of the SOCIABLE service provisioning model. These services comprise cognitive games, the book-of-life service/application, computer-based elderly communication services, as well as a range of services for the health professionals. These services will be extensively used by all users/stakeholders in the scope of the project's pilot operations.

In addition to the definition of the SOCIABLE services the deliverable has described the project's methodology for cognitive training games selection and methodology. The purpose of this methodology is to allow the SOCIABLE platform to be continuously enhanced with new added-value games, which could enrich the gaming options of the SOCIABLE sessions and ultimately improve the effectiveness of the SOCIABLE approach. It is envisaged that the application of this methodology could lead to medically effective games, which can fully leverage the capabilities of the SOCIABLE platform. Furthermore, it is noteworthy that the methodology involves several stakeholders engaged in the SOCIABLE business model and value chain, which is perfectly in-line with the business and exploitation planning of the project.

Note that the SOCIABLE services are already under technical specification and integration in the SOCIABLE platform. Specifically, WP3 of the project has already specified the technical integration of those services in the SOCIABLE platform. The relevant specifications will be reported in Deliverable D3.1 titled "Services Specifications". Some hints associated with the technical specification of the services are also given in the present deliverable (especially in terms of the book-of-life and communication applications). Likewise, WP4 deals with coding and integration of these services in the SOCIABLE surface platform. As a result, the present deliverable serves as valuable input for the technical team of the project, which is driving the services definition into implementation detail.

Having the services definition at hand, the project will also investigate the issue of bundling and offering the SOCIABLE services in a way that boost the marketing and exploitation plans of the project. Service bundling will be address in the subsequent deliverable of WP2 (namely D2.3), which will explore meaningful and effective combinations of the defined services into service buckets that will be integrated and offered in specialized marketable editions of the SOCIABLE platform.

6. References

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ANNEX 1: Comprehensive description of Cognitive Training Games and Services (per Cognitive Skill)

Below the description of training games suggested by the medical expert that were not selected, at least at this stage, to be part of the set to be included in the SOCIABLE platform.

7.1 Games Targeting Attention

7.1.1 Guess what? (HYGEIA)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Guesswhat-1.0
Name	Guess what?
Short Description	Identify the correct object among various others
Analytical Description	Each player starts the game with a board that includes images of various objects. The PC gives clues (one by one) to eliminate candidates, starting with clues on obvious characteristics of the object selected (e.g. colour, category etc) and continuing with questions based on other attributes of the object (age of people using it, price etc). The user identifies (touching with his finger) images one by one to eliminate candidates.
Target Groups	Groups A, B and C
Number of Participants	1)
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Attention
Game Origin	A differentiated version of the children's guessing game "Guess who?"

7.1.2 Choose the right words (proposed by HYGEIA)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Choosetherightwords-1.0
Name	Choose the right words
Short Description	The user has to choose the right words from a list based on predefined criteria.
Analytical Description	The user is presented with a list of words and has to choose the correct ones based on predefined criteria: e.g. words starting with A / five-letter words / nouns ending with -S / seven-letter words with A as a second letter / words starting with -P and ending in -R etc.
Target Groups	Groups A, B and C
Number of Participants	1
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Attention
Game Origin	Manual CT activity

7.1.3 Switching (proposed by HYGEIA)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME- Switching-1.0
Name	Switching
Short Description	The user has to choose images while alternating/switching between two predefined categories.
Analytical Description	The user is presented with images of various objects and is asked to indicate (touching with his finger) objects while alternating/switching between two different categories, e.g. switch between animals and furniture or switch between objects starting with a vowel and a consonant or switch between images from places in Greece and images from places in other countries of the world etc. The exercise may or may not be timed.
Target Groups	Groups A, B and C
Number of Participants	1
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Attention
Game Origin	Manual CT activity

7.1.4 Secret Drawers (proposed by SILO)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Secretdrawers-1.0
Name	Secret Drawers
Short Description	Categorize items in categories
Analytical Description	The user has to categorize items in their relevant folders/categories. This game requires you to catch words before they fall to the ground and file them in the correct secret drawer. Each drawer is devoted to a category. You can choose to see each drawer's category in advance or to discover it yourself as you begin filing the words. If you catch a word and place it in the wrong drawer, it will simply disappear (much like misplaced files in real life). This means that if you choose not to know the drawers' categories, you must discover them by trial and error.
Target Groups	Group A, Group B and Group C
Number of Participants	1-4
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Attention and executive functioning
Game Origin	

7.1.5 Color Match (proposed by AUSL)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Colormatch-1.0
Name	Color match
Short Description	Identify the color
Analytical Description	The user identifies the correct color even when the brain wants to choose the wrong one
Target Groups	Group A, Group B, Group C
Number of Participants	1-4
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Attention (divided attention- shifting)
Game Origin	Existing PC game (from www.lumosity.com)

7.1.6 Common Particulars (proposed by AUSL)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Common particulars-1.0
Name	Common particulars
Short Description	Identify the common particulars
Analytical Description	The user must identify a specific number of common particulars in two different illustrations.
Target Groups	Group A, Group B and Group C
Number of Participants	1-4
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Attention
Game Origin	Idea from traditional cognitive Training Activities
Notes	Is possible the version "Differences"(two illustrations identical except for a defined number of particulars, to be identified)

Figure 9 illustrates an example of this game (traditional version).

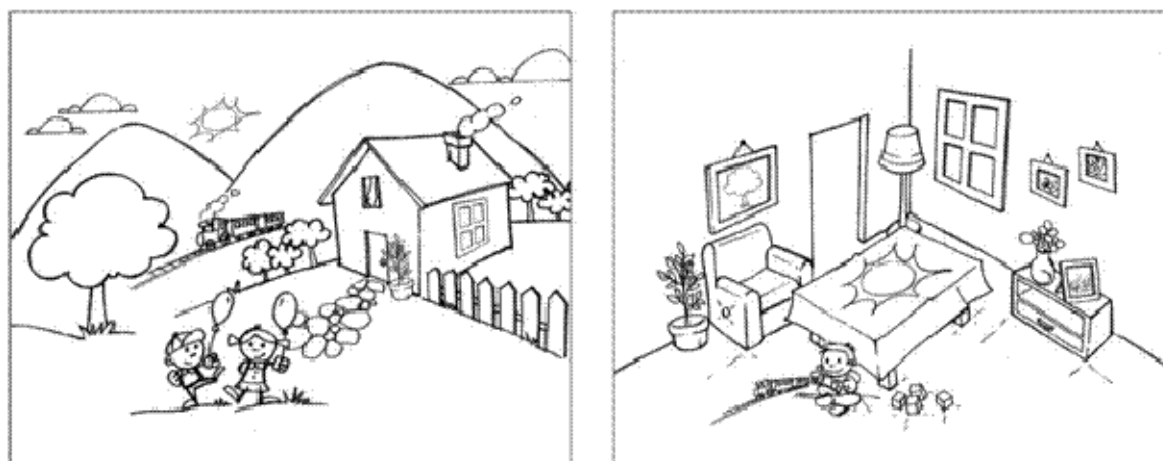


Figure 9: example of images to be used in the "Common particulars" Game

7.1.7 Cazabolos (proposed by AIJU)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Cazabolos -1.0 (Original Version)
Name	CAZABOLAS
Short Description	The players have to catch the maximum number of balls in the basket, or balls of their own colour.
Analytical Description	All the coloured balls are placed at the bottom and on activating the ball shooter, the balls are shot upwards. The players have to catch the maximum number of balls in the basket, or balls of their own colour.
Target Groups	Group A and B
Number of Participants	4 players
Target Platform	Microsoft Surface and Tablet PC, both
(Cognitive) Skills Addressed	Selective Attention
Game Origin	The game is an existing activity

7.1.8 Kaleidos (proposed by AIJU)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Kaleidos-1.0 (Original Version)
Name	KALEIDOS
Short Description	Each player has to find all the objects in the illustration.
Analytical Description	Consists of choosing one of the illustrations and spinning the roulette wheel to display a letter of the alphabet. Each player has to find all the objects in the illustration whose name begins with the letter shown on the wheel before the time shown on the hourglass runs out. It includes 24 cards with 12 high quality illustrations. It can be played individually or with more people. It is suitable as a family game.
Target Groups	Group A and B
Number of Participants	4 players
Target Platform	Microsoft Surface and Tablet PC, both
(Cognitive) Skills Addressed	Selective Attention
Game Origin	The game is an existing activity

7.1.9 Guacamole (proposed by AIJU)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Guacamole-1.0 (Original Version)
Name	GUACAMOLE
Short Description	The targets situated on heads of the moles light up and you have to keep hitting them while they are lit up by striking them with a mallet.
Analytical Description	The number of players and speed are programmed. The targets situated on heads of the moles light up and you have to keep hitting them while they are lit up by striking them with a mallet.
Target Groups	Group A and B
Number of Participants	4 players
Target Platform	Microsoft Surface and Tablet PC, both
(Cognitive) Skills Addressed	Selective Attention
Game Origin	The game is an existing activity

7.1.10 Interactive Word Search (proposed by AIJU)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Interactive Word Search-1.0
Name	INTERACTIVE WORD SEARCH
Short Description	This is the typical word search, where you have letters placed randomly in a box and the aim is to find certain words that are hidden among the rest.
Analytical Description	This is the typical word search, where you have letters placed randomly in a box and the aim is to find certain words that are hidden among the rest. The words can be hidden horizontally, vertically or diagonally, as well as being back to front.
Target Groups	Group A and B
Number of Participants	1 players
Target Platform	Microsoft Surface and Tablet PC, both
(Cognitive) Skills Addressed	Selective Attention
Game Origin	The game is an existing activity

7.1.11 Gran Lince (proposed by AIJU)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Gran Lince-1.0 (Original Version)
Name	EL GRAN LINCE
Short Description	The players have to find the objects displayed on the chips on the board as fast as possible.
Analytical Description	Game made up of 368 images and 368 chips. The players have to find the objects displayed on the chips on the board as fast as possible. It comprises a board having 9 detachable pieces that can fit together in different ways so that the location of the objects cannot be learnt.
Target Groups	Group A and B
Number of Participants	4 players
Target Platform	Microsoft Surface and Tablet PC, both
(Cognitive) Skills Addressed	Selective Attention
Game Origin	The game is an existing activity

7.2 Games Targeting Executive Functions

7.2.1 Similarities/Differences (proposed by HYGEIA)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Similarities/Differences-1.0
Name	Similarities / Differences
Short Description	
Analytical Description	The patient is shown words/pictures and has to explain in what way the items presented are alike / different.
Target Groups	Groups A, B and C
Number of Participants	1 or more
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Executive Functions
Game Origin	Manual CT activity

7.2.2 Which belongs where? (proposed by HYGEIA)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Whichbelongswhere-1.0
Name	Which belongs where?
Short Description	Categorizing game.
Analytical Description	The user is presented with images of various objects and has to break them down into chunks or different categories. The user is told beforehand how many different categories exist. After finishing this task, the user is asked to create a meaningful story by linking together all the items in a single story.
Target Groups	Groups A, B and C
Number of Participants	1 or more
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Executive Functions
Game Origin	Manual CT activity

7.2.3 Interpret the proverb proposed by (HYGEIA)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Interpretthe proverb-1.0
Name	Interpret the proverb
Short Description	The user has to choose the correct interpretation of each proverb presented.
Analytical Description	The user is presented with two lists, the first comprised of proverbs and the second of sentences. He is asked to connect with a line ("drawn" with his finger) each proverb with the sentence representing the correct interpretation.
Target Groups	Groups A, B and C
Number of Participants	1 or more
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Executive Functions
Game Origin	Manual CT activity

7.2.4 From the less complete to the more complete (proposed by AUSL)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Fromthelesscompletetothemore complete-1.0
Name	From the less complete to the more complete
Short Description	Fragmented images to put in order
Analytical Description	The elderly has to put in order images with different degrees of fragmentation from the less complete to the most one.
Target Groups	Group A, Group B and Group C
Number of Participants	1-4
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Executive Functions- Attention- Memory
Game Origin	Idea from traditional cognitive Training Activities

Figure 10 illustrates an example of this game (traditional version).

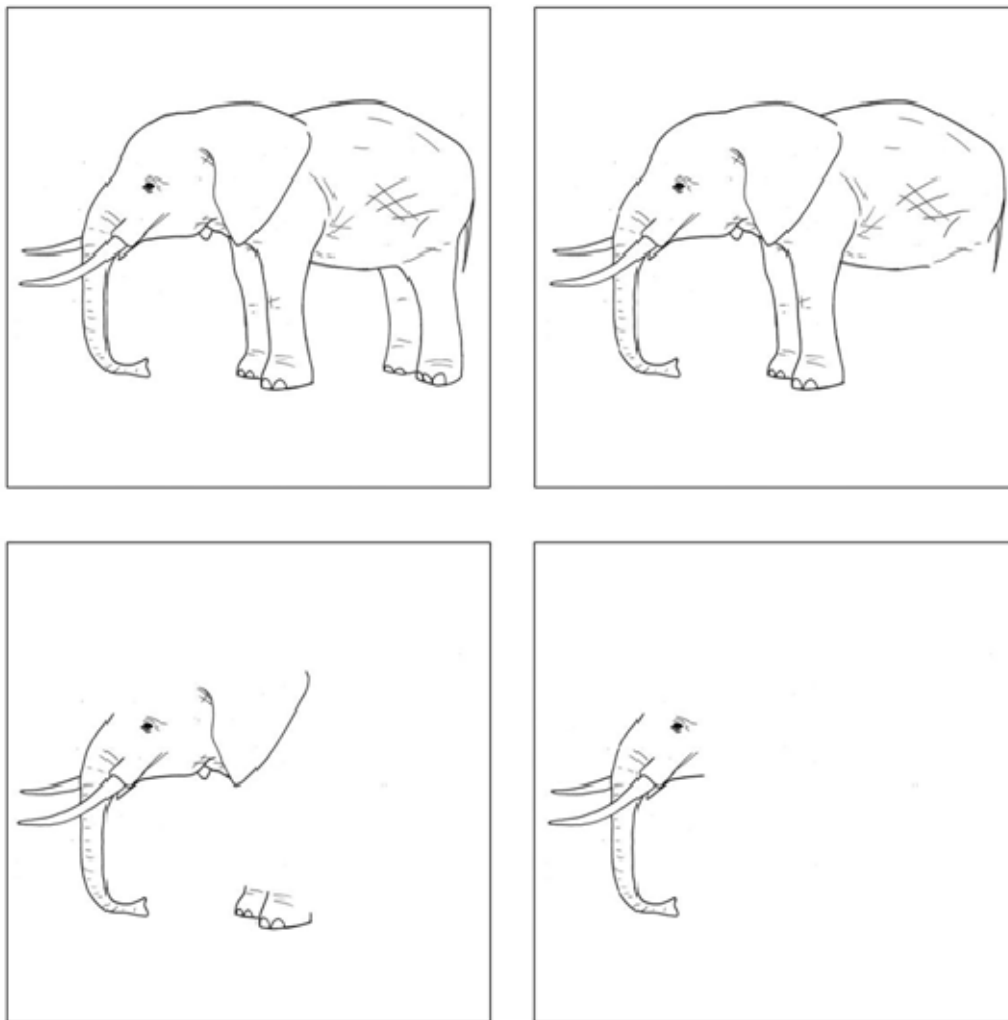


Figure 10: example of images to be used in the “From the less complete to the more complete” Game

7.2.5 Master Mind (proposed by AIJU)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-MasterMind-1.0 (Original Version)
Name	MASTER MIND
Short Description	One of the players has to work out a code of 5 colours, for which the encoding player has previously created a reserved zone.
Analytical Description	<p>The game has a board that is divided into two parts. Each part is used for the task that each player has to carry out in the game. One of the players has to work out a code of 5 colours, for which the encoding player has previously created a reserved zone. The decoding player will build up combinations of colours in each of the rows of holes situated on the left.</p> <p>On the right, the encoder will place a white peg when a right choice of colour in a combination is made, and a black peg if both the choices made are right for the colour and the order in which the colours go.</p>
Target Groups	Group A
Number of Participants	2 players
Target Platform	Microsoft Surface and Tablet PC, both
(Cognitive) Skills Addressed	Executive Functions
Game Origin	The game is an existing activity

7.2.6 Associations (proposed by AIJU)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Association-1.0 (Original Version)
Name	ASSOCIATIONS
Short Description	The aim is to make 34 pairs of photographs which match each other.
Analytical Description	Game comprising 68 photographic images which must be matched depending on the relation there is between them.
Target Groups	Group A and B
Number of Participants	4 players
Target Platform	Microsoft Surface and Tablet PC, both
(Cognitive) Skills Addressed	Executive Functions
Game Origin	The game is an existing activity

7.2.7 Scrable (proposed by AIJU)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Scrabble-1.0 (Original Version)
Name	SCRABBLE
Short Description	The game consists of laying the letters down on the board to make words crossing each other.
Analytical Description	The winner is the player who manages to build the longest and highest scoring letters in the highest scoring squares.
Target Groups	Group A and B
Number of Participants	2-4 players
Target Platform	Microsoft Surface and Tablet PC, both
(Cognitive) Skills Addressed	Language
Game Origin	The game is an existing activity

7.2.8 Six Up (proposed by AIJU)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Sixup -1.0 (Original Version)
Name	SIX UP MAXIS
Short Description	By throwing the dice the players have to reach the top of the board.
Analytical Description	The game comprises a vertical board. Each player has 6 counters. By throwing the dice the players have to reach the top of the board. The holes where the counters fit are the same ones for each player. This means you have to try to slot the counter into the same hole as your opponent to make it drop. Be careful though, your opponent is trying to do the same.
Target Groups	Group A
Number of Participants	4
Target Platform	Microsoft Surface and Tablet PC, both
(Cognitive) Skills Addressed	Executive Functions
Game Origin	The game is an existing activity

7.2.9 Quadrix (proposed by AIJU)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Quadrix-1.0 (Original Version)
Name	QUADRIX
Short Description	The aim of the game is make squares with the triangles that each of the tiles contains.
Analytical Description	Each square is made up of two triangles of the same colour or by using some of the triangles printed on the board. Every player must place a tile when it is their turn, but to place the tile on the board it is necessary to make Quadrix (a square). The squares marked with colours on the board are coloured areas where only tiles of the same colour can be placed.
Target Groups	Group A
Number of Participants	5
Target Platform	Microsoft Surface and Tablet PC, both
(Cognitive) Skills Addressed	Executive Functions
Game Origin	The game is an existing activity

7.2.10 Get 4 Right (proposed by AIJU)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Get4right-1.0 (Original Version)
Name	GET 4 RIGHT MAXIS
Short Description	The players have to place four counters of the same colour in a row, either horizontally, vertically or diagonally.
Analytical Description	Game designed for two players. The players have to place four counters of the same colour in a row, either horizontally, vertically or diagonally. It comprises a board and differently coloured counters
Target Groups	Group A
Number of Participants	5
Target Platform	Microsoft Surface and Tablet PC, both
(Cognitive) Skills Addressed	Executive Functions
Game Origin	The game is an existing activity

7.2.11 Sinking The Fleet (proposed by AIJU)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Sinkingthefleet-1.0 (Original Version)
Name	SINKING THE FLEET
Short Description	To find the ships you have to try out different coordinates until your adversary's ship is found and sunk.
Analytical Description	Game comprising two boards, one for each player. At the start of the game each player must position all the items of their fleet on the board. The board has a series of coordinates (letters and numbers). When both players have put their ships in position, the game begins. The goal is to locate position of your adversary's ships and sink them
Target Groups	Group A
Number of Participants	2 players
Target Platform	Microsoft Surface and Tablet PC, both
(Cognitive) Skills Addressed	Executive Functions
Game Origin	The game is an existing activity

7.2.12 Ziggurat (proposed by AIJU)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Ziggurat-1.0 (Original Version)
Name	ZIGGURAT
Short Description	The aim is answers to the questions will be provided by the team of judges.
Analytical Description	Game in which the board is pyramid shaped. Each team has to reach the top of seven steps while uncovering the enigmas that are on the cards, before the time indicated on the hourglass (1 minute) runs out, by answering simple questions that can only be answered as "Yes" "No" or "Don't know". The answers to the questions will be provided by the team of judges. The team of judges is the team that is situated to the right of the team that is playing at that moment. Each step is a different level of difficulty. The team that manages to overcome the seven levels and reach the top of the pyramid is the winner. Themes: Gastronomy, geography, sports, art and literature, brands, nature and personalities and historical facts.
Target Groups	Group A and B
Number of Participants	2-4 players
Target Platform	Microsoft Surface and Tablet PC, both
(Cognitive) Skills Addressed	Executive Functions
Game Origin	The game is an existing activity

7.2.13 Ask for objects used daily activities (proposed by FSL)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME- Ask for objects used daily activities Identification-V1.0
Name	Ask for objects used daily activities
Short Description	Ask for object used in some daily actions (washing dishes, shaving, preparing the table)
Analytical Description	The users have to find the pairs that match the images. The game is made up of 38 pieces having different images. At the start of the game all the pieces are face down. The players have to find the pair to match the words, faces or faces and names.
Target Groups	Groups A, B and C
Number of Participants	1 or more
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Executive Function,Memory
Game Origin	Manual CT activity

7.3 Games Targeting Language

7.3.1 Name the object (proposed by HYGIEIA)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Nametheobject-V1.0
Name	Name the object
Short Description	The patient has to name the object in the picture and describe its use.
Analytical Description	1. Various pictures are presented in the table in random order 2. The ME (or the system) ask the patient to identify an object in the pictures and to describe its use 3. The patient identifies (touching with his finger) the object in the photo and describe its use.
Target Groups	Group C
Number of Participants	1 or more
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Language
Game Origin	Manual CT activity

7.3.2 Categorizing (proposed by HYGEIA)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Categorizing-V1.0
Name	Categorizing
Short Description	
Analytical Description	The patient has to generate words belonging to a specific category (e.g. fruits, politicians, objects made of paper, non-drinkable liquids..
Target Groups	Groups A, B and C
Number of Participants	1 or more
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Language
Game Origin	Manual CT activity

7.3.3 Crossword (proposed by HYGEIA)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Crossword-V1.0
Name	Crossword
Short Description	The user has to solve a simple crossword puzzles with text or images as hints.
Analytical Description	The user has to solve a simple crossword puzzles with text or images as hints. He may indicate the letters one-by-one touching with his finger a e-keyboard presenting the letters in alphabetical order.
Target Groups	Groups A, B and C
Number of Participants	1 or more
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Language
Game Origin	Manual CT activity

7.3.4 Tic Tac Boom (proposed by AIJU)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Tictacboom-1.0 (Original Version)
Name	TIC TAC BOOM
Short Description	The aim is to find and say words that have the syllables seen before, in the allotted time.
Analytical Description	The game consists of series of cards with syllables on them and a timer that is bomb shaped.
Target Groups	Group A and B
Number of Participants	4 players
Target Platform	Microsoft Surface and Tablet PC, both
(Cognitive) Skills Addressed	Language
Game Origin	The game is an existing activity

7.3.5 Scattergories (proposed by AIJU)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Scattergories-1.0 (Original Version)
Name	SCATTERGORIES
Short Description	Consists of a game where a dice must be thrown to choose a letter
Analytical Description	Consists of a game where a dice must be thrown to choose a letter. One of the players chooses a category and then has to write words that start with the letter that was selected and which belong to the category chosen. The aim is to write as many words as possible in the time allowed.
Target Groups	Group A and B
Number of Participants	2-6 players
Target Platform	Microsoft Surface and Tablet PC, both
(Cognitive) Skills Addressed	Language
Game Origin	The game is an existing activity

7.3.6 Paspalabra (proposed by AIJU)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Paspalabra-1.0 (Original Version)
Name	PASPALABRA
Short Description	Word chains, word sequences, definition thread of words using the full alphabet.
Analytical Description	Word chains, word sequences, definition thread of words using the full alphabet.
Target Groups	Group A and B
Number of Participants	4 players
Target Platform	Microsoft Surface and Tablet PC, both
(Cognitive) Skills Addressed	Language
Game Origin	The game is an existing activity

7.3.7 Rummikub Words (proposed by AIJU)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Rummikubwords-1.0 (Original Version)
Name	RUMMIKUB WORDS
Short Description	The aim is to build the longest words possible using letters of the same colour.
Analytical Description	At the start of the game the counters are placed face down and each player chooses 14, which they hide from the other players. The aim is to build the longest words possible using letters of the same colour. The player can get rid of counters when it is their turn by making words. If the player cannot make a word on their turn, they have to pick up a counter. The winner is the player who gets rid of all their chips.
Target Groups	Group A and B
Number of Participants	2-4 players
Target Platform	Microsoft Surface and Tablet PC, both
(Cognitive) Skills Addressed	Language
Game Origin	The game is an existing activity

7.3.8 Tabu (proposed by AIJU)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Tabu-1.0 (Original Version)
Name	TABU
Short Description	The team that reaches the last square on the board is the winner.
Analytical Description	Game consisting of quickly guessing (before the hourglass runs out) a word that another team member is explaining without using certain words considered as prohibited (words of same root, same ending, diminutives of the word...). The team that reaches the last square on the board is the winner.
Target Groups	Group A and B
Number of Participants	2-+ players
Target Platform	Microsoft Surface and Tablet PC, both
(Cognitive) Skills Addressed	Language
Game Origin	The game is an existing activity

7.3.9 Search Puzzle (proposed by AIJU)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Searchpuzzle-1.0 (Original Version)
Name	INTERACTIVE WORD SEARCH PUZZLE
Short Description	The words can be hidden horizontally, vertically or diagonally, as well as being back to front.
Analytical Description	This is the typical word search, where you have letters placed randomly in a box and the aim is to find certain words that are hidden among the rest. The words can be hidden horizontally, vertically or diagonally, as well as being back to front.
Target Groups	Group A and B
Number of Participants	1 player
Target Platform	Microsoft Surface and Tablet PC, both
(Cognitive) Skills Addressed	Language
Game Origin	The game is an existing activity

7.3.10 Bookworm (proposed by AIJU)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Boohworm-1.0 (Original Version)
Name	Bookworm
Short Description	You build up points by finding words; the longer the word the more points you get.
Analytical Description	Find words made up of letters that are shown at the start. You build up points by finding words; the longer the word the more points you get.
Target Groups	Group A and B
Number of Participants	1 player
Target Platform	Microsoft Surface and Tablet PC, both
(Cognitive) Skills Addressed	Language
Game Origin	The game is an existing activity

7.3.11 Test Express (proposed by AIJU)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Boohworm-1.0 (Original Version)
Name	TEST EXPRESS
Short Description	The goal is to get your train to the finish line as quickly as possible.
Analytical Description	The goal is to get your train to the finish line as quickly as possible. To make the train move you have to build all the words you can by using the letters you see at the bottom of the screen.
Target Groups	Group A and B
Number of Participants	1 player
Target Platform	Microsoft Surface and Tablet PC, both
(Cognitive) Skills Addressed	Language
Game Origin	The game is an existing activity

7.3.12 Fist To The Buzzer (proposed by AIJU)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Fisttothebuzzer-1.0 (Original Version)
Name	FIST TO THE BUZZER
Short Description	A letter will be selected that is the letter with which the correct letter starts
Analytical Description	The game consists of cards and buzzers. You have to choose a topic and a buzzer, based on sounds. A letter will be selected that is the letter with which the correct letter starts. The aim is be the fastest player to find the right letter and hit the buzzer before your partner.
Target Groups	Group A and B
Number of Participants	1-6 players
Target Platform	Microsoft Surface and Tablet PC, both
(Cognitive) Skills Addressed	Language
Game Origin	The game is an existing activity

7.4 Games Targeting Reasoning

7.4.1 Scrambled story (HYGEIA)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-ScrambledStory-V1.0
Name	Scrambled story
Short Description	The user is asked to create a short story.
Analytical Description	1. Various sentences or pictures are presented in the table in a random order 2. The patient has to put in order either sentences or pictures in order to create a meaningful story.
Target Groups	Groups A, B and C
Number of Participants	1
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Logical reasoning, executive functions
Game Origin	Manual CT activity

7.6 Games Targeting Memory

7.6.1 Reading comprehension (proposed by HYGEIA)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Readingcomprehension-1.0
Name	Reading comprehension
Short Description	The user reads a text and then is asked to answer related questions.
Analytical Description	The user is presented with a short newspaper article (top news or funny/strange stories). He is asked to read it carefully and then answer multiple choice questions on what he read before.
Target Groups	Groups A, B and C
Number of Participants	1 or more
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Memory
Game Origin	Manual CT activity

7.6.2 Match the voice (proposed by HYGEIA)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Matchthevoice-1.0
Name	Match the voice
Short Description	The user is asked to match an audio file heard (e.g. recorded phrases, songs etc) to the image of the correct famous person.
Analytical Description	The user is presented with images of famous people (country-specific). He is asked to listen carefully to an audio-file, recognize the voice of the person speaking (or singing) and indicate who he is by touching with his finger the correct picture. Then, he is asked to generate his name.
Target Groups	Groups A, B and C
Number of Participants	1 or more
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Memory
Game Origin	CT activity

7.6.3 Memory matrix (proposed by AUSL)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Memory matrix-1.0
Name	Memory matrix
Short Description	Remember the patterns
Analytical Description	The user has to remember the patterns that grow bigger and more complex
Target Groups	Group A, Group B and Group C
Number of Participants	1-4
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Memory (visual memory)
Game Origin	Existing PC game from www.lumosity .com

7.6.4 Simon (proposed by AIJU)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Memory matrix-1.0(Original Version)
Name	Simon
Short Description	Players need to remind and repeat different light and sound sequences by pressing on the correct order the lighting keys in the hexagonal structure.
Analytical Description	There are 5 playing modalities and each with different difficulty levels: <ol style="list-style-type: none"> 1. Repeat sequences programmed by the computer 2. The placer created the sequence 3. More than one player: one objective is share by players as a team 4. Repeat sequence of keys that remain without light 5. Guess a secret sequence established by the computer
Target Groups	Group A and B
Number of Participants	1 player
Target Platform	Microsoft Surface and Tablet PC, both
(Cognitive) Skills Addressed	Memory
Game Origin	The game is an existing activity

7.6.5 Tactil Memory Game (proposed by AIJU)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Tactilmemorygame-1.0(Original Version)
Name	TACTIL MEMORY GAME
Short Description	The player/players have to be able to recognise each of the cylinders, which are placed in the sack, by feeling their texture and then find their matching pair.
Analytical Description	First, they have to observe and memorise the chips (touching and observing them) so that afterwards they can remember them, once they are inside the sack.
Target Groups	Group A and B
Number of Participants	1-4 players
Target Platform	Microsoft Surface and Tablet PC, both
(Cognitive) Skills Addressed	Memory
Game Origin	The game is an existing activity

7.6.6 Colour Sequences (proposed by AIJU)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Coloursequences-1.0 (Original version)
Name	COLOUR SEQUENCES
Short Description	The players have to be capable of memorising and repeating the sequence of colours and their order on each tile. To play, you have to select the position of the tile and choose the colour by selecting the bottle that has the right colour.
Analytical Description	To play, you have to select the position of the tile and choose the colour by selecting the bottle that has the right colour
Target Groups	Group A and B
Number of Participants	1 players
Target Platform	Microsoft Surface and Tablet PC, both
(Cognitive) Skills Addressed	Memory
Game Origin	The game is an existing activity

7.6.7 Superbrain (proposed by AIJU)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Superbrain-1.0 (Original version)
Name	SUPERBRAIN
Short Description	The player have to memorise and repeat the numeric sequence. The game gets more difficult as you advance.
Analytical Description	The player/players have to memorise and repeat the numeric sequence. The game gets more difficult as you advance.
Target Groups	Group A and B
Number of Participants	1 players
Target Platform	Microsoft Surface and Tablet PC, both
(Cognitive) Skills Addressed	Memory
Game Origin	The game is an existing activity

7.6.8 Learning Various issues (proposed by FSL)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME- Learning Various issues Identification-V1.0
Name	Learning Various issues
Short Description	The player/players have to memorise and individuate the word, face or name and face
Analytical Description	The users have to find the pairs that match the images. The game is made up of 38 pieces having different images. At the start of the game all the pieces are face down. The players have to find the pair to match the words, faces or faces and names.
Target Groups	Groups A, B and C
Number of Participants	1 or more
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Memory
Game Origin	Manual CT activity

7.7 Games Targeting Orientation

7.7.1 Up, down, right, left (proposed by AUSL)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Updownrightleft-1.0
Name	Up, down, right, left
Short Description	Indicate where the cat is
Analytical Description	The elderly is shown a representation of a bathroom, where are figured many cats in different positions. The patient is asked to indicate that is located in a specific position
Target Groups	Group A, Group B and Group C
Number of Participants	1-4
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Orientation (spatial orientation), Visuo-spatial abilities
Game Origin	Idea from traditional cognitive training activities

Figure 11 illustrates an example of this game (traditional version).



Figure 11: example of image to be used in the “Up, down, right, left” Game

7.8 Games Targeting Visuospatial abilities

7.8.1 Half-hidden objects (proposed by HYGEIA)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Halfhiddenobjects-1.0
Name	Half-hidden objects
Short Description	
Analytical Description	The user has to guess objects that are half hidden. Alternatively, he has to guess which is the object presented based on a close-up view of this particular object.
Target Groups	Groups A, B and C
Number of Participants	1 or more
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Visuospatial abilities, Executive functions
Game Origin	Prospective memory test

7.8.2 Entangled figures (proposed by HYGEIA)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Entangled figures-1.0
Name	Entangled figures
Short Description	The user is asked to choose the objects that are part of the entangled figure presented.
Analytical Description	The user is presented with three entangled objects (e.g. flowers, fruit, animals, geometrical figures etc) which taken together make up a complex object. These entangled objects are compared to a multiple choice of similar or different objects that are possible components of the complex entangled figure. The user must choose the ones that are part of the entangled figure.
Target Groups	Groups A, B and C
Number of Participants	1
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Visuospatial abilities
Game Origin	www.happyneuron.com

7.8.3 Whose shadow is this? (proposed by HYGEIA)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Whoseshadowisthis-1.0
Name	Whose shadow is this?
Short Description	The user is asked to match shadows to objects used to create them.
Analytical Description	The user is presented with images of shadows and objects and asked to match each shadow to the object used to create it.
Target Groups	Groups A, B and C
Number of Participants	1 or more
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Visuospatial abilities
Game Origin	New idea on PC games

7.8.4 Time Identification (proposed by FSL)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-TIME Identification-V1.0
Name	Time Identification
Short Description	Game boosting elderly orientation based
Analytical Description	1. A card depicts time written in numbers 2. Accordingly the system presents different figures representing time clocks 3. The patient must correctly choose the clock corresponding to the time written in numbers.
Target Groups	Groups A, B and C
Number of Participants	1 or more
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Visuospatial abilities
Game Origin	Manual CT activity

7.8.5 How many can you see? (proposed by AUSL)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Howmanycanyousee-1.0
Name	How many can you see?
Short Description	The elderly has to identify target stimuli
Analytical Description	We have a card with different target stimuli drawn. The elderly has to identify all the target stimuli required in a grid with different stimuli drawn in a limited time.
Target Groups	Group A, Group B and Group C
Number of Participants	1-4
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Attention - Visuospatial abilities
Game Origin	Idea from traditional Cognitive Training Activities
Notes	The same exercise can be done with numbers or other images.

Figure 12 illustrates an example of this game (traditional version).

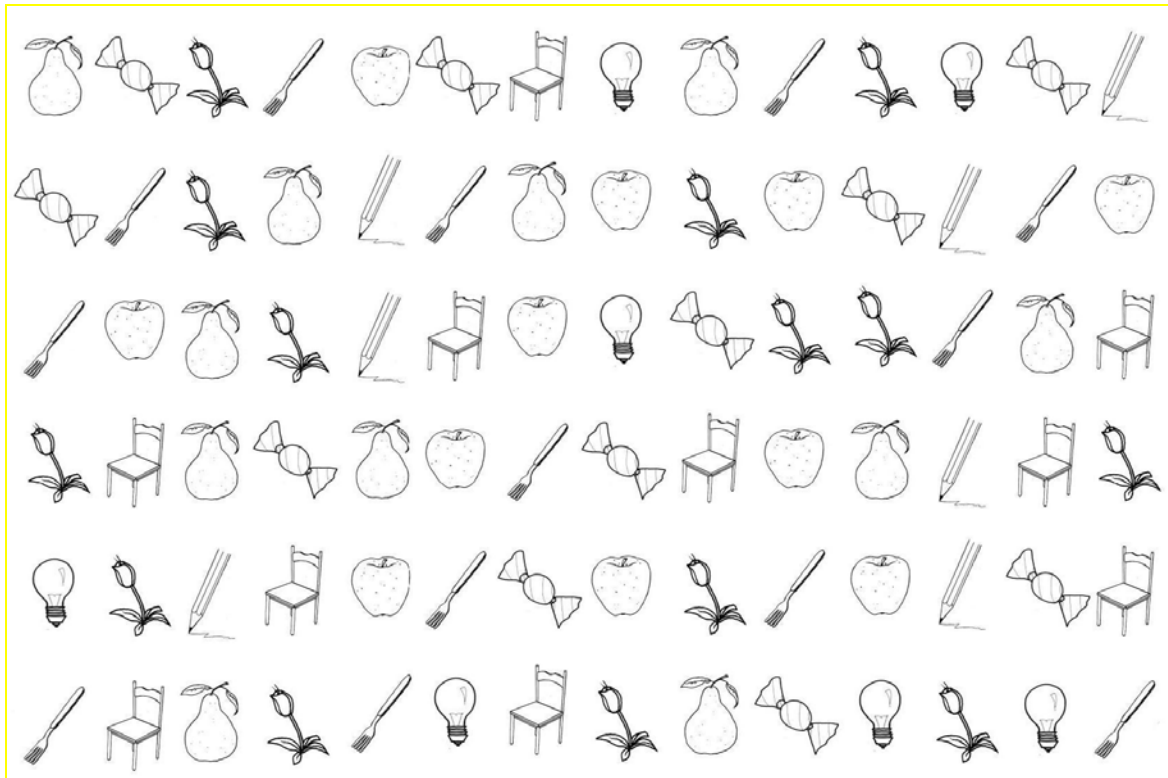


Figure 12: example of image to be used in the “How many can you see?” Game

7.8.6 Spatial speed match (proposed by AUSL)

Game Metadata	Description/Explanation
Identifier	SOCIABLE-GAME-Spatialspeedmatch-1.0
Name	Spatial speed match
Short Description	Remember the location of the blue dot
Analytical Description	The user has to remember the location of the blue dot
Target Groups	Group A, Group B and Group C
Number of Participants	1-4
Target Platform	Microsoft Surface, Tablet PC
(Cognitive) Skills Addressed	Visuospatial abilities- Memory
Game Origin	Existing PC game from www.lumosity.com