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## D2.3 USE CASE ANALYSIS

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## Table of Contents

<b>1. Introduction.....</b>	<b>8</b>
<b>2. Actors .....</b>	<b>9</b>
2.1. Elderly Non-institutionalized .....	9
2.2. Informal Caregivers .....	9
2.3. Formal Caregivers .....	10
<b>3. Use Case Creation.....</b>	<b>10</b>
<b>4. Use Cases .....</b>	<b>11</b>
4.1. Use Case 1. Health Monitoring .....	11
4.2. Use Case 2. Health Coaching .....	13
4.3. Use Case 3. MCI Detection .....	14
4.4. Use Case 4. Care Support and Information .....	16
4.5. Use Case 5. Close Caregiver .....	18
4.6. Use Case 6. Senior MCI-Diagnosed. Link with MyGuardian.....	19
<b>5. Conclusions.....</b>	<b>21</b>

## List of Figures

Figure 1 Strength of evidence on risk factors for cognitive decline..... 8

## List of Tables

Table 1 UC1: Health Monitoring.....	13
Table 2 UC2: Health Coaching .....	14
Table 3 UC3: MCI Detection .....	16
Table 4 UC4: Care Support and Information.....	18
Table 5 UC5: Close Caregiver .....	19
Table 6 UC6: Senior MCI-Diagnosed. Link with MyGuardian.....	21

## References

1. **United Nations. Department of Economic and Social Affairs Division.** *World Population Ageing 2015*. United Nations, New York : s.n., 2015. ISBN 9789211515152.
2. *Summary of the evidence on modifiable risk factors for cognitive decline and dementia: A population-based perspective.* **Baumgart, Matthew, et al.** 6, p. 718-726, s.l. : Alzheimer's & Dementia, June 2015, Vol. 11. DOI 10.1016/j.jalz.2015.05.016.

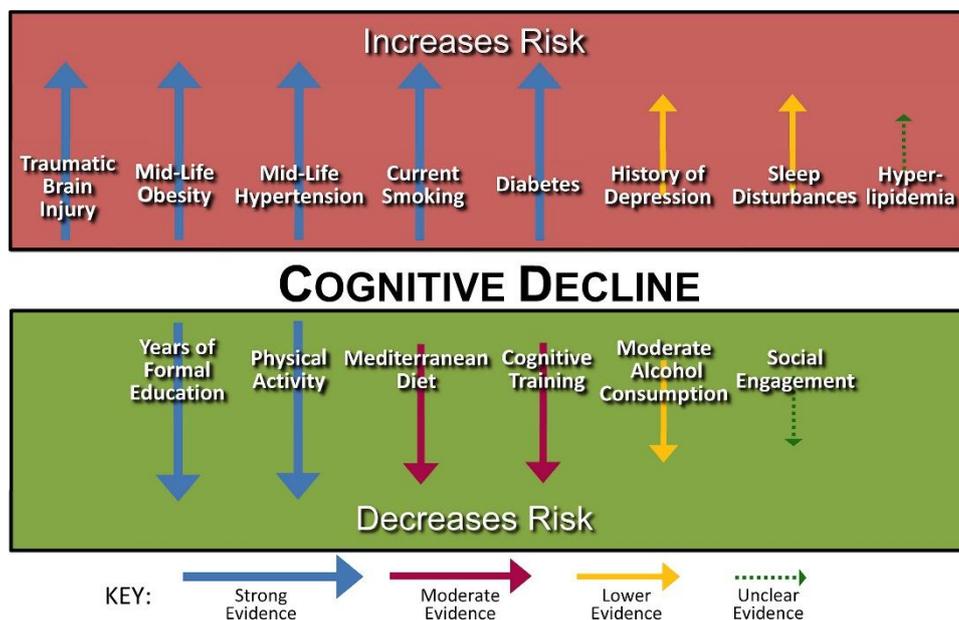
# 1. Introduction

Cognitive decline is one of the diseases whose risk grows with the age. In the 2015 World Ageing Report by United Nations is described that by 2030 older persons are expected to account for more than 25 per cent of the population in Europe (1). That leads to higher demand from the formal care sector and an overload for the informal care sector.

The CoME project aims for a service that facilitates the health self-management and that allows the monitoring of seniors, enabling them and formal and/or informal caregivers to access to valuable information about their lifestyle. Hence, the service intends to give reliable information about health to all actors involved in the care process as well as provide reliable advice on those modifiable risk factors that could prevent seniors from MCI such as physical activity, cognitive training or healthy habits. Those habits are not only valuable for the MCI risk, but also for diseases associated to age. The detection of possible red flags in seniors’ lifestyle is then one of the goals of the project.

In addition, although CoME was initially thought for MCI prevention, the integration with MyGuardian, a platform that supports collaboration between informal and formal caregivers in a care network around a senior, allows the integration of MCI people within CoME.

Regarding the preventive measures to slow down the appearance of MCI disease, as can be shown below in the image by Baumgart et al. (2) physical activity have a strong evidence on decreasing the risk of cognitive decline, while aspects like the diet or cognitive training have a moderate evidence. Other modifiable factors increase the risk like obesity, current smoking or sleep disturbance for example.



**Figure 1 Strength of evidence on risk factors for cognitive decline**

For the reasons explained above formal and informal caregivers are likely to be users of the CoME service in relation with seniors, especially for the case of MCI diagnosed seniors.

In order to explain the functionalities of the service and how it affects daily life of the end users, this document presents a number of use cases that define and include the different services, applications and functionalities considered in CoME and that will be also taken into account when performing the user acceptance tests and validation during the final part of the project.

A use case is a list of steps, typically defining interactions between an actor and a system to achieve a goal. In general, each use case has one basic course of action and one or more alternate courses of actions. The basic course of action is the main start-to-finish path that the use case will follow, whereas the alternate courses represent the infrequently used paths and exceptions, error conditions.

The correct approach of use cases is of primary importance in a project analysis phase. Their purpose is to document the business process that the application must support. Use cases should serve as an effective communication tool between users and technologists.

The use case collects together all the possible scenarios CoME application can solve. All the details of each scenario can be found in the section 4 of this deliverable.

## 2. Actors

In this section we describe the group of persona models involved in CoME service, who are seniors non-MCI (main target groups) and MCI diagnosed (in order to check the integration with MyGuardian features), informal and formal caregivers.

Also the main functionalities of CoME are explained; as CoME is specially designed to cover the needs of each of the persona models around an elderly who wants to carry out a healthy lifestyle, be more autonomous in their health management and improve those modifiable risk factors to prevent MCI.

These actors represent the main target groups that CoME intends to reach and that will be described in WP5 – Exploitation and Dissemination.

### 2.1. *Elderly Non-institutionalized*

CoME service is focused on worried seniors that has not been yet diagnosed of MCI but maybe have initial signs (moreover some MCI diagnosed seniors will be involved in order to check their interaction with the CoME platform and the integration with MyGuardian features) who are living in the community, alone, with their wife or husband or with other relative (sons, daughters, sisters, brothers, etc.). The seniors are capable to do their daily tasks without help but wants to be autonomous in their daily living for as long as possible, improving their habits and their health self-management.

The principal objective of CoME is to help seniors to lead a healthier lifestyle bringing strategies and tools to facilitate the self-management of their status.

In the platform they can find reliable information about health and more specifically about cognitive impairments and their signs, mental activities as well as self-assessment mechanisms to know the level of physical activity, nutrition, sleep, mood status, etc. Also they can access to the data retrieved by monitoring devices such as physical activity, calories burned, sleep patterns or heart rate. They decide which data they want to share with every informal caregiver.

CoME helps the elderly to improve or keep safer as well as to adopt healthier habits that allow them to self-manage their status under autonomy basis.

### 2.2. *Informal Caregivers*

Informal caregivers are the persons who take care of the senior in their daily life. In typical case of a care, almost 80% of the daily care tasks are responsibility of the informal caregivers. They

are usually family, partners or even neighbours of the senior. Informal caregivers are the main responsible of the decisions and advises related to the senior.

CoME aims to facilitate the informal caregivers' lifestyle and to help them to reorganize work and social life. With CoME they would increase their confidence and improve their efficiency as caregivers. Also, CoME offers them some freedom and peace of mind because, if the senior allows it, they can access to data retrieved by the monitoring device and see some patterns of the elderly (heart rate, sleep and physical activity).

Informal caregivers have many worries and difficulties and the main worry is the future of the elderly. It is a 24 hours a day, 7 days a week job to which they need to have full commitment. This means that caregivers give up a big part of their freedom in order to give care. When they leave the senior alone they are usually worried about possible complications that could arise and is very important to understand if/when such complications arise and act upon these as soon as possible.

CoME helps the family to be calm and unworried since they can know the basic lifestyle patterns of the elderly in a timely and accurate manner, and through following of those patterns, recognize some red flag related to the health of the senior and specifically related to MCI development.

CoME will provide to the informal caregivers information about the MCI roadmap, including information on what are the modifiable risk factors, behaviours and attitudes to prevent it. CoME will also have a possibility to form a network of the informal caregivers inside the platform, enabling them to feel supported and helping to resolve some doubts.

### 2.3. *Formal Caregivers*

Formal caregivers are professionals prepared to provide practical day-to-day care to the patients. They take care of the patient in specific situations, especially when the senior is at risk or when the informal caregiver is not available.

Their care tasks include home and care away from the home. The services included are visiting nurse services, homemaker services, respite care, home health aid services, and the promotion of health and health education.

Formal caregivers have to look after a lot of different kinds of patients, each with different needs. This means, that in some situations they may be stressed and they are only able to take care a patient along a very small part of the day. As said in the introduction, in the future years there will be a significant rise in the number of elderly people in Europe and worldwide to take care of, so the promotion of health, health education and the health self-management will become essential.

CoME will provide a platform to facilitate the health self-management by seniors, as well as the guidance for reliable information by professional caregivers.

## 3. Use Case Creation

In this section we explain how the use cases are created. A use case describes a sequence of actions that provide something of measurable value to an actor. It is a narrative that describes the sequence of events (including the variants) of an actor using a system to complete a process.

In use cases, actors must be able to make decisions. They are the synthesis of his/her name and a description of interests, goals, life circumstances, appearance and preferences. First of all, we need a good persona description. It might describe someone's skills, attitudes, environment and goals, i.e., behavior patterns (psyche, performance in everyday life, fears, activity, hobbies...). We have taken some of the specific details of the people interviewed in the project to compose a person description. These interviews were used to create the user requirements too.

Once we have the critical design information, we have added few personal details in order to adapt use cases to the real life. To add this information we have used the interview details too.

With all the descriptions, we have a summary of a number of people required to obtain the key goals and behaviour patterns.

After having the descriptions, we select the most important goals of each persona to focus the use cases. We try to meet the life goals and experience goals that people want to feel when using CoME service. Most of these goals should be solved using a well-designed product or service. For that reason, each use case is focused on the behaviours and goals related to the specific domain of CoME services.

## 4. Use Cases

### 4.1. Use Case 1. Health Monitoring

USE CASE 1	
<b>Name</b>	<b>Health Monitoring</b>
<b>Short Description</b>	Gather information on health behaviour goals, status and trends.
<b>Actors</b>	Senior (Mr. Stevenson), informal caregiver (Deborah Stevenson) and formal caregiver (Susan Clarens; Martin York)
<b>Actor Characteristics</b>	<p>Mr. Stevenson perceives himself to be very healthy, although the fact of suffering hypertension make him aware of possible health risks. Despite this, he is reluctant to use monitoring tools.</p> <p>Deborah Stevenson thinks that her father is relatively healthy and is conscious of his health risks. She wants him to follow recommendations provided by health professionals such as walking every day. She is open to use monitoring tools.</p> <p>Susan Clarens is a young professional caregiver that wants to improve her knowledge about MCI risks and prevention, so she sees CoME as a tool to improve her knowledge and through which contributing to the prevention and diagnosis of MCI among seniors.</p> <p>Martin York is a partner in work of Susan Clarens who decides to join CoME after the positive feeling that Susan has with the platform.</p>
<b>Trigger(s) for using the solution</b>	Deborah Stevenson thinks that her father could be at risk of health problems. To avoid future regrets, she decides to register her father in CoME in order to allow him to: change his health behaviours, accomplish recommendations provided by formal caregivers, track himself through the use of the monitoring tools and be trained about

	<p>MCI risks and preventive actions.</p> <p>Susan Clarens is fully interested in MCI risks. She thinks that CoME could give her a chance to learn about seniors' ageing and factors that could force people to develop MCI; all in a real environment.</p> <p>Martin York has recently joined to CoME after hearing Susan Clarens talking in work breaks about all she has learnt thanks to her collaboration in CoME.</p>
<p><b>Functionalities included</b></p>	<ul style="list-style-type: none"> <li>• Set health goals provided by default in the platform;</li> <li>• Set goals created by the own senior;</li> <li>• Customization of goals by formal caregivers based on the evolution of the senior;</li> <li>• Privacy settings;</li> <li>• Access to the monitored data on the part of the formal and informal caregiver;</li> <li>• Alerts sent to formal caregivers;</li> <li>• Health recommendations and health reports provided by formal caregiver;</li> <li>• View of health behaviour and physical activity goals, status and trends.</li> </ul>
<p><b>Use case description</b></p>	<p>Deborah Stevenson registers in CoME. She tests the platform for some days herself and after having a positive experience with it, she encourages Mr. Stevenson to join.</p> <p>That day, Mr Stevenson fulfills together with her daughter the profile in CoME. They fill in the seniors' form where:</p> <ul style="list-style-type: none"> <li>• He adds some personal information: name, birth date, important illnesses, etc.;</li> <li>• He selects Deborah as his close informal caregiver;</li> <li>• He selects some default health goals provided by CoME (diet, water intake, calories burned, etc.);</li> <li>• Deborah and her father sets a personalized physical activity goal based on the recommendations to walk everyday at least 30 minutes;</li> <li>• He selects the monitoring device to use;</li> <li>• He allows Deborah to access to his monitored data;</li> <li>• He decides that the best day to receive reports from formal caregivers is on Monday because, in this way, he can start with professional recommendations at the beginning of the week.</li> </ul> <p>In parallel, Susan Clarens registers in CoME as well. She is very motivated, so she decides to monitor as many seniors as possible who are randomly selected by the platform; among them, Mr. Stevenson is included.</p> <p>After registering, Mr. Stevenson starts to be monitored by CoME. He wears his monitoring watch all the time, as recommended, even when sleeping. He monitors every day his data and, based on his self-reports, he realizes that he has to make high effort to meet the goals he selected when registering in CoME.</p> <p>Susan Clarens reviews every day the seniors' dashboard. This day,</p>

	<p>Susan Clarens stops in an alert indicating that Mr. Stevenson has an unusually high heart rate. Susan accesses to the data gathered by Mr. Stevenson and she finds that Mr. Stevenson faces high heart rates as consequence of the extra effort carried out by him in order to meet his physical activity goals.</p> <p>She decides to modify the recommendations about physical activity and adapts this walking goal to the physical capacities of Mr. Stevenson.</p> <p>Two months later, the heart rate of Mr. Stevenson has been reduced a lot. Thus, when Martin York monitors his data (after receiving an alert in the seniors' panel indicating that the weekly report has to be sent to Mr. Stevenson), he thinks that he is reaching this goal very easily so he customizes this goal again to 30 minutes walking; and checks during the whole month if the heart rate remains within the recommended values. He also provides more recommendations about habits changes; including recommendations for MCI monitoring.</p> <p>On the other hand, Deborah feels happy with the physical activities daily carried out by her father because, in addition to improving his health, she is able to monitor if something goes wrong thanks to the monitored data as well as learn more about this data thanks to the reports provided by formal caregivers. Finally, Susan and Martin feel good to discover how she can help seniors at the time they discover how factors such as sleep patterns, physical activity, etc. affect seniors' health.</p>
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**Table 1 UC1: Health Monitoring**

#### 4.2. Use Case 2. Health Coaching

USE CASE 2	
<b>Name</b>	Health Coaching
<b>Short Description</b>	Give feedback and recommendations on health behaviour status, trends as well as mood assessment
<b>Actors</b>	Senior (Mr. Stevenson), informal caregiver (Deborah Stevenson) and formal caregiver (Susan Clarens)
<b>Actor Characteristics</b>	<p>Mr. Stevenson perceives himself to be very healthy, but is conscious of health risks.</p> <p>Deborah Stevenson thinks her father is relatively healthy and is conscious of his health risks. She is open to use monitoring tools.</p> <p>Susan Clarens is a young professional caregiver that wants to improve her knowledge about MCI risks and prevention, so she sees CoME as a tool to improve her knowledge and through which she will be contributing to the prevention and detection of MCI among seniors.</p>
<b>Trigger(s) for using the solution</b>	Deborah Stevenson sees CoME as a tool to prevent and detect health problems for her father.

	Susan Clarens is fully interested in MCI risks. She thinks that CoME gives her a chance to learn about seniors' ageing and factors like emotional well-being that could force people to develop MCI; all in a real environment.
<b>Functionalities included</b>	<ul style="list-style-type: none"> <li>• Monitoring of Daily Life Activities based on wereable devices;</li> <li>• Self-Reports performed by seniors;</li> <li>• Definition of goals to improve senior well-being by the senior and customization by formal caregiver;</li> <li>• Sending of seniors' goals, trends, mood and results from games to formal caregivers and informals (if allowed by the senior);</li> <li>• Self-Reports performed by the senior and analysis of his emotional status through the avatar.</li> </ul>
<b>Use case description</b>	<p>Deborah is worried about the prevention of possible health risk that her father could face in future. That is the reason why she persuaded her father to join CoME a year ago.</p> <p>Every day, Mr. Stevenson and Deborah monitor the daily life activities of Mr. Stevenson in order to meet the recommendations that every Monday formal caregivers in CoME provide him. He usually wears a smart watch that monitors the number of steps he takes, his hearth rate, calories burned, etc.</p> <p>At night, he accesses to the platform. After logging in, the avatar appears asking him about his emotional status. He quickly fills in the form and goes to the self-reports section where he is able to perform self-reports in order to know if he is doing well in his healthier lifestyle way. Although initially Mr. Stevenson selected the goals provided by default by CoME, after a year, he has defined his own goals, always reviewed by formal caregivers.</p> <p>Today Mr. Stevenson feels very sad because his neighbor was died last week. This is the reason why he was not too much motivated to achieve his goals these days.</p> <p>When Susan Clarens reviews Mr. Stevenson info to send him the weekly report, she realizes that he is not achieving his goals this week and that he is quite sad. She decides to recommend him some activities to feel better as well as customize goals to be more easily achievable despite the discouragment that Mr. Stevenson faces.</p>

**Table 2 UC2: Health Coaching**

### 4.3. Use Case 3. MCI Detection

USE CASE 3	
<b>Name</b>	MCI Detection
<b>Short Description</b>	Detect MCI development based on health behaviour status and trends
<b>Actors</b>	Senior (Mr. Allen), informal caregiver (Lisa Allen) and formal

	caregiver (Susan Clarens)
<b>Actor Characteristics</b>	<p>Mr. Allen is a 65 years old teacher just retired. He wants an app to help him managing his own health status. Lisa Allen has realized her father is facing some memory problems so she is conscious of his father's health risks. She is open to use monitoring tools.</p> <p>Susan Clarens is a young professional caregiver that wants to improve her knowledge about MCI risks and prevention, so she sees CoME as a tool to improve her knowledge and through which she will be contributing to the prevention and detection of MCI among seniors.</p>
<b>Trigger(s) for using the solution</b>	<p>Mr. Allen is a young senior that is used to handle new technologies and that wants an app to help him to manage his health status and specifically track his complains of memory loss failures.</p> <p>Lisa Allen thinks that her father could be facing some memory problems that could derive on more serious problems. Both of them decide to register in the CoME platform to allow him to carry out preventive actions and detect if something goes wrong through the use of monitoring tools.</p> <p>Susan Clarens is fully interested in MCI risks. She thinks that CoME could give her a chance to learn about seniors' ageing and about the factors that could contribute to development of MCI; all in a real environment.</p>
<b>Functionalities included</b>	<ul style="list-style-type: none"> <li>• Memory games in the platform;</li> <li>• Self-assessment of subjective memory lost through questionnaires in the self-reports section;</li> <li>• Recommendations provided by the avatar after performing self-reports;</li> <li>• Privacy settings in seniors' profile;</li> <li>• Assessment of memory problems;</li> <li>• Customization of goals by the formal caregiver;</li> <li>• Alarms for the formal caregiver in case MCI risk is detected or goals are not being achieved;</li> <li>• Access to data from the senior by the formal caregiver, i.e. monitoring data, mood status, goals, etc. to verify that a real MCI risk exists.</li> </ul>
<b>Use case description</b>	<p>Mr Allen registers in CoME. He fills in the seniors' form where:</p> <ul style="list-style-type: none"> <li>• He adds some personal information: name, birth date, important illnesses, etc.</li> <li>• He selects Lisa as his close informal caregiver</li> <li>• He selects some default memory test goals provided by CoME</li> <li>• The smart watch device to use</li> <li>• He allows Lisa to access to his monitored data</li> <li>• He decides to receive reports from formal caregivers on Friday, to see his progress along the week.</li> </ul> <p>Mr. Allen starts using CoME so he can manage their healthy habits - he starts walking in the mornings and drinking more water and vegetables than he used - also because of the recommendations provided by the avatar after performing self-reports. He also starts</p>

	<p>taking better care of his sleeping times as his wearable and CoME app told him that he should take more rest hours. After 1 year using CoME app Mr. Allen has improved his healthy habits and he is now used to play memory games every day, however, based on the analysis of his data in the platform (self-reports of memory, games, goals achievement, movements, etc.) the platform detects that he could be at risk of MCI. Because of this, an alert indicating that Mr. Allen is at risks appears in the seniors' dashboard of Susan. She checks the data of Mr. Allen and agrees that really his MCI risk has risen. Immediately, Susan sends an alert to Lisa Allen, the main informal caregiver of Mr. Allen, indicating that he is at risk (Mr. Allen is not notified because he disabled this option in his profile).</p> <p>Few months later, Mr. Allen is diagnosed with MCI by his doctor. After this, Mr. Allen decides to join MyGuardian service and invite their daughter. Thanks to MyGuardian, Mr. Allen can create a circle of care around him, allowing him to continue living independently but enabling people to coordinate his/her care coordination when needed and improve their communication.</p> <p>Mr. Allen continues using the CoME platform that helps him in his daily activities. The goals are more focused on supporting daily living routines, so Mr. Allen doesn't forget to take breakfast, shower, walk, lunch, etc and also has access to MyGuardian functionalities so his family can share his caregiving tasks and has information about his current situation. The link between CoME and MyGuardian provides a holistic approach considering relevant aspects of MCI (Prevention, risk detection, and management) both at patient and the caregiver's level.</p>
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**Table 3 UC3: MCI Detection**

#### 4.4. Use Case 4. Care Support and Information

USE CASE 4	
<b>Name</b>	Care Support and Information
<b>Short Description</b>	Provide support to informal caregiver through information provided by other formal and informal caregivers and share care tasks among occasional informal caregiver members.
<b>Actors</b>	Informal caregiver (Deborah Stevenson), formal caregiver (Susan Clarens) and Martha Johnson (occasional caregiver)
<b>Actor Characteristics</b>	<p>Deborah Stevenson is conscious of her father's health risks. She has searched for specific information about ageing risks in the Internet however she feels that this information is sometimes fraudulent, false and misleading. She needs for sources of reliable information which really helps her to elaborate preventive care plans and to know how to act in crucial situations. Deborah also needs somebody who takes care of his father once per month, when she has to attend monthly meetings abroad.</p> <p>Susan Clarens perceives the lack of information about MCI risks that</p>

	<p>informal caregivers have and wants to contribute to broad the knowledge of informal caregivers in this field.</p> <p>Marta is an informal caregiver that joined CoME last year and who wants to offer herself as informal caregiver to avoid social isolation especially along the weeks her children spend with her ex-husband.</p>
<p><b>Trigger(s) for using the solution</b></p>	<p>Deborah Stevenson is feeling insecure about new care tasks she needs to perform and possible problems that her father could face because of ageing. She needs someone to trust to care for her father on specific occasions.</p> <p>Susan Clarens is aware of the need of training for informal caregivers and wants to extend her knowledge about problems caused by hypertension among population as a way of preventive tool.</p> <p>Marta wants to know more about MCI prevention (she usually works with people with cognitive disorders) and is very willing to help others as part of her learning in the field.</p>
<p><b>Functionalities included</b></p>	<ul style="list-style-type: none"> <li>• Useful learning material: guidelines, tutorials and best practices provides by formal and informal caregivers;</li> <li>• Forums for exchange experience and doubts among formal and informal caregivers;</li> <li>• Match-making search engine to look for a occasional informal caregiver;</li> <li>• Sharing senior specific documents or videos among informal and occasional caregiver;</li> <li>• Possibility of uploading videos recorded through Augmented Reality (AR) devices;</li> <li>• Possibility of the close informal caregiver of consulting the data gathered by the wearable devices of the senior (if privacy setting allowed so)</li> </ul>
<p><b>Use case description</b></p>	<p>Deborah Stevenson registers in CoME. She accesses to several threads of discussion in the forums and consults huge amounts of learning materials about ageing available in the platform.</p> <p>Two months after joining CoME, Deborah's father is diagnosed with high blood pressure. Although is not serious, she feels obligated to care his father. She is very worried about how high blood pressure could speed up MCI and she would like to know which activities could benefit or affect this situation.</p> <p>Deborah searches for specific learning material about this topic in CoME because she wants more specific information than online forums can offer. Then, she decides to post a comment in the forum of CoME.</p> <p>Susan Clarens is very much willing to help people and, because of the study about the relation of MCI and hypertension she is performing, she is very active in the forum of CoME. When she realizes the request of Deborah, she answers her some bibliography references and reports that could benefit Deborah's father and slow down the problem derived from his hypertension. Deborah thanks Susan such valuable information that enables her the adoption of preventive measures for her father.</p> <p>At the same time, due to she has to travel abroad next week, she</p>

	<p>launches a demand for occasional care of informal caregivers. CoME takes into account Deborah’s location, the profile of Mr. Stevenson and based on this performs a search showing at first results those users who have already taken care of Mr. Stevenson and those who currently take care of some with hypertension.</p> <p>After reviewing the results from this search, Deborah finds Marta. She knows her because she lives in a nearby town and they have shared experiences several times in CoME forums. Deborah contacts her and they agree the days she must care of Deborah’s father.</p> <p>In addition, and in order to ease the care of her father, Deborah records some videos and tutorials through her IT friend’s AR glasses indicating the location of everything within the house as well as how to monitor that her father achieves his CoME goals. Thus, Deborah can go calm to her meeting , and monitor her father status thanks to the data collected by the wearable devices her father wears.</p>
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**Table 4 UC4: Care Support and Information**

*4.5. Use Case 5. Close Caregiver*

USE CASE 5	
<b>Name</b>	Close Caregiver
<b>Short Description</b>	Formal caregiver joins to CoME as a professional but at the same time they contribute to the management of care of his/her patients thanks to the functionalities provided by MyGuardian
<b>Actors</b>	Formal caregiver (Susan Clarens) and Mr. Stevenson (senior)
<b>Actor Characteristics</b>	<p>Susan has been working as a general practitioner for eight years now. She would like to help people to be healthier, but often does not have time to talk with them. She would like to use more technology in and after work to benefit her patients and provide them a more personalized health care.</p> <p>Mr. Stevenson is a patient of Susan. He perceives himself to be very healthy, but is conscious of health risks. He goes yearly to see Susan for medical examination. Both of them have a close personal relation.</p>
<b>Trigger(s) for using the solution</b>	<p>Susan wants to help people to be healthier through the use of technology. She regrets she cannot help them at work because of her limited time.</p> <p>Mr. Stevenson has been using CoME for one year. Although he is happy with the platform he regrets that he does not have a professional caregiver he trusts, like Susan, his practitioner for six years.</p>
<b>Functionalities included</b>	<ul style="list-style-type: none"> <li>• Shared care management among formal and informal caregivers in the care network of Mr. Stevenson in MyGuardian platform;</li> <li>• Integration of MyGuardian into CoME;</li> <li>• Functionalities provided by MyGuardian:</li> </ul>

	<ul style="list-style-type: none"> <li>• Agenda;</li> <li>• Tasks;</li> <li>• Messages;</li> <li>• Care Agreements;</li> <li>• Social map.</li> </ul>
<b>Use case description</b>	<p>As every year, Mr. Stevenson visits his general practitioner, Susan, for medical examination. Both of them have a close relation since the previous practitioner of Mr. Stevenson was retired six years ago.</p> <p>After the examination, Susan tells Mr. Stevenson that, although he does not have any serious disease, there are some health aspects that he should take care of so she provides her some recommendations.</p> <p>Mr. Stevenson tells Susan that his daughter, aware of the health risks of ageing, registered him and herself one year ago in CoME. Through it, he performs daily activities to improve his well-being and slow down ageing health risks such as MCI. He is happy with CoME but also with MyGuardian, due to it enables him to have a more personalized relation with his caregivers, allowing the communication and sharing of tasks among them. These works encourage Susan to join.</p> <p>At night, Susan decides to register in CoME, to see how it works and if it could help her to allow people to be healthier.</p> <p>After a week, Susan notifies Mr. Stevenson that she is in CoME so he sends her an invitation to join to his care network in MyGuardian. Susan accepts the invitation of CoME and becomes part of the care network of Mr. Stevenson. In this way, she is able to provide him recommendations and follow his daily activities thanks to the communication with other caregivers in the same network.</p> <p>Mr. Stevenson feels now safer because he has someone he trusts taking care of him.</p>

**Table 5 UC5: Close Caregiver**

#### 4.6. Use Case 6. Senior MCI-Diagnosed. Link with MyGuardian

USE CASE 6	
<b>Name</b>	Senior MCI-Diagnosed. Link with MyGuardian
<b>Short Description</b>	Senior MCI-diagnosed joins to CoME and have access to MyGuardian. Senior is monitored and formal caregivers have access to a educational tutorials about MCI and a network of informal and formal caregivers that take care of Mr. Stevenson as well.
<b>Actors</b>	Senior (Mr. Stevenson), informal caregiver (Deborah Stevenson) and formal caregiver (Martha Johnson).
<b>Actor Characteristics</b>	Mr. Stevenson is a senior MCI-diagnosed recently. He lives alone in his home with help of a formal caregiver contracted by the family during the mornings. His only daughter is working and lives alone

	<p>with her two sons.</p> <p>Deborah Stevenson is Mr. Stevenson’s daughter. She lives in the same city, but she have not enough time to take care of her father. She usually has an important dilemma: on the one hand, she wants to pay more attention to her father but, on the other, she also wants to stay at her home as long as possible – she spends lot of time working and taking care of her sons and her home.</p>
<p><b>Trigger(s) for using the solution</b></p>	<p>Deborah Stevenson needs a tool that allows her to monitor the basic health status of her father as well as get support from other informal caregivers and health related information about MCI. She spends lot of time working and taking care of her sons and her home.</p> <p>Mr. Stevenson wants an ICT tool that enables him to self-manage his MCI disease by helping him to remember basic things like appointments.</p> <p>Martha Johnson is a professional caregiver that wants to improve her knowledge about MCI – prevention, detection and management – as part of the experimental study she is performing.</p>
<p><b>Functionalities included</b></p>	<ul style="list-style-type: none"> <li>• Monitoring of the basic health trends (heart rate, sleep patterns and physical activity);</li> <li>• Link with MyGuardian;</li> <li>• Agenda for appointments in MyGuardian as with goals in CoME;</li> <li>• Care network of informal and formal caregivers around a senior.</li> </ul>
<p><b>Use case description</b></p>	<p>Mr. Stevenson was MCI-diagnosed 1 month ago. He lives alone in her own home. One formal caregiver, Martha Johnson, is with him in the mornings, accompanying him for a walk to go to the physician, to the pharmacy and helping him doing the shopping for his daily living. His daughter and informal caregiver Deborah Stevenson can stay with him just one hour in the afternoon, between the time she finishes her paid workday and goes to the school for her two sons. During this hour, Deborah is taking care of her father, making him remember to take the pills for the high blood pressure and for the diabetes. Mr. Stevenson is autonomous in his daily living and remembers all the things from the past but he is losing his recent memory and he forgots the appointments, the phone calls, what he has eaten, etc. He has, also, sudden changes of mood.</p> <p>Mr. Stevenson and Deborah Stevenson sign up in the CoME platform. Through the platform, Deborah Stevenson can see the basic health trends of his fatter and can access to health related tutorials and materials related to MCI caregiving, roadmap and information. Mr. Stevenson joins MyGuardian and invites Deborah and Martha to be part of his care network in MyGuardian. This enables them to reduce their work load by coordinating the care of Mr. Stevenson. The agenda of MyGuardian as well as the mechanism of Goals within CoME enables Mr. Stevenson to remind daily living tasks that he usually forgot.</p>

**Table 6 UC6: Senior MCI-Diagnosed. Link with MyGuardian**

## 5. Conclusions

In this deliverable, 6 selected CoME use cases are detailed with the aim of providing a complete overview of CoME possibilities. With all the use cases one can see how the CoME platform can help the actors – elderly people non-MCI diagnosed, informal caregivers and formal caregivers.

The cases shown above are only a sample of the wide range of possibilities that emerge thanks to CoME and its integration with MyGuardian. The key aspects are the needs of the worried seniors, giving them a service to help them to carry out a healthier lifestyle and be more autonomous in their daily life and health self-management. At the same time their informal caregivers will feel more confident thanks to the monitoring tools and the involving of the formal caregivers.

CoME can provide the mechanisms to facilitate the information needed for informal caregivers and elderly people in health issues related to age, support in health care through asynchronous communication among informal or formal caregivers, with resources like videos recorded through augmented-reality devices, tutorials, guidelines, etc. as well as memory training materials for seniors.

The other key aspect is the monitoring of some aspects with a direct impact in the health of the seniors like heart rate; physical activity; calories burnt or sleeps patterns. Monitoring devices and the data retrieved can give information about patterns and if there is a change in it, to help an early MCI detection or if the goals related to physical activity or, in the major goal to carry out a healthy lifestyle, are met.

Finally, we have to mention that although the data gathered by the monitoring device would be extremely useful for informal and formal caregivers, the final decision about what data and with whom is shared is exclusively of the seniors.