



## D3.5 Socio Economic Proof of Concept and Toolbox

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AMBIENT ASSISTED LIVING

JOINT PROGRAMME

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## Acronyms

Term	Explanation
SES	Socioeconomic Status
AAL	Ambient Assisted Living
WHO	World Health Organization
QoL	Quality of Life
IOT	Internet of Things

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## 1 Summary

This deliverable shall provide information about the final system and how it is set up (installation guide, requirements and tips and tricks for running such a platform) together with a measurement of success for the platform by following the idea of a social return of investments with an evaluation scheme that should work “out of the box”. This deliverable is a summary of talks, developments, hardware and software requirements and methodological support for evaluation. It describes the argument of a socioeconomic proof of concept and resulting evaluation tools of this as a guideline for further exploration on this topic.

The description of the system is oriented at a broader audience and shall support decision makers in getting a fast overview of the platform and its requirements.

The data protection was based on an expert evaluation of the new General Data Protection Regulation of the EU.

Tips for running the platform were collected from experience of the trials.

The socioeconomic proof of concept was based on a desk research and comparative analysis.

The evaluation package was developed from results from the socioeconomic proof of concept and pilot planning.

The deliverable provides an overview of the project modules and supports further research in this area. The system is theoretically providing positive impact on the socioeconomic status. How this can be assessed in future research is described by a potential test battery.

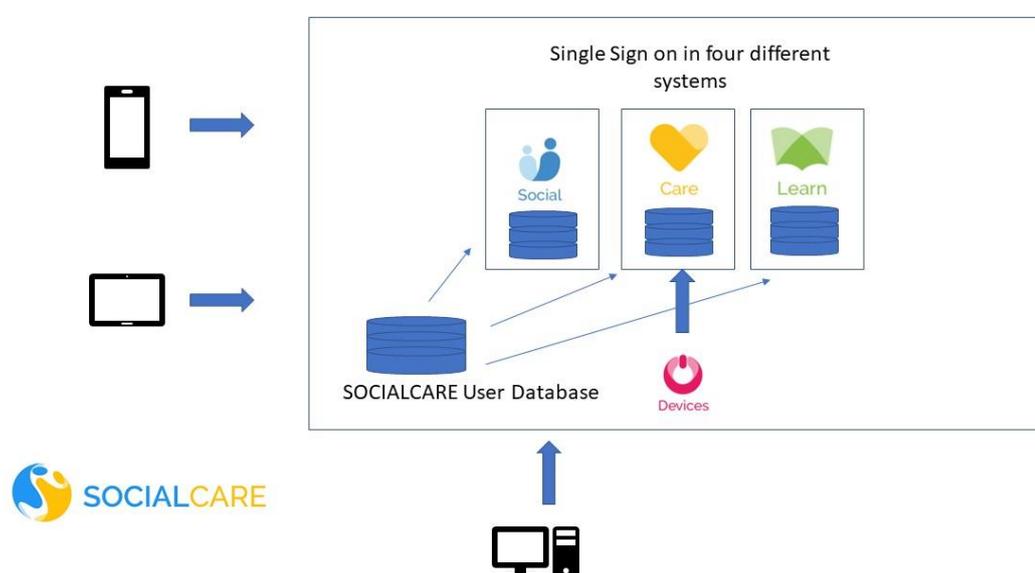
## 2 Introduction

The main aim of this deliverable is to provide a short overview for people outside the project how SOCIALCARE is built, how it can be installed by them and with which kind of support and how this system can be evaluated. The socioeconomic proof of concept is a literature-based argument to support the fondness of the SOCIALCARE approach from another perspective and to show that there is evidence that this kind of system can save money in health care systems. This needs further evaluation that is resulting from the argument of the proof of concept.

The deliverable has seven content related chapters and three administrative chapters. Within the content chapters, the system overview and data protection are presented. As well as practical tips for running the platform. The last two content chapters are related to the socioeconomic proof of concept and the evaluation package.

### 3 SOCIALCARE System overview

SOCIACLARE was developed as a system based on four modules. Each module was dedicated to a special aspect of life and should be combined within one system with interlinks to provide a holistic approach for seniors to support them in their neighborhood and provide access to digital life. The primary idea was to build a representation of local neighbourhoods in digital space to share and exchange support, offers and requests. By this, a universal design approach was chosen to be active on multiple interfaces that fit various needs of users. The final SOCIALCARE system works on smartphones, tablets and desktops. A user can sign in in the SOCIALCARE application or on the website and is thereby connected to all applications. The user may instantly jump from one application to the other without having to re-sign in.



**FIGURE 1 SOCIALCARE SYSTEM OVERVIEW**

The four applications were dedicated to the social life and mirror real neighbourhoods, to lifelong learning and providing support to each other by sharing experience and tutoring and to health care and support for informal caregiver. The fourth application was dedicated to integrating several devices as sources for health data and care.

For reasons of parallel development and testing, the full concept started as modular development and ended as independent modular that are combined to one package by the SOCIALCARE server.

This means, that each component may run on the same server or be separated. This is up to the available hardware structure. This also means that it is possible to run just one component if the rest is not of interest to a customer.

By this, SOCIALCARE became a platform for its applications.

### 3.1 Elements of the platform

SOCIALCARE consists of the SOCIAL component, an eLearning component, a CARE component and the IOT component.

The components are linked with each other via a LAUNCHER app or directly by menu shortcuts. They are also exchanging data. The IOT component is delivering data for the CARE component.

#### 3.1.1 The IOT component

The IOT component is running as a connector for different kinds of sensors. At the time the project ended the following elements could be connected:

- Fitbit Charge HR
- Fitbit charge 2
- Withings wireless blood pressure device
- iHealth Align blood sugar measurement
- VSN V.Alert for emergency calls

These devices directly transfer data from devices to the SOCIALCARE system and feed data into the CARE component.

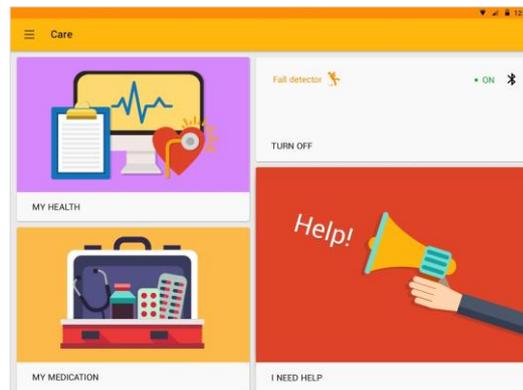
#### 3.1.2 The CARE component

The CARE component consists of a frontend at the tablet or smartphone and a backend for the caregiver on the desktop version.

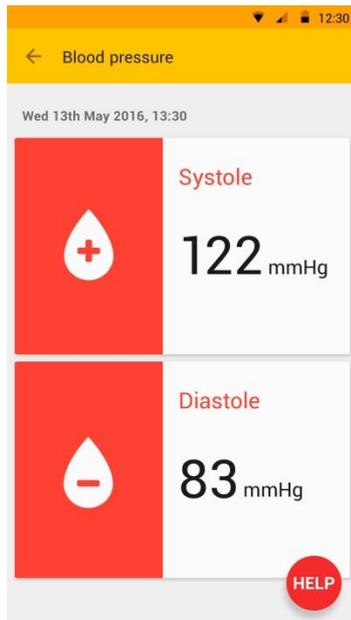
##### From Smartphone



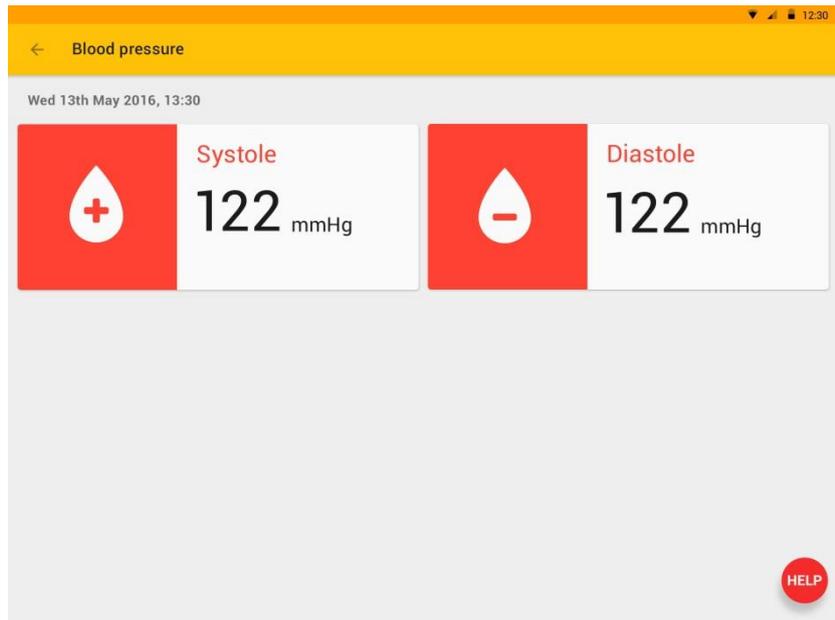
##### to Tablet



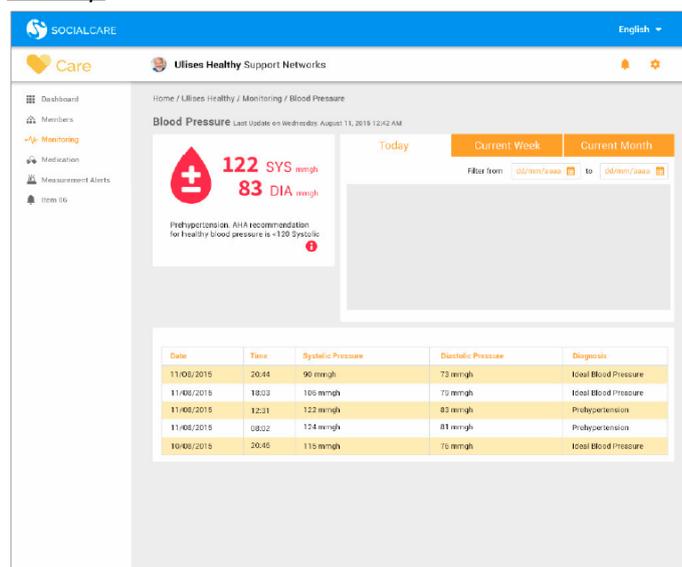
Smartphone



Tablet



Desktop



**3.1.3 The eLearning component**

The learning component is based on an open source system called Moodle. Moodle is widely used for eLearning at Universities across Europe and is highly adaptable to the design wishes of customers. Considering content creation, Moodle already has a huge quantity of free available tutorials on the web. It is easy to use and needs just a short time to get into it.

The LEARN component in SOCIALCARE mainly focused on the application for mobile use of the platform.

D3.5 Socioeconomic proof of concept and toolbox

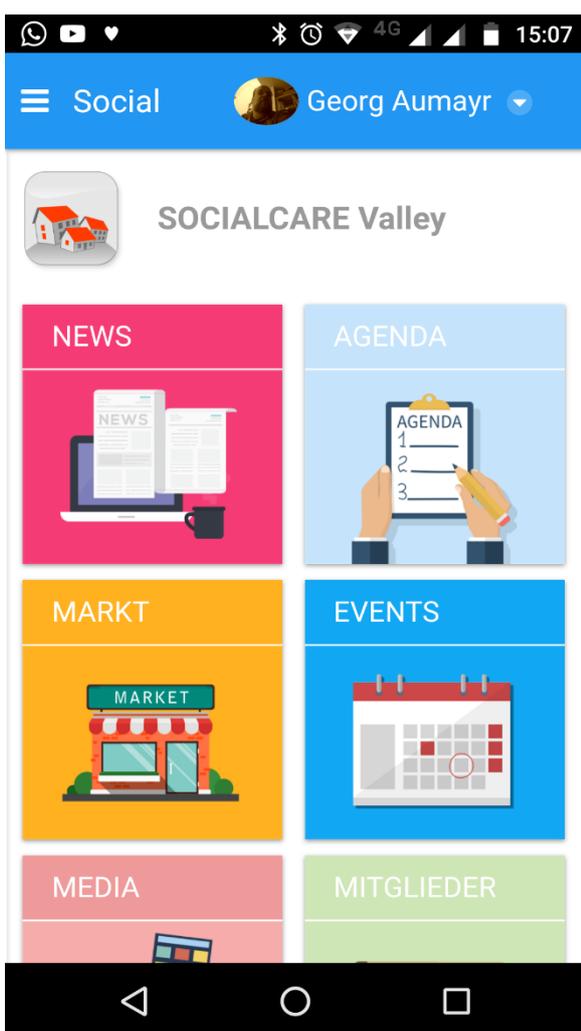
The dedicated content for LEARN was oriented at the potential needs of seniors. There was a first aid lecture on bandages, a lecture about depression and where to get help in such a case, a short lecture about what modern technology is about and how it is comparable to things people know already and information about fall prevention and dedicated exercise programs.

All content was provided by the SOCIALCARE team. During the trials, none of the participants did an own lecture or tutoring for others. Either the time was too short for them to get familiar with the system or it was just not what they wanted to do. The idea of LEARN was to stimulate people to share experience – this was not successful in the trials.

Nevertheless, it is an option to provide a tutorial for all the other applications and to sell special interest lectures.

### 3.1.4 The SOCIAL component

The SOCIAL component is dedicated to support virtual interaction between participants. Through several offers, people can inform themselves about ongoing events in their neighbourhood, share media files like pictures and videos, schedule meetings and offer or request support. Also, an area for commercial services is available.



commercial services is available.

As not all information is suitable for all participants, users can launch their own sub groups for special interest.

Following sections are predefined:

- News
- Agenda
- Market
- Events
- Media
- Members
- Services
- Groups

News is delivering information about happenings, events and interesting things around the neighbourhood and is available for all participants.

The Agenda is a personal calendar for people to structure their day. The agenda is filled by the user.

Market is providing offers and requests on a voluntary base. So non-commercial offers.

Events is a section devoted to events for the whole community. It is an event calendar that is filled by the moderators of the platform.

The Media section is providing a cloud service to upload own pictures and share them with others. Pictures, videos and documents can be uploaded.

In the members section, one can see who is registered to the platform. Also, direct communication to members is possible by an internal messaging system.

Services is the link to the outer world. Here, commercial services can be found and provide laundry, technical support, cooking services etc. This offer is depending on the moderator or the entity running the platform. They need to provide contracts and support for the companies and the users as well, so this part is running smoothly. This can be also the part where the platform starts to run commercially productive (e.g. by royalty fees for the platform provider).

Groups is an overview to which groups the user has signed up to, which groups are available for him to join or which are not and he or she has to ask for permission.

The groups can present themselves with a short abstract and description of their interest.

## 3.2 Requirements

What we present here are the minimum requirements for a stable system. According to the number of people the system should host, these requirements go up.

The presented specifications are for a small group of 10-25 people.

### 3.2.1 For the Moodle server

#### Hardware

Disk space: 160MB free (min) plus as much as you need to store your materials. 5GB is probably a realistic minimum.

Backups: at least the same again (at a remote location preferably) as above to keep backups of your site

Memory: 256MB (min), 1GB or more is strongly recommended. The general rule of thumb is that Moodle can support 10 to 20 concurrent users for every 1GB of RAM, but this will vary depending on your specific hardware and software combination and the type of use. 'Concurrent' really means web server processes in memory at the same time (i.e. users interacting with the system within a window of a few seconds). It does NOT mean people 'logged in'.

#### Software

An operating system (!). Anything that runs the following software; although the choice will most likely depend on the performance you need and the skills you have available. Linux and Windows are the most common choices (and good support is available). If you have a free choice, Linux is generally regarded to be the optimal platform. Moodle is also regularly tested with Windows XP/2000/2003, Solaris 10 (Sparc and x64), Mac OS X and Netware 6 operating systems.

Web server. Primarily Apache or IIS. Not fully tested (or supported) but should work are lighttpd, nginx, cherokee, zeus and LiteSpeed. Moodle will refuse to install on any other web server. Your web server needs to be correctly configured to serve PHP files. The version is not critical but try to use the newest web server build available to you.

PHP - The minimum version is currently 5.3.2. A number of extensions are required; see the PHP page for full details. Installation will halt at the environment check if any of the required extensions are missing.

A database. MySQL and PostgreSQL are the primary development database, the most comprehensively tested and have extensive documentation and support. Oracle and MSSQL are fully supported (note that optional plugins may be untested with these databases) but documentation and online help are not as comprehensive as MySQL/PostgreSQL. If in doubt use MySQL (more documentation) or PostgreSQL (better stability/performance). You will need the appropriate PHP extension (configured if need be) for your chosen database.

MySQL - minimum version 5.1.33

PostgreSQL - minimum version 8.3

MSSQL - minimum version 9.0

Oracle - minimum version 10.2

SQLite - minimum version 2.0

Minimum browser for accessing Moodle: Firefox 4, Internet Explorer 8, Safari 5, Google Chrome 11, Opera 9 plus whatever plugins and applications you will need for the content you plan to use. ('Installing Moodle - MoodleDocs' n.d.)

### 3.2.2 For Docker

Docker is a system that allows using containers to transfer full systems like SOCIALCARE towards your platform. It allows a much easier transfer and provides its own working environment. This allows higher security and better performance.

- Linux kernel version 3.10 or higher
- CS Docker Engine version 1.10 or higher. Learn about the operating systems supported by CS Docker Engine.
- 2.00 GB of RAM
- 3.00 GB of available disk space
- A static IP address ('UCP System Requirements' 2018)

### 3.2.3 For Liferay

Liferay is the base for the SOCIAL component. It is an open source system and supports SOCIALCARE.

The requirements for setting up the platform are for the hardware:

### 1. Web Server

- 1 x Intel Core 2 Duo E6405 2.13GHz CPU, 2MB L2 cache (2 cores total)
- 4GB memory
- 1 x 146GB 7.2k RPM IDE

### 2. Application Server

- 2 x Intel Core 2 Quad E5430 2.66GHz CPU, 12MB L2 cache (8 cores total)
- 8GB memory
- 2 x 146GB 10k RPM SCSI

### 3. Database Tier

- 1 x Intel Core 2 Quad E5430 2.66GHz CPU, 12MB L2 cache (8 cores total)
- 16GB memory
- 4 x 146GB 15k RPM SCSI

### Network:

- Gigabit network between all servers and test clients(Liferay.com n.d.)

## 4 Data protection

The SOCIALCARE platform is an online communication tool for elderly and the communities they are living in. It consists of four components (apps) and each of them collects, in one way or the other, personal data from those who are using it. Processing of personal data, that means also its mere collection, is strictly regulated on national but also European level. This part shall explain the main principles that need to be followed in order to ascertain, that rights of people using SOCIALCARE for protection of their personal data are not in the risk of breach.

Until 27 May 2018, data protection is regulated by the EU Directive 95/46/EC and a set of national laws enacted by each EU Member States country. As from 28 May 2018 the new EU General Data Protection Regulation (2016/679) ('GDPR') will come to effect and it will replace old data protection rules in the whole EU. What is important to know is, that rights and duties that this Regulation prescribes are directly applicable by all citizens, institutions or organisations in the EU. In other words, everybody in the EU has to follow the rules that GDPR prescribed but also each person in the EU can enjoy rights its guarantees. This Regulation also introduces stricter precautionary approach, it gives more rights to people whose data are processed and prescribed more duties to those who process them.

There are several essential issues that have to be kept in mind when using SOCIALCARE, such as, what are actually personal data and what are non-personal data; what has been taken care of by developers of SOCIALCARE; what are rights of users (data subjects); and what do I need to pay attention to as a user of SOCIALCARE and as a coordinator of its users; or what to do if there is a suspicion that something went wrong and somebody's personal data has been breached.

What does it actually mean when one speaks about 'personal data'?

Legally speaking, personal data is any piece of information relating to an identified or identifiable natural person. There are then two aspects of the definition and both of them have to be fulfilled. Firstly, data relate to a real person (not a company or so) and this data can be connected to this real person. This does not want to say that it has to be known at this moment whom this data belongs to; it is sufficient if it is possible, even indirectly, to find out that data X relate to person Y.

What have SOCIALCARE developers done to ensure that data of all its users are well protected?

SOCIALCARE developers made their best effort to comply even with more stringent rules of the GDPR Regulation, which will become enforceable in May 2018. They are committed to guarantee SOCIALCARE users that their personal data are safe and sound so that they can feel comfortable and at ease when using SOCIALCARE products. Data Protection Officer (DPO) Lenka Christiaens was nominated to oversee that all rules for protection of personal data are lived up to. Each and every users or coordinator of users of SOCIALCARE can contact the DPO to check whether his/her data are in safe hands, to ask questions or to notify a suspicion of maltreatment of personal data. A detailed Data Protection Impact Assessment was drafted. This is a document that ascertains into details whether rights that should be given to data subjects (users of SOCIALCARE) are guaranteed and whether there were measures taken to firstly prevent breach of personal data and secondly to plan in

advance what to do, should any problems occur. This document was tailor-made for the project trial phase, but many of its part are relevant also for a commercial use of the SOCIALCARE.

A broad variety of personal data is being collected by SOCIALCARE App, such as general identification data, data about the participants' interests and habits, their social connections, but also some sensitive health data can be collected via connected devices app or by inserting personal medication record in the Care app. Most of personal data have to be directly inserted by users, other can be collected by automated means, such as medical data from connected devices. What you need to know is that there is a stricter regime for processing of sensitive data, which are for example health data. Also, if data are collected by automated means, as in this case by an app, those who process them have to obey by more rules for their protection. The developers made sure that no profiling of data is being performed and personal data are under no circumstances traded/forwarded to third parties. The only exception is data collected during the project evaluation phase via WHOQOL questionnaire - these are going to be forwarded to WHO, however in a fully anonymised way (raw data, nobody will ever know who they belong to). Data are stored in a pseudonymised and encrypted way; only conducting pilot site research centres can match Alias with a particular person.

By downloading and installing SOCIALCARE App (or by using SOCIALCARE web platform) a user gives his/her consent for processing of his/her personal data which (s)he inserts actively to the app or that are collected automatically by use of the app about her/him. On the other side, SOCIALCARE owner gives guarantee that all data are processed in a lawful manner and rights of data subjects are safeguarded.

What are then rights of users (data subjects) when it comes to protection of their personal data?

Each person whose personal data has been processed has well established set of rights. They should be made aware of them by every possible mean. SOCIALCARE owner did this by publishing its Data Protection Policy online, which everybody can see when downloading the App or afterwards. Coordinators should also think of how can they inform users about their rights. The rights of data subjects are for example, but not exclusively, following. It is Art 15 till 22 of GDPR that describe these rights into details. To learn more about them you can also contact the Data Protection Officer.

- Right to access, erasure, rectify or restrict data
- Right to data portability to other data controller – this is a right to receive the personal data concerning the data subject, which he or she has provided to a controller, in a structured, commonly used and machine-readable format and have the right to transmit those data to another controller
- Right to object against further processing
- Right to require information about data being processed about themselves
- Right to correction of wrong data
- Right to restrict certain processing of data

What do I need to pay attention to as a SOCIALCARE user or as a coordinator of SOCIALCARE users?

There is a very simple rule of thumb: if you are a SOCIALCARE user, make sure that you know your rights. If you are in the position of a coordinator of several SOCIALCARE users, make sure that they know about their rights. Since data protection rules are designed with a goal in mind to protect data subjects, that is those whose personal data are processed, there is great deal of rights that data

subjects enjoy and on the other side merely any duties for them. What is handy is to know who is your data protection supervising authority (read further) and to be ready to contact them should any suspicion occur about misuse of personal data. You can also anytime take contact with SOCIALCARE owner and discuss issues of your concern with them. Your main contact point towards SOCIALCARE owner is a Data Protection Officer [contact], who is an expert in the field of data protection and is legally bound to be impartial in data protection issues. What does it mean? (S)he cannot be defending interest of those processing personal data, but on the contrary, interest of you – data subjects, users of SOCIALCARE.

What to do if there is a suspicion that something went wrong as to processing of personal data of SOCIALCARE users?

If you think that rights of SOCIALCARE users (data subjects) are at risk of breach, have been breached or if you hesitate about this and search for advice, most importantly ACT! You can anytime take contact with Data Protection Officer of SOCIALCARE [CONTACT]. You can also contact Data Protection Supervising Authority in your country; contacts information for each EU Member country can be found here. You can also contact them if you are seeking more information or an advice about issues related to protection of personal data of SOCIALCARE users that you are not hundred percent sure about.

#### **4.1 Content of third parties**

Third parties are all parties that do not belong to the SOCIALCARE consortium. Most of the content will eventually come from these sources the longer the platform will run. If content from these sources is used, a clear signature of the copyright has to be available as well as a proven commitment of the copyright holder that the content is to be made available by the SOCIALCARE platform for its users.

For all content integrated to the platform of SOCIALCARE, it is necessary to potentially provide documentation of the agreement to use the material. This can be an email where the use is allowed by the owner, a contractual agreement for the use or a link towards license agreements that allow to use material from the source for the purpose of the project SOCIALCARE or similar.

## 5 Installation guide

To install SOCIALCARE on a new server, it is necessary to install first all basic background software like Moodle and DOCKER.

For the installation of SOCIAL component, it is necessary to contact the project partner EVIC.

For the installation of LEARN component, it is necessary to contact the project partner UoAS.

For the installation of CARE, it is necessary to contact the project partner ATOSWLE.

For the installation of IoT, it is necessary to contact the project partner ISOIN.

The reason for this multi-contact issue is that at the project end no simple application for installation was possible. The development time at the end of the research project was not sufficient to prepare this step towards the final product.

For further information, please contact the project coordinator, NFE.

## 6 Integration of Content

Integration of content can follow different procedures according to the origin and the intention. For the pilots, content will be provided by the consortium for the Learning Component and the Social Component to give a start.

### 6.1 Integration in Learning Component

Content for the learning component will be generated in the Moodle platform on the server of University of Applied Science Upper Austria. By this, a prefixes interface will be available. Each content has to have the structure of a course or lecture within a course. By this, especially learning and training materials can be provided. This includes tutorials, First aid lectures, fall prevention training and information on age related diseases like depression or frailty.

It can also be content that people in the community make themselves and that they want to offer as an activity to others in the community, such a cooking workshop or a flower arrangement workshop.

The courses can integrate existing text and multimedia content. By this, a large degree of freedom is available. In addition, a course or lecture with just a short link towards another website is allowed. This is especially necessary if the copyright was not granted. On the SOCIACLARE platform, the user will find information about the link and its aim and can follow the link to access the content. By this, the user will leave the platform and is not in responsibility of the SOCIALCARE platform anymore.

For the preparation of the pilots, it is agreed between University of applied science Upper Austria (UoAS) and Johanniter International (JOIN) to use templates for courses that will be filled by JOIN and integrated by UoAS. This template is attached to this document in the annex.

Moodle example for dashboard on PC/Webinterface<sup>1</sup>:

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<sup>1</sup> From: [https://docs.moodle.org/32/en/Course\\_homepage#Parts\\_of\\_a\\_course\\_homepage](https://docs.moodle.org/32/en/Course_homepage#Parts_of_a_course_homepage) ;15/01/17

This screenshot shows a Moodle course page titled "An example course" in a "Sandbox" environment. The page features a navigation menu on the left (1), a central "News forum" section with a list of dates (3), and a right-hand sidebar with search and activity widgets (4). A "Turn editing on" button is visible in the top right. The navigation menu includes links for Home, Dashboard, Site pages, and a list of course weeks. The central forum section lists dates: 9 November - 15 November, 16 November - 22 November, 23 November - 29 November, 30 November - 6 December, and 7 December - 13 December. The sidebar contains a search forum, latest news, upcoming events, and recent activity sections.

This screenshot shows a Moodle course page titled "Example course with Boost theme" in a "Mount Orange School" environment. The page features a navigation menu on the left (5), a central "Announcements" section with a list of dates (3), and a right-hand settings menu (6). A "Turn editing on" button is visible in the top right. The navigation menu includes links for Boost example, Participants, Badges, Competencies, Grades, General, and a list of course weeks. The central announcements section lists dates: 17 December - 23 December, 24 December - 30 December, 31 December - 6 January, and 7 January - 13 January. The settings menu includes options for Edit settings, Turn editing on, Filters, Gradebook setup, Outcomes, Backup, Restore, Import, Publish, Reset, and More...

#### 1. Navigation block

Normally visible on all pages, this block helps you find your way around the course and site.

#### 2. Administration block

Again, normally visible on all pages, this block gives different levels of access to teachers and students.

#### 3. Course sections

Here is where the learning materials are displayed. This element may be arranged in one or multiple weeks, topics, forums or other (non-standard) layouts.

#### 4. Side blocks

Which blocks you see depends on what the administrator has selected and what you as teacher choose to add.

#### 5. Navigation drawer

This replaces the Navigation block and Administration block in the Boost theme.

#### 6. Gear menu

This replaces the course administration settings in the Boost theme. Later in the pilot it is foreseen that the local communities can create easily their own content.

## 6.2 Integration in Social Component

Content for the social component of the platform will consist of events, requests and demands for activities or help and Show-Profiles that provide an insight in what could be done by using the social component. This profile will be developed by JOIN and EVIC. This profile will also be an instrument for demonstrating the platform at dissemination events.

For the social component, an integration of calendars and open access event maps can be considered. For the trials in the Netherlands and Upper Austria, a regional Event-Calendar will be implemented. As a proof of concept, an Event-calendar for Vienna will be integrated as well. JOIN will support EVIC in identifying the sources for the calendars. Also RSS feeds for weather forecast and regional news can be integrated. Another source of content would be social media sites like Facebook, Twitter or WhatsApp. This would provide interoperability to external sources.

## 6.3 How to become content provider

In general, the platform is easy to use and most of it is drag'n'drop-style. Nevertheless, always an account is needed. To be content provider, one has to register to the platform. After this, the person has the chance to build its own content in the different areas.

The eLearning platform is providing a lecture about how to set up own lectures.

The Social Component will be explained in a cascade system to the users. This means, trained staff will give real life lectures to introduce the platform and functionalities. Also a support line will be available for certain hours a week to give direct advice. It is also possible to ask within the platform for support, like in FAQs. After the introduction, people can become content provider by themselves.

What is needed:

- Access to internet
- PC/Laptop/Smartphone
- Datatransfer cable (USB 2.0 or higher, SD-Card etc.) for upload from personal device (e.g. video, camera) to PC/Laptop etc.

## 7 Tips for running such a platform

### 7.1 Tutorials

The tutorials will cover once the use of the platform itself. This tutorial is provided by LIFEtool when the final prototype of the platform for the pilots is available.

Another tutorial will help people to use their tablet. These tablet courses will be available in Netherlands as real lecture and will be transferred to the Learning Component as well. The same procedure will be done for the Tablet Course available in Austria.

Special tutorials for using the Learning platform for own courses will be made available as link to an online tutorial for Moodle on YouTube in the needed Language.

For German: <https://www.youtube.com/watch?v=FC-GWDvIX8c>

For Dutch:

[https://www.youtube.com/watch?v=jfSHbNbg4bg&list=PLxcO\\_MFWQBDcQKY3XeLpwDVFbnmPO\\_ZWK8](https://www.youtube.com/watch?v=jfSHbNbg4bg&list=PLxcO_MFWQBDcQKY3XeLpwDVFbnmPO_ZWK8)

### 7.2 Moderators

At such a platform, it is easy that people get dragged away by emotions and post things, they would not dare to say directly. Inappropriate language and content (hate groups, illegal content, etc.) has to be banned, blocked and responsible users have to be judged and potentially banned.

Next to this delicate issue, that has to be followed rigorously to secure the provider and quality of the platform, the moderator also has the duty to keep the platform running and to fill in content. A news-section without regular updates is considered dead. Also, a social platform without regular use is of no interest. The moderator must provide information, content and make updates for events. By this, the user can USE the platform. It will take some initial time to get the platform running. During this time, the moderator supports the lively attitude for the platform until people can completely take over.

### 7.3 Social Activities

Within the Social component, several initial activities will be set up to provide inspiration to the new users to show what would be possible. The activities can reach from cooking together to short trips to the countryside. The platform is just a mirror to something real. This means that real actions must be taken. Otherwise the idea of SOCIALCARE is hollow.

Every social activity should be reported in the Events and in the News. This makes things much more vivid.

## 7.4 LEARN - Course example

This chapter presents an example of a course that can be used in the LEARNR app. This course is currently available in German and Dutch. For translation and as example it is available here in English. This can be used as a Word-Mask for making other lectures. From this mask, just copy-paste to the model platform.

Name of course:

Course Full Name: Depression – Basic Information and points of contact

Course Short Name: DepHelp

Course Category: Mental Health

Visible: N

Course Start Date: 01.02.2017

Description:

Course Summary: This course provides information about symptoms of depressions and warning signals. According to this, contact points for help and first steps for self-help will be introduced. If you think you are experiencing a depressive episode, please visit a medical doctor.

Course Summary File:



Course format:

Format: topics format

Hidden Format:

Course Layout: show all sections on one page

Appearance:

D3.5 Socioeconomic proof of concept  
and toolbox

Force theme: N

Force language: N

News items to show: 4

Show gradebook to students: N

Show activity reports: N

Topics for Courses:

1<sup>st</sup>

Section Name: What is Depression?

Depression is a common illness worldwide, with an estimated 350 million people affected. Depression is different from usual mood fluctuations and short-lived emotional responses to challenges in everyday life. Especially when long-lasting and with moderate or severe intensity, depression may become a serious health condition. It can cause the affected person to suffer greatly and function poorly at work, at school and in the family. At its worst, depression can lead to suicide. Over 800 000 people die due to suicide every year. Suicide is the second leading cause of death in 15-29-year-olds.

Although there are known, effective treatments for depression, fewer than half of those affected in the world (in many countries, fewer than 10%) receive such treatments. Barriers to effective care include a lack of resources, lack of trained health care providers, and social stigma associated with mental disorders. Another barrier to effective care is inaccurate assessment. In countries of all income levels, people who are depressed are often not correctly diagnosed, and others who do not have the disorder are too often misdiagnosed and prescribed antidepressants.

The burden of depression and other mental health conditions is on the rise globally. A World Health Assembly resolution passed in May 2013 has called for a comprehensive, coordinated response to mental disorders at country level.

### Key facts

- Depression is a common mental disorder. Globally, an estimated 350 million people of all ages suffer from depression.
- Depression is the leading cause of disability worldwide, and is a major contributor to the overall global burden of disease.
- More women are affected by depression than men.
- At its worst, depression can lead to suicide.
- There are effective treatments for depression.

### Types and symptoms

Depending on the number and severity of symptoms, a depressive episode can be categorized as mild, moderate, or severe.

A key distinction is also made between depression in people who have or do not have a history of manic episodes. Both types of depression can be chronic (i.e. over an extended period of time) with relapses, especially if they go untreated.

Recurrent depressive disorder: this disorder involves repeated depressive episodes. During these episodes, the person experiences depressed mood, loss of interest and enjoyment, and reduced energy leading to diminished activity for at least two weeks. Many people with depression also suffer from anxiety symptoms, disturbed sleep and appetite and may have feelings of guilt or low self-worth, poor concentration and even medically unexplained symptoms.

Depending on the number and severity of symptoms, a depressive episode can be categorized as mild, moderate, or severe. An individual with a mild depressive episode will have some difficulty in continuing with ordinary work and social activities, but will probably not cease to function completely. During a severe depressive episode, it is very unlikely that the sufferer will be able to continue with social, work, or domestic activities, except to a very limited extent.

Bipolar affective disorder: this type of depression typically consists of both manic and depressive episodes separated by periods of normal mood. Manic episodes involve elevated or irritable mood, over-activity, pressure of speech, inflated self-esteem and a decreased need for sleep.

### **Contributing factors and prevention**

Depression results from a complex interaction of social, psychological and biological factors. People who have gone through adverse life events (unemployment, bereavement, psychological trauma) are more likely to develop depression. Depression can, in turn, lead to more stress and dysfunction and worsen the affected person's life situation and depression itself.

There are interrelationships between depression and physical health. For example, cardiovascular disease can lead to depression and vice versa.

Prevention programmes have been shown to reduce depression. Effective community approaches to prevent depression include school-based programmes to enhance a pattern of positive thinking in children and adolescents. Interventions for parents of children with behavioural problems may reduce parental depressive symptoms and improve outcomes for their children. Exercise programmes for the elderly can also be effective in depression prevention.

### **Diagnosis and treatment**

There are effective treatments for moderate and severe depression. Health care providers may offer psychological treatments (such as behavioural activation, cognitive behavioural therapy [CBT], and interpersonal psychotherapy [IPT]) or antidepressant medication (such as selective serotonin reuptake inhibitors [SSRIs] and tricyclic antidepressants [TCAs]). Health care providers should keep in mind the possible adverse effects associated with antidepressant medication, the ability to deliver either intervention (in terms of expertise, and/or treatment availability), and individual preferences. Different psychological treatment formats for consideration include individual and/or group face-to-face psychological treatments delivered by professionals and supervised lay therapists.

Psychosocial treatments are also effective for mild depression. Antidepressants can be an effective form of treatment for moderate-severe depression but are not the first line of treatment for cases of

mild depression. They should not be used for treating depression in children and are not the first line of treatment in adolescents, among whom they should be used with caution.

This information is brought to you by the WHO ->

<http://www.who.int/mediacentre/factsheets/fs369/en/>

Add activity or resource: Y/N

If Yes:

<link> <http://www.who.int/mediacentre/factsheets/fs369/en/>

Depression: What you should know: <link> <http://www.who.int/campaigns/world-health-day/2017/handouts-depression/what-you-should-know/en/>

Living with someone with depression: <link> <http://www.who.int/campaigns/world-health-day/2017/handouts-depression/someone-with-depression/en/>

//if possible also provide the pdf version of these leaflets.

2<sup>nd</sup>

Section Name: Staying positive and preventing depression as you get older

Summary: The life changes that come with ageing can lead to depression. To learn more about preventing and treating depression in older age, read on.

What you should know:

- Depression is an illness characterized by persistent sadness and a loss of interest in activities that you normally enjoy, accompanied by an inability to carry out daily activities, for at least two weeks.
- In addition, people with depression normally have several of the following: a loss of energy; a change in appetite; sleeping more or less; anxiety; reduced concentration; indecisiveness; restlessness; feelings of worthlessness, guilt, or hopelessness; and thoughts of self-harm or suicide.
- Depression is common in older people but often overlooked and untreated.
- Depression among older people is often associated with physical conditions, such as heart disease, high blood pressure, diabetes or chronic pain; difficult life events, such as losing a partner; and a reduced ability to do things that were possible when younger.
- Older people are at a high risk of suicide.
- Depression is treatable, with talking therapies or antidepressant medication or a combination of these.

What you can do if you are feeling down, or think you may be depressed :

- Talk to someone you trust about your feelings.
- If you think you are depressed, seek professional help. Your local health-care worker or doctor is a good place to start.
- Keep up with activities that you have always enjoyed, or find alternatives if previous activities are no longer possible.
- Stay connected. Keep in contact with family and friends.

- Eat at regular intervals and get enough sleep.
- Exercise regularly if you can, even if it's just a short walk.
- Avoid or restrict alcohol intake and only take medicine as prescribed by your health-care provider.

**Remember: There is a lot that can be done to prevent and treat depression in older age.**

Add activity or resource: Y

If Yes:

<link to pdf> <http://www.who.int/entity/campaigns/world-health-day/2017/handouts-depression/older-o8.pdf?ua=1>

3<sup>rd</sup>

Section Name: Depression support groups

Summary: Depression can make you feel isolated. It can be helpful to meet with other people who understand what it's like. This is sometimes called 'peer support'.

Self-help groups allow people with depression to provide as well as receive help.

"Self-help groups can be a fun and uplifting way to make new friends and to share support and ideas through illness and recovery," says Laura Sacha, communications co-ordinator for Depression Alliance. "People in these groups support one another, which can help your self-confidence."

### **What happens at a support group?**

Sitting and talking isn't the only thing that happens at meetings. Lots of groups organise social events and arrange special activities to help boost your mood and improve your wellbeing.

"Going to a group for the first time can be daunting, but you can be sure of a warm welcome, and people will understand how hard it can be to take that first step," says Laura Sacha.

This information is brought to you by the National Health Service of United Kingdom ->

Add activity or resource: Y/N

If Yes:

<link> <http://www.nhs.uk/Conditions/stress-anxiety-depression/Pages/depression-help-groups.aspx>

4<sup>th</sup>

Section Name: Types of Depression support next to self-help groups and therapy

Summary:

Attending a group and talking to other people who have experienced depression is not for everyone. There are other kinds of peer support that can help you cope with depression.

### Online forums for depression

You can visit online forums where you can read about other people's experiences, write about your own, and respond to other postings. Visit the Depression Alliance or Sane websites.

Big White Wall is an online service for people who have common, distressing mental health problems. Through social networking a community of people are supported by trained "wall guides", so they can manage their own mental health.

Online forums are not for everyone. Depression UK has a penfriend scheme for members. This is especially useful for people who don't have internet access or who prefer letters and postcards to email.

### Pursuing your interests

Being with other people who share your interests can also help you feel better. You can use the internet or local newspapers to look up classes or activities in your area that you might enjoy.

### Volunteering

Lots of people experience feelings of hopelessness and low self-esteem when they're depressed. Helping other people by doing voluntary work is one good way of feeling useful and valued. There are all sorts of ways you can volunteer.

Time banks are an innovative way of volunteering your time and skills. You offer your skills in return for credits, which you can then use to buy someone else's services.

For example, you could offer three hours of gardening and in exchange receive a one-hour language lesson and a two-hour beauty treatment from other members.

This information is brought to you by the National Health Service of United Kingdom -> <http://www.nhs.uk/Conditions/stress-anxiety-depression/Pages/depression-help-groups.aspx>

If you are looking for a contact near you or if you know about support in your area, please use the entries of the database below. Thank you!

Add activity or resource: Y

If Yes:

<DATABASE>Country;City;Adress;Name of Institution;eMail;Phone;Name of Contactperson;link

## 8 Socio economic proof of concept

The core of socio economic evaluations is the socio-economic status (SES). This includes measurements of factors like:

- Education
- Literacy
- Occupation and Income
- Ownership of cultural goods (e.g. books)
- Cultural practice (visiting theaters or museums)
- Living conditions
- Financial status

These factors provide a sample of questions that can support classifications of people and linking this to other measurements like quality of life or health.

In several studies, there was evidence that the SES has an impact on health in chronic diseases. This is also the biggest problem in health and healthcare. In a study from 2010 showed the potential impact of SES towards chronic heart diseases.(Phillips and Klein 2010)

Many different approaches for measuring SES are around, like the compositional SES measurements, the contextual SES measurements or the Composite SES measurements.(Shavers 2007) All of these have pros and cons. The most promising approach for SOCIALCARE is to focus on studies that addressed chronic diseases like hypertension and diabetes, as these are the diseases with the highest impact on a long-term base and provide the vast amount of savings for a health system.

In 2015 a meta study of SES and its impact on hypertension showed that an increased risk for hypertension was associated with low income, occupation and education, whereas the strongest effect was visible at the factor education.(Leng et al. 2015)

Results for diabetes could be shown in a study of 2005. In a study among women, “[...] *The hazard ratio (HR) for women with >16 years education was 0.26 (95% confidence interval (CI) 0.13–0.54) relative to those with <9 years of education. Adjustment for potential mediators, including body size variables, diet, physical activity, and alcohol and tobacco use, substantially attenuated the associations with income and education. Among men a trend toward lower diabetes incidence with higher income and higher education was evident (the HR for men with household income >5 times the poverty level was 0.44 (95% CI 0.19–0.98) relative to those under the poverty line), but there was no inverse association of diabetes incidence with occupational status.*”(Robbins et al. 2005).

Both, hypertension and diabetes, are the most spread chronic diseases related to ageing and lifestyle. So, it is obvious that a change in SES can support health in these areas.

SOCIALCARE is supporting by providing education and working on the social inclusion as well. This is strongly part of the occupation dimension and status dimension. Social isolation and loneliness are key aspects of SES and health as well.

Specific platforms like instant messaging, YouTube or social networking sites (e.g. Facebook) have the potential to reduce social isolation in older adults (Harley and Fitzpatrick 2009; Salmon 2013).

SOCIALCARE is providing a system that is including media, messaging and networking in one platform.

With the LEARN component, participants will have the chance to increase their education.

Through CARE, they can have more information about themselves.

Through SOCIAL they can also organize more cultural activities.

All these potentials are within SOCIALCARE.

Different studies have shown the positive effects of elements of SOCIALCARE and have proven the concept works. During the trials, mostly negative results occurred. This is, depending on the interpretation, paid to a lack of time and intensive tutoring for the seniors and the small size of the trial. The platform did not reach the critical mass and people had not enough time to start getting used to the platform. And it was not enough people for significant results.

But literature provides evidence that SOCIALCARE will work.

SOCIALCARE is providing an impact to SES. People with higher SES tend to have lower health risks. Lower health risks decrease long-term costs in health care services.

This argument is supported by the mentioned literature in this section and provides a proof of concept by desk research.

## 9 Evaluation package

The evaluation package consists of questionnaires that can be used to evaluate the effects of the use of such a platform like SOCIALCARE or any other platform.

It consists of a small selection, focused on elderly people, to measure quality of life, usability and some health aspects that can be valuable for evaluation of the impact of technologies like social platforms and compare on international standards.

We recommend:

Social Economic Status:

Socio economic risk index (Stringhini et al. 2017).

Duncan's Socioeconomic Index (Kingston et al. 2015).

Quality of Life:

WHO QOL BREF('WHO | WHO Quality of Life-BREF (WHOQOL-BREF)' n.d.), WHO QOL OLD(Winkler et al. 2006).

Both questionnaires are available for free by the WHO and are available in a lot of languages.

Usability and user experience:

User Experience Questionnaire (Cota et al. 2014)

For checking health parameters:

Short physical performance battery (Gómez et al. 2013)

MOCA 5-min (Wong et al. 2018)

All these questionnaires are available in multiple languages and have a standardized evaluation that can be followed easily. By this, results are comparable between studies and effects can be shown also in adverse to other results.

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