



# TOPIC

The Online Platform for Informal Caregivers

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## IT specification and architecture

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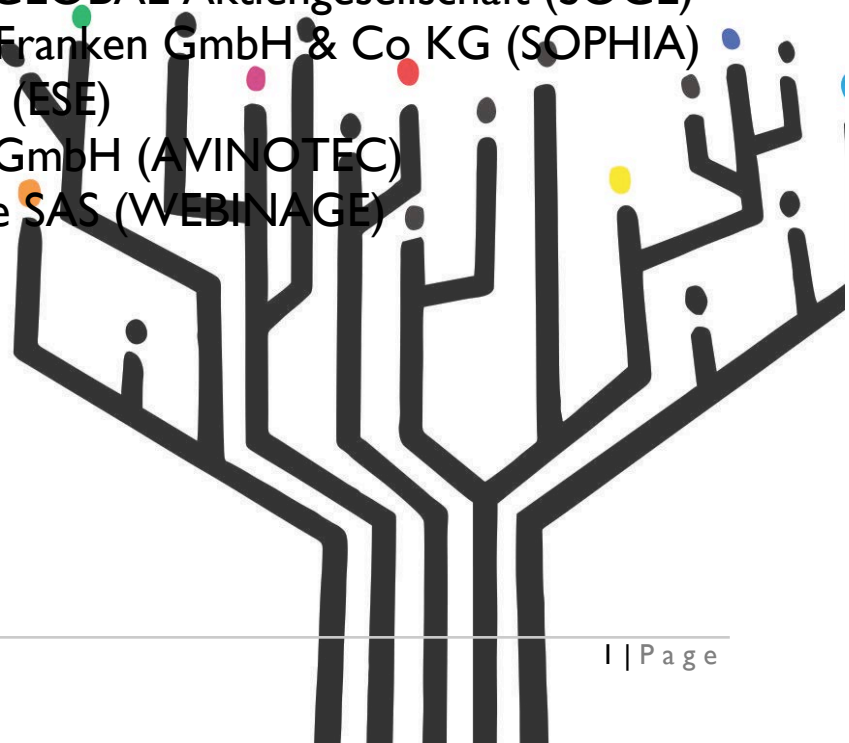
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# The Online Platform for Informal Caregivers

## Executive summary

The TOPIC project aims to support informal caregivers in their daily needs. It is intended to provide an integrated set of online-shared spaces and services to support the physical and mental care ability of non-professional, informal caregivers by enabling learning and orientation about care at home. This document describes in detail the system architecture of TOPIC and its components. It also shows the relation of the components to the use cases defined in WPI.

The content of this document is organised from a more abstract overview towards an in-depth view. It describes overall conventions and best-practices for the development of the TOPIC *CarePortfolio*. Then, it introduces our requirements that have been derived from the work done in WPI and how these form components of the TOPIC *CarePortfolio*. The components are described from a function- and technology-oriented perspective. It also describes the decision making process of the consortium when deciding for which components have to be newly developed and which existing technologies can be re-used. Finally, it presents the concrete parts that form the TOPIC *CarePortfolio*, explains terms and relates “D1.3 – Use cases” to the system architecture as well as the implementation responsibilities of each involved partner.

In this document we use the term TOPIC *CarePortfolio* to refer to the platform that builds up the whole TOPIC system, including the architecture and its components as well as the processes and contents at the platform. This document serves as guideline for the technical development of the TOPIC *CarePortfolio*, both in terms of process and in terms of content – and it documents the development process. Due to the cooperation of different project partners this is a central document for organising co-operation within technical development.



## I Introduction

This deliverable describes an extended view of the baseline architecture of the TOPIC *CarePortfolio*. It has been developed considering the requirements identified and described in “DI.3 – Use cases” in WPI.

TOPIC *CarePortfolio* is designed and engineered mainly for mobile devices. Mobile devices can be Tablet, PCs, or Smartphones. For technology dependent features that are not available in mobile web browsers, the support is limited to Android OS based devices. For special use cases, we also intend to include tangible devices as the just evolving “Smart watch” class. The server environment consists of several modules running on separate virtual servers protected by a firewall.

All mentioned parts of the TOPIC *CarePortfolio* are divided into specific functional modules and base services, which are described in detail and visualised within this document. The interfaces between these functional modules and services are also outlined and described.

### I.1 Who should read this document

This document is mainly intended for internal use, to serve as basis for the technical development of the TOPIC *CarePortfolio*. It represents a common description of the overall architecture and a detailed definition of all components to develop. All technology development partners must use this document as guideline for the implementation of the TOPIC *CarePortfolio* and its parts.

The document is also meant to inform the Ambient Assisted Living Joint Programme (AAL JP) Management and assigned reviewers about the TOPIC *CarePortfolio* architecture.

### I.2 How to read this document

This deliverable is structured into five chapters and covers the following points:

Within this first chapter an overview of the document is provided. Furthermore, the chapter defines target readers.

The second chapter is concerned with describing the system requirements and the applications and features that are needed to realise the desired functionality. Elaborating on the introductory overview, the third chapter illustrates the decision process for our base system. The logical architecture of the system is illustrated and described in section four.

In the fifth chapter we present a glossary to show the terms and concepts used in the TOPIC *CarePortfolio*.

The sixth chapter establishes the connections between “DI.3 – Use cases” and the system architecture by showing the responsibility of the project partners in their implementation and documentation.



# The Online Platform for Informal Caregivers

## I.2 Definitions, abbreviations, and acronyms

TOPIC	The Online Platform for Informal Caregivers Integrated set of online-shared spaces and services to support the physical and mental care ability of non-professional caregivers by enabling learning and orientation about care at home.
GSM	Short for Global System for Mobile Communications that is a standard set to describe protocols for second-generation (2G) mobile phone networks <sup>1</sup> .
GPS	Short for Global Positioning System, a satellite navigation system that provides location and time information <sup>2</sup> anywhere on earth, where four or more GPS satellites can be seen.
Android OS	Linux-based operating system designed primarily for touchscreen mobile devices such as smartphones and tablet computers. Initially developed by Android, Inc., which Google backed financially and later bought in 2005.
App	Application (e.g., Android Application)
GUI	Short for Graphical User Interface that enables interaction between users and the system.
CRUD	Short for Create, Read, Update, Delete that are basic database operations.
API	Short for Application Programming Interface, an interface used by software components to communicate with each other.
SIP	Short for Session Initiation Protocol that is a network protocol to establish communication.
HTTP/HTTPS	Short for Hyper Text Transfer Protocol/ Hyper Text Transfer Protocol Secure that is a communication protocol used in the World Wide Web.
MD5	Short for Message-Digest Algorithm 5 that is a cryptographic hash function to create a 128-bit-hashvalue out of any message.
TLS	Short for Transport Layer Security, which is a hybrid encryption protocol to provide secure data transmission.
AES 128	Short for Advanced Encryption Standard
OAUTH	Open standard for authorisation
RTC	Real Time Communication
SE	Social Engine
TOSEP	Topic Social Engine Plugin

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<sup>1</sup> <http://www.etsi.org/index.php/technologies-clusters/technologies/mobile/gsm>

<sup>2</sup> <http://pbo.unavco.org/instruments/gps>



## I.3 Conventions

We define and apply several conventions in our development process in TOPIC. In this section we want to present them briefly.

### Coding conventions

The code of components is developed using PHP programming/scripting language. Packages of TOPIC software modules have to be declared starting with the following schema:

**eu.TOPIC.[mobile|server].[component\_name].[subcomponent\_name]**, for example “eu.TOPIC.mobile.emergency” for the mobile emergency.

### Versioning

The client version of TOPIC *CarePortfolio* components consists of four parts (e.g., 0.2.0.3).

- The first digit describes a major version that is only changed on fundamental changes without any backward compatibility. When reaching such a milestone every partner has to increase the major version.
- The second digit describes a minor version that is increased when reaching a minor milestone like “Acceptance Tests” or “Field Trials”. Every partner increases this number when a new milestone is reached. Different components from different partners with the same major and minor version should be compatible.
- The third digit describes an internal release version of a component with changes in functionality (set of features) or user interface. It can be decided by each project partner from case to case to increase this version.
- The fourth digit describes a bug fix version of a component. At least this version has to be increased on every release to differentiate also between minor release changes.

### Build process and deployment

For all code of the TOPIC *CarePortfolio* base system, all technical partners have to use our common GitHub code repository. Beside this, for module specific, external code – which means code that is not part of the TOPIC *CarePortfolio*, every project partner can use its own VCS (version control system) to administrate his/her source code. With every milestone the repository has to be tagged and branched to be able to continue developing towards the next milestone while doing some bug fixes on the old branch.

For native mobile components, every partner has to provide his/her new released version as TAR (derived from tape archiver) and upload this version on a common defined shared folder (TOPIC BSCW). The TAR file has to have a version suffix like defined in section “Versioning” (e.g., TOPIC-smartwatchclient-0.2.1.10.tar).

In case of a new server release, the artefact has to be versioned and saved as backup. After the deployment of any component, release notes containing major changes and bug fixes since the last release, have to be written and published to all developing project partners.



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## Testing

Testing is done on three levels. Every partner is responsible to write unit tests to double-check that his/her components and subcomponents are working correctly. These unit tests have to be run before each software release is built.

After that, an integration test has to be done. In case of a mobile component all dependent components have to be setup on a test phone and the interface to the other components to be tested. In case of a server component the interfaces to other components have to be tested by using mock-ups or test tools like, e.g., *JMeter*.

For a minor or major release (reaching a milestone) a system test is required. Using the requirements document all functional and non-functional requirements have to be retested and verified.

There are two separate environments, one production and one test environment. All components are duplicated and it is required that the production environment does not interfere with the test environment and vice versa. The system test is executed on the test environment and will be deployed on the production environment after success.

## Bug tracking

To track issues like features, tasks, and bugs a bug tracking system (*JIRA*) will be established and maintained. All milestones, versions, and releases will be tracked within this system as well as the user requirements (features) and found problems (bugs). It is strictly required that after the initial release every problem that has been discovered is entered in this central bug tracking system.

Bugs, features, and tasks are described in tickets and can be assigned to a software component with a specific version and a target milestone. After a bug has been fixed, the ticket should be reassigned to the reporter in order to be retested. Only the reporter should be able to set the resolution to “fixed”. For every minor or major release, it is required that there are no open tickets with the priority blocker, critical or high. All other tickets with lower priority can be moved to the next milestone after clarification with project management.





## I.4 Overall considerations

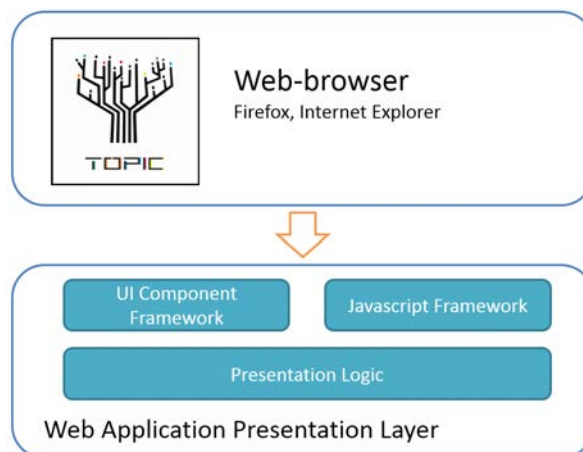
Besides conventions we consider several other aspects in our development. These aspects are presented in this section.

### Mobile technology

At the moment Android OS is installed on about 75%<sup>3</sup> of all sold smartphones and thus has the highest distribution among smartphone owners. Hence the stakeholders and project partners decided to develop the TOPIC *CarePortfolio* mobile applications for Google's Android OS that also has the advantage that it is Open Source and based on a Linux Kernel.

For security reasons the user has to authenticate before entering the TOPIC *CarePortfolio* either via a mobile device or the TOPIC *CarePortfolio* web app. Each mobile application has a layered architecture with strong separation from GUI components and business logic. Within a layer the software is grouped into logical components that might have corresponding server-side components and meet the SOLID<sup>4</sup> principle.

Besides the agreement on Android OS, the TOPIC *CarePortfolio* should also support caregivers who do not own an Android OS based mobile device. Therefore the system supports the usage of standard fixed network or mobile phones for emergency alerting. In this case, interaction with the server can happen only during a voice call by pressing keys on the phone's keyboard. The standard mobile phone or even modern fixed network phones can receive SMS, containing more detailed information about the care receiver in case of an emergency situation.



**Figure 1: The main architectural structure of the TOPIC *CarePortfolio*.**

The care receiver can use a GPS tracking device providing a SOS button, additional sensor information for location detection and a GSM module to send this necessary information to the TOPIC *CarePortfolio* server environment.

<sup>3</sup> <http://www.idc.com/getdoc.jsp?containerId=prUS23771812#.UQJKLb92Q3k> (Accessed: 25<sup>th</sup> January 2013)

<sup>4</sup>SOLID: Single responsibility, Open-closed, Liskov substitution, Interface segregation and Dependency inversion



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## **TOPIC CarePortfolio server environment**

In general the TOPIC *CarePortfolio* server environment is designed as service-oriented architecture and provides service components as loosely coupled units with dedicated functionality. This is strictly required since different project partners implement different services. The services itself have a layered architecture and an object oriented structure. Services might communicate among each other using a message-oriented approach, not knowing specific details about the other's service implementation. This flexible design allows easily plugging services of different technologies to the TOPIC *CarePortfolio* server environment.

## **External or 3<sup>rd</sup> party components**

Generally, external components can be divided into components that simply provide an application-programming interface (API) and are not hosted by the TOPIC consortium, and components that are configured and hosted within the TOPIC *CarePortfolio*. Third party software, as long as it can be self-hosted, may be used to provide functionality as needed and seen acceptable for the TOPIC *CarePortfolio*.

In general, connections to external, 3<sup>rd</sup> party services should be established asynchronously since no reliability can be guaranteed.

The *phone service* on the other hand is hosted by the TOPIC consortium and is needed to initiate a phone call to the registered mobile phone of a current available caregiver in case of an emergency. One considered technology for the phone system is the *Asterisk<sup>5</sup> framework*.

## **Presentation layer**

The presentation layer contains the components that implement and display the graphical user interface (GUI) and manage user interaction. An existing UI Component Framework provides the visual elements. The logical behaviour and structure of the application is implemented independently using a presentation logic component. Access to the presentation layer is stately with authentication and authorisation required. Client side script code is also stored and delivered on demand. Additionally a Mapping Framework such as OpenLayers is required to embed an external map as geographic reference for geographic drawing purposes (e.g., draw geo-fences on a map).

The web application is based on PHP and executed by a web server, like Apache.

The graphical user interface provides a possibility for role-based login and to administer TOPIC participants like caregivers or care receivers (see TOPIC personas). Participants that are using mobile devices accessing device specific (native) functionality do need a mobile device that is compatible and can be registered. Additionally, alert chains as well as reminders triggered by certain devices or functions of the platform have to be managed. In case of an emergency the current position and kind of alert is shown in a geographical context.

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<sup>5</sup> <http://www.asterisk.org/>



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The UI component framework produces components that are style able using an external style-sheet like CSS. The colour values of this style sheet have to comply with the style of mobile components

## Crosscutting concerns

Cross Cutting concerns are by definition aspects, such as security, communication, logging and exception handling, which affect other parts of the system. Crosscutting code is abstracted from the application-specific logic to reduce dependencies and code duplication. The following chapter introduces some main design principles regarding crosscutting code developed for the TOPIC *CarePortfolio*.

It is mandatory to **log** sufficient detail for each service to create events for reproducing failure without including too sensitive information. The service interface acting, as façade will keep audit-trails in form of chronological records to document evidence of the sequence of called services in case of an error. Also this can help to detect suspicious activity and provide early indication of a serious attack. Unexpected errors and warnings are identified by each service and logged properly in a file including date and time, event level and event message. Exceptions occurring during runtime are meaningful and adapted to a defined error code when returning from the service method.

**Exceptions** are caught, logged and transformed at service boundaries before passing them to the next component. No sensitive information must be delivered to the end-user and the application state after an exception must be stable. Services that provide an API over HTTP for communication translate exceptions in well-known HTTP error codes and error messages.

**Authentication** is mandatory for every client and assured by a single service end-point that strictly asks a user to authenticate. To ease the access for mobile devices, after first time authentication using a mobile client, the authentication information is cached and re-used.

The graphical user interface of the web application provides a login page for authentication. The username and password is transmitted encrypted using SSL (e.g., with AES), hashing (MD5) and is salted. Only the hashed and salted password is stored in the database for security reasons. The assigned session will be valid for one day, after that time the user is forced to re-authenticate.

The authenticated user is **authorised** for specific services based on his assigned role. Authorised user roles will include system administrators, caregivers and care receivers. System Administrators have non-restrictive access to all services and underlying business functionality. Caregivers can access information regarding their assigned care receivers, using the mobile Apps or the web.

The **state** of the TOPIC *CarePortfolio* has to be saved in case of a system shutdown and should be restorable when restarting it again. Each service or functional module is responsible for its state and has to recover to a valid running application.

Interfaces should communicate in general less often but with more information in each **communication**. The façade pattern is used to wrap fine-grained (chatty) interfaces causing several process calls into a coarse-grained (chunky) interface when communicating across physical or service boundaries. The message-based communication considered for the message-oriented middleware happens asynchronously to avoid blocking processing threads. Additionally the communication to external services happens also asynchronously to avoid blocking UI threads.



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This is valid for server-side and client-side implementation. Messages are queued and persisted by the message bus implementation for later delivery in case of system or network interruption or failure. Communication between different networks occurs over HTTPS bypassing any possible firewall restrictions.

Some service components need to be administrated during runtime and provide, therefore, a graphical user interface for administrators for configuration purposes. Only minimal configurable settings are provided according to the actual business needs.

Services using a **database** have to ensure that the data stored is in a consistent state according to the system requirements. In case of a relational database system, parent tables hold information about version and creation and update time for each editable dataset.



## 2 Requirements

In this chapter we present the analysis of the requirements gathered so far in the project. Here we are concerned with describing the system requirements and the applications and features that are needed to realise the desired functionality.

### 2.1 Overview

Besides the obvious goal to cover all our requirements defined in WPI, the main focus for the TOPIC *CarePortfolio* system architecture is to identify and define, logically grouped building blocks with minimal coupling and well defined interfaces based on open standards, independently from a specific programming language or platform specific implementation technology.

Regarding user interfaces, it is our declared goal to make extensive use of web-technology, which can be interpreted by standard web browsers and thereby maximise the number of possible devices for accessing the TOPIC *CarePortfolio*. Regarding supported mobile device classes or screen-sizes/-technology we want to offer dedicated support for touch controlled tablet sized computers and smartphones. For end-user side (client) features or functions that cannot be implemented with standard web technology we consciously limit our focus on supporting Android OS based mobile devices.

To achieve these overall targets and to allow efficient, autonomous development we divide our basic building blocks in logically grouped functional modules and general utility or base services which offer common base functionality for all the functional modules or the overall TOPIC *CarePortfolio*.

These basic building blocks will be described in the following sections.

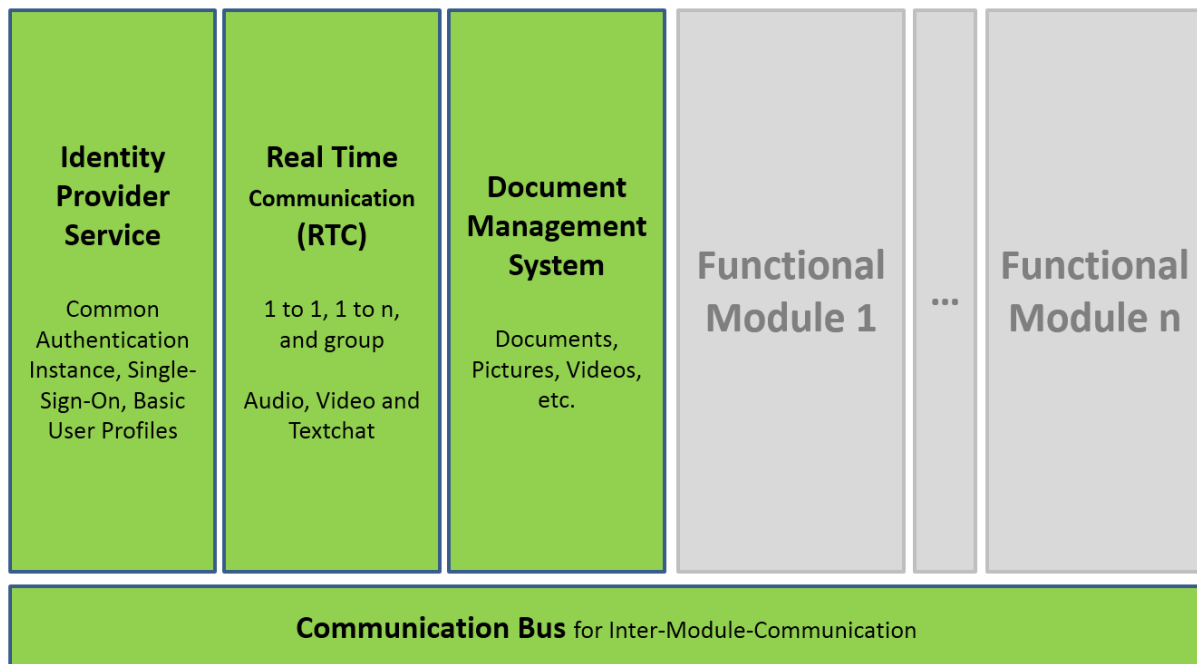
### 2.2 TOPIC *CarePortfolio* base services

To establish the needed infrastructure for our TOPIC *CarePortfolio* and to provide common base functionality to the functional modules, we have identified the following TOPIC *CarePortfolio* base services:

1. Identity Provider Service
2. Real Time Communication Service
3. Document Management System
4. Communication Bus



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**Figure 2: The base services of the TOPIC CarePortfolio.**

These common base services will be further described in the following sections.

## **Identity Provider Service (IPS)**

As the technology mix of the TOPIC consortium partners and their expertise and tool-chains vary widely, it was decided easily, that the TOPIC *CarePortfolio* can't have a monolithic design with a single code base. To profit from specific strong points of each partner, it must be possible for them to use the tools and technologies they are trained to.

By going down this path we end up with a mix of different modules that are implemented by different partners with different technology and different tool-chains. However, this kind of heterogeneity has to be invisible for the TOPIC end-user and traversing from one module to another should not interrupt the overall user experience.

One important aspect to achieve such behaviour is to prevent the need for the users to login at each module before he or she can access the TOPIC contents. In TOPIC, we want to provide a **Single Sign-On (SSO)** experience with the help of a central TOPIC *CarePortfolio* identity provider service.

The TOPIC Identity Provider Service is the common authority to check a user's access credentials and manages the associated identity tokens for accessing a TOPIC *CarePortfolio* module's content. If a user has no valid identity token and tries to access secured, private content, he or she is redirected to the common login page also provided by the Identity Provider Service.

As our heterogeneous architecture is dependent on common standards, our TOPIC IPS will be based on *OAuth version 2*, the most widely used and supported open standard for authorization.



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As *OAuth2* is the authorisation protocol of choice for almost all online communities today, it will be very easy to integrate support for already established identity providers like Facebook or Google+.

Besides plain authorisation the identity provider service will also manage basic user profiles. A basic user profile includes common standard attributes like first name, last name, email, picture, gender, birthday, or hometown.

## Real Time Communication (RTC)

Another vital service to establish the strong social component of the TOPIC *CarePortfolio* is the RTC service. The RTC service should enable the TOPIC users to reflect and discuss about the TOPIC *CarePortfolio* content or simply get in contact with others in live and synchronous ways.

The following media-forms of synchronous live communication will be supported in arbitrary combination:

- Chat – Text based live communication
- Audio – Sound based live communication with focus on spoken text
- Video – Live Video stream of the communication partners

Beside the communication media, the RTC service will further support 1-to-1, 1-to-many and common forms of group communication (e.g., video conferences).

For the RTC service to be easily usable by the functional modules, it has to provide extensive interfaces that can also be accessible from web applications hosted by standard browsers.

A good example for a basic platform independent interface for a RTC service is the URI driven interface of Skype:

<http://msdn.microsoft.com/en-us/library/office/dn745878%28v=office.15%29.aspx>

## Document Management System (DMS)

To store detailed documents, multimedia content like photos, audio-tracks/-notes, and videos that are at least potentially interesting for more than one of the functional modules, there is the idea to store and manage this content in a common DMS.

## Communication Bus

For implementing inter-module communication in our service-oriented architecture we want to interconnect our modules by the means of a communication bus. We discussed the possibility to do so by integrating existing Enterprise Service Bus (ESB) technology but at least at the time of this writing this seems to be overkill, as the intended use and the involved complexity of the common ESBs are inappropriate for our project.

A decision on the specific technology product for the communication bus will be made at a later stage. Standard inter-module interfaces should be implemented in form of *RESTful* web-services. The standard data-encoding format for the TOPIC *CarePortfolio* is *JSON*.



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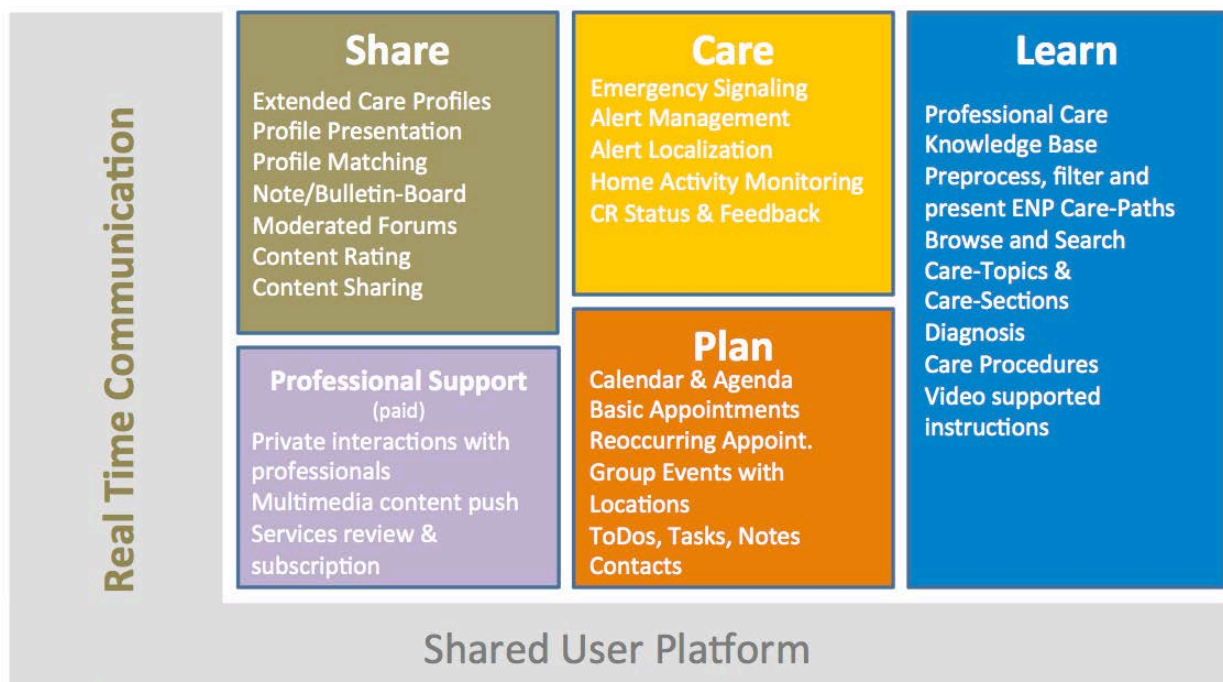
## 2.3 TOPIC functional modules

On top of the base services, the functional modules are an attempt to group the functionality that can be derived from the TOPIC requirements and belongs logically together in meaningful way and distribute these integral work packages within the TOPIC partners that are involved in WP2.

So far the following functional modules have been defined:

- “Care” – This module contains functions, which should directly support the caring process.
- “Learn” – This module is an extensive knowledge base with qualified information on caring and nursing.
- “Plan” – This module contains functionality to help in organizing the care process.
- “Share” – This module encapsulates the community functions of the TOPIC *CarePortfolio*.
- “Professional Support” – This module integrates additional, paid support services offered by 3<sup>rd</sup> party professionals.

A colour-coded scheme containing all functional modules is visualised in the following diagram:



**Figure 3: Functional modules of the TOPIC *CarePortfolio*.**

This colour coding is also used for grouping the reference table in Section 3 that schematically associates the “DI.3 – Use cases” with this functional modules and documents the implementation responsibility.

A description on the functional modules and the related technologies will be given in the following sections.





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## Functional module “Care”

The “Care” module contains functionality to strongly interconnect the caregiver with their care receivers and, thereby, to provide additional confidence on both sides for all those situations in which the caregiver cannot be on-site. The intended goal is to provide status information about the care receiver’s overall situation at home and it also includes an interactive alert function for the care receiver to signal an emergency and helps the caregiver with vital and real time information on the emergency case and its location.

### Home activity monitoring

The idea is to assess the overall status of a care receiver by tracking his or her activity in the living place and trying to distinguish “normal” from “exceptional” behaviour. This tracking is done with strategically placed “Smart Home” sensors of the following kind:

- Movement sensors
- (Light) switch sensors
- Door or window sensors

The interaction with these sensors cannot be realised in standard web-technology so one of the challenges in this module is to implement a sensor gateway that is able to interact with the Smart-Home sensors, collects and buffers the data on-site and to transmit the sensor data for further processing and situation assessment into the backend.

In the backend, we have to implement a heuristic with which we try to distinguish normal from no or exceptional behaviour and to visualise the status information for the caregiver. Regarding status visualisation there is the idea to use a traffic light metaphor.

### Emergency alert signalling

Besides the “Home Activity Monitoring”, the “Care” module also includes the possibility for the care receiver to actively trigger an alert and signal an emergency situation. Besides a care receiver actively triggering an alert, alerts may also be automatically detected based on sensor activity and the care receiver’s geographical position.

For alert signalling, the intended device is an Android OS based Smartphone or Smart watch. As this function should work reliably and in nearly all situations and modes, this function is also a candidate for which native code is needed.

The exact mechanism for triggering such an emergency alert on a Smart watch is still being evaluated. The “Emergency button” has to be easily accessible, must work reliably but on the other hand of course we strive to prevent false alerts.

### Emergency alert handling

If an emergency situation is detected, either by interactive signalling from the care receiver or derived from the sensor data, the “Care” module also offers the functionality to handle this event in a responsible and sustained way. The idea for this aspect of the system is to effectively search for someone to take care of the emergency situation.



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To achieve this, it will be possible to configure an ordered list of people who will be contacted in case of an alert. If an alert happens, the first person in the list will be contacted and this person has also to actively declare the willingness to take care of the case. If the person does refuse or does not react at all, the next person from the list will get contacted. If none of the persons accepts an open alert or none of them is reachable, the system will wait for a configurable delay and then re-start processing the ordered list of contacts. To avoid situations in which no person can be found to take care of an open alert, it is also planned to include professional call centres in the alerting chains.

To make the contacting as robust and universal as possible, it will be done via automatic, computer controlled voice calls. With this approach the potential members of such an alert chain do not need to have a smartphone or tablet, a normal (GSM) phone is enough to get informed about an on-going emergency. To differentiate between automatic answering machines and to get qualified information whether a contacted person will take care of an on-going emergency or not, the contacted person has to confirm taking over the alert by pressing a dedicated number on his phone's dial pad.

## Functional module “Learn”

With this module we try to adapt the contents of a professional care database for professional nurses to the needs of our primary target group – the informal caregiver, which in many cases is a direct relative to the care receiver.

The knowledge base, which has been developed over the last 25 years, is structured in the following cross-referenced dimensions:

1. Diagnosis
2. Symptoms
3. Possible causes
4. Care Resources
5. Care Targets
6. Care Instructions

The challenges in this module are to decide which content of this really huge database is suitable for our specific context and to allow working with the content in a user collaborative way while still maintaining good performance.

In principle this module will offer the following ways of interaction:

1. Browse the content and categories
2. Traverse between the different dimensions, see how they are interconnected
3. Search in specific categories, dimensions or by simply entering care related keywords

To achieve the intended collaborative aspects for this module it will be possible to easily reference topics or objects from the knowledge base in other functional modules – especially the “Share” module.

Regarding user interface technology this module will be available via pure web-technology on all supported device types and screen sizes.



# The Online Platform for Informal Caregivers

To make it easier to learn from the detailed but abstract care instructions, it is also planned to at least start with enhancing the text-based instructions by adding video tutorials.

Detailed diagrams on the involved components, the static and dynamic behaviour will be added and further developed in future versions of this document.

## Functional module “Plan”

The “Plan” module is intended to help the caregiver in organizing the potential complex care process, coordinating the care related tasks and duties with other people and, hopefully, finding more time for other but also important aspects of life.

The central component in the “Plan” module is a flexible calendar component that allows TOPIC users to have one or more calendars that can be dedicated to different user specific categories and may also be shared with other users. In this calendar concept there are also predefined (system) calendars for special dates (e.g. national holidays, care events), which can be subscribed to and merged into a TOPIC user’s agenda.

The agenda is the consolidated list of all upcoming organisation related items from all the personal and subscribed calendars and the To-Do list.

A calendar can contain multiple personal or public events. An event is an intended meeting at a well-defined point in time and will have the following attributes:

- Event Subject
- Description
- Start-Date, -time
- End-Date, -time
- Host and Location
- Category
- Photos
- Event Privacy
- Participants

With the “Event Privacy” attribute it is possible to define who is able to see and subscribe to an event. For this attribute, the following options will be available:

- Just me (personal event)
- Friends only
- Event guests only (only explicitly invited)
- Everyone

The “Plan” module will also offer a special view for upcoming events and similar to the idea presented in the “Learn” module, it should be easy to reference such events in the “Share” module.

Besides the calendar functionality, the “Plan” module will also offer the possibility to manage personal To-Do lists. A To-Do list is intended to consist of To-Do items which shortly describe something that has to be done or may also be a simple note. A To-Do item may also have an optional due date.



# The Online Platform for Informal Caregivers

As organisation is strongly related to people, the “Plan” module also manages a topic users list of contacts.

## Functional module “Share”

The “Share” modules focuses on the social and community related aspects of the care process and should allow our users to interact and discuss with other TOPIC users about things like features of the TOPIC *CarePortfolio*, about care specific problems, about content of the care knowledgebase, or other arbitrary topics but also everyday exchange.

To get in contact with each other, a TOPIC user should also have the possibility to present himself and to manage a public profile that is visible to others and gives information on the users specific care context, interests and manage a simple, TOPIC related blog. To find other TOPIC users in similar care situations, it will also be possible to search for them in respect to their care related profile information.

Besides the management of user profiles, the “Share” module also offers a hierarchical and flexible message board or forum system. This message board system can be creatively organised in different areas of interest and offers distinct and focused places for the users to contribute on topics of common interest.

If a user makes a contribution in a forum in form of a response or new thread, it should be also possible for other users to rate the contribution. Beside the rating of user contributions, it should also be possible to tag content in the “Share” module with arbitrary terms or notions which can then also be used to find related content (with the same tags).

Furthermore a forum may be moderated or non-moderated. For a moderated forum, a moderator has the final decision on the available content and the moderator reviews new contributions before they are visible to other users.

When a user makes a contribution in one of the available forums, he or she should be able to decide if this will be done under his user name or anonymously.

As this kind of functionality has been implemented by countless community projects in uncountable variants already, the technical partners share the strong belief that, this functional module should not be implemented from scratch. The current idea is to use one of the many available community or message board system out there (even for free) and adapt them to our liking.

Our evaluation process to find such a system is further described in section 3 of this document.

## Functional module “Professional Support”

The “Professional Support” module should allow business oriented third party companies to offer additional support services or paid offers to the TOPIC users.



## 3 Base System Evaluation

All of the technical partners in the TOPIC consortium share the strong believe that many of the features contained in the functional modules “Share” and “Plan” have been implemented in various mature and available products already. None of us wanted to re-invent the wheel again but focus on implementing and integrating the advanced and innovative features of the TOPIC *CarePortfolio* on top of a solid and available base system.

In the evaluation process for the TOPIC *CarePortfolio* base system, we focused on the following criteria:

### 3.1 General evaluation criteria

- **Source code availability** (extendibility)  
As we want to extend and customize the base system, source code availability was the criteria of highest priority.
- **Self-hosting possibility** (privacy)  
TOPIC strives to establish itself as an online community for informal care givers and care related data is of course highly sensitive and private data. Because of this, being able to keep full control over the system and the databases was also a top priority.
- **Active development and support**  
To profit from an active development community and state of the art technology, it was our goal that the base system candidates are mature but still in active development. Beside this, also the option to get help via a qualified support service was important.
- **Developer friendliness**  
Code structuring, readability, overall quality  
Documentation, Tool-chains
- **Theming support** (including mobile)  
As the user interface is of special importance to the TOPIC platform and we want to deliver a target group optimized design on multiple devices with different form factors, a flexible theming engine which also offers support for mobile devices was also a must-have aspect for a possible base system candidate.
- **Single Sign On support** (SSO)  
TOPIC users should only need one set of user credentials for all TOPIC services
- **Multilingual**  
The base system candidates must have built-in multilanguage support for the base-system itself and of course also for the planned extensions.

### 3.2 Functional evaluation criteria

To satisfy our requirements in respect to (social) community features, the base system candidates should offer support for the following features:

- User profiles (extendable)
- Online Forums
- Blogs
- Messages
- Interest Groups



# The Online Platform for Informal Caregivers

- Content Sharing
- Content Tagging
- Polls
- Calendar and Events

Overall we found more than 15 social community products, which went into our evaluation. A comparison of the most promising candidates can be seen in the following figure:

	IsVipi	Jamroom	Tiki Wiki	Buddy Press	Elgg	Social Engine	Joomla!	Telligent Community	eXo Platform	Drupal
<b>License</b>	GPL 3.0	MPL	LGPL 2.1	GPL 2.0	GPL 2.0	Custom	GPL 2.0	Custom	LGPL	GPL 2.0
<b>Cost</b>	Free	Free	Free	Free	Free	from \$299, to \$669	Free	Per License	Free	Free
<b>Source Code</b>	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Installation</b>	Out of the box	Out of the box	Out of the box	Out of the box	Out of the box	Out of the box	Out of the box	Out of the box	Out of the box	Out of the box
<b>Codebase</b>	PHP, MySQL	PHP, MySQL	PHP, MySQL	PHP, MySQL	PHP, MySQL	PHP, MySQL	PHP, MySQL	ASP.NET 3.5 / Microsoft SQL Server	Java, PostgreSQL	PHP, MySQL
<b>SSO support</b>	Active Directory built in	Module	OpenID + LDAP + Active Directory built in	Facebook Connect Twitter Connect LDAP OpenID (via plugins)	LDAP built in, OpenID by plugin	Facebook Connect, module	OpenID, module	OpenID LDAP Active Directory Facebook Cookie Forms	OpenID + LDAP + Active Directory built in	OpenID, module
<b>RSS</b>	Yes	Module	Yes	Yes	Blog, Files, Groups, Users, Tags	Plugin, \$50	Yes	Yes	Yes	Yes
<b>RSS Reader / Aggregator</b>	No	Module	Yes	No	Yes	?	?	Yes	Yes	Module
<b>Access control</b>	User levels, Groups	Yes	Yes	User levels, Groups	Users, groups (extensible via plugins)	Users levels, Groups, Pages	Yes	Yes	Users levels, Groups, Pages	Yes
<b>Wiki</b>	Yes	No	Yes	Plugin	Plugin	No	No	Yes	Yes	Module
<b>Forum</b>	Yes	Module	Yes	Yes	Plugin	Plugin, \$40	Component	Yes	Yes	Yes
<b>Blog</b>	Yes	Module	Yes	Yes	Yes	Plugin, \$40	Yes	Yes	Yes	Yes
<b>Media sharing</b>	Yes	Yes	Image, Video, Audio and Kaltura integration	via choice of plugins	Kaltura integration	plugins : Photo \$40, Music \$30, Video \$40	?	Yes	Yes	Kaltura integration
<b>Messaging</b>	Yes	Module	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Module
<b>Event Calendar</b>	Yes	Module	Yes	Plugin	Plugin	Plugin, \$40	Plugin	Module	Yes	Module



# The Online Platform for Informal Caregivers

<b>Social Grouping</b>	Yes	Yes	Yes	Yes	Yes	Plugin, \$40	Plugin	Yes	Yes	Module
<b>Tagging</b>	No	Module	Yes	Forum tagging and Group tagging via plugin	Yes	Plugin, \$40	?	Yes	Yes	Module
<b>Connectivity</b>	Yes	Module	Webservices	Plugin (Facebook, YouTube, Twitter, Flickr, YouTube)	Plugin (Facebook, YouTube, Twitter, VEOH)	Yes	?	Facebook, Google, Content Mirroring, RSS importer, External Widgets	Webservices	via third party integration like Octazen scripts
<b>Bookmark Sharing / Management</b>	?	Module	Yes	?	via plugin	Facebook, Twitter	?	Module	No	?
<b>Poll Generation / Tally</b>	?	Module	Yes	?	Plugin	Yes	Yes	?	Yes	Yes
<b>Contact Management</b>	?	Module	Yes	?	Yes	Yes	?	Yes	No	?

**Figure 4: Comparison of 15 social community products.**

([http://en.wikipedia.org/wiki/Comparison\\_of\\_social\\_networking\\_software](http://en.wikipedia.org/wiki/Comparison_of_social_networking_software))

At the end of the evaluation process, the consortium decided for Social Engine as the Base System for the TOPIC *CarePortfolio*. Social Engine is a commercial product but the source code available and can be customized to our needs. That led to the decision for Social Engine<sup>6</sup>. The quality of the object oriented code (built on ZEND Framework) was found good, it has a developer friendly theming and plugin engine (also for mobile) and it offers the possibility of being able to access professional support if needed.

Beside to these - compared to the competitors - overall strengths, Social Engine also comes with a very strong, social community focused feature set including multi-part user profiles, extensive privacy options, activity feeds, Blogs, Groups, Events, Forums, Messages, Multimedia Albums and Polls.

A full list of the features offered by Social Engine can be found at the following address: <http://www.socialengine.com/features/php/>

<sup>6</sup> <http://www.socialengine.com>



# The Online Platform for Informal Caregivers

## 4 Architecture

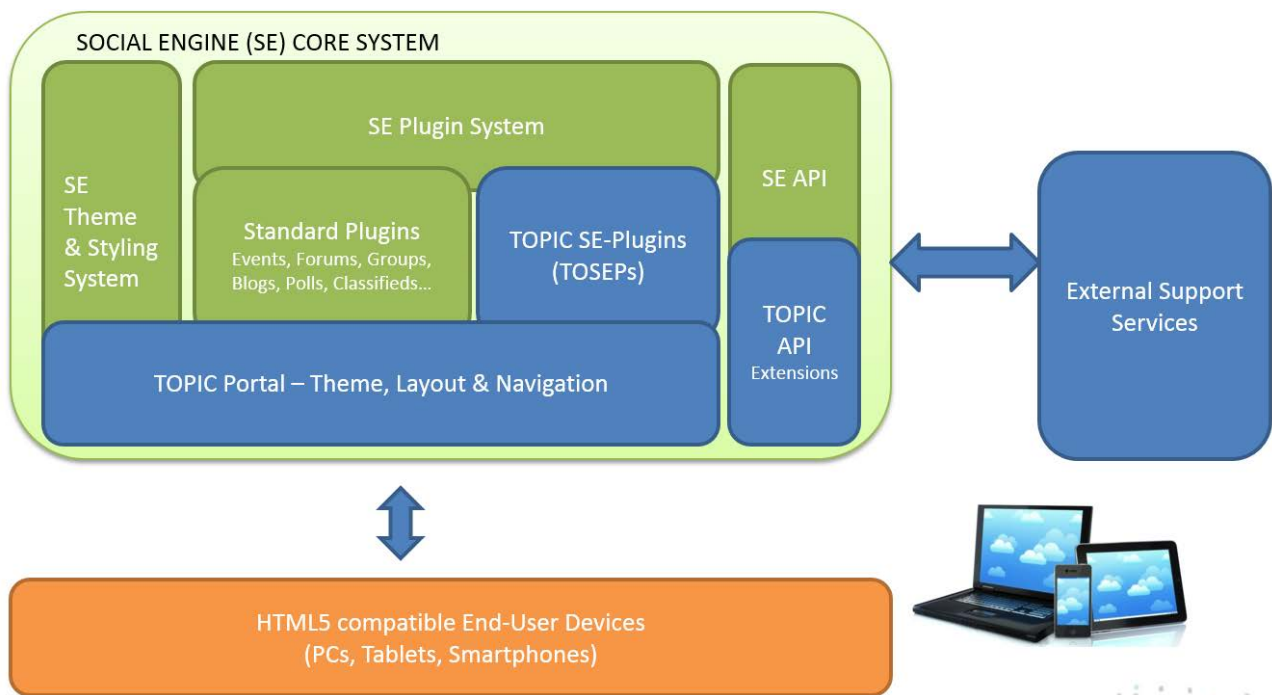
The TOPIC *CarePortfolio* will be built based on Social Engine which is implemented in PHP5 based on MySQL as DBMS and the open source, object oriented web application framework ZEND (ZF). The Zend Framework is an approach of loosely coupled components and cleanly implements the Model-View-Controller (MVC) architectural pattern in an accessible, developer friendly way.

Based on the MVC pattern Social Engine offers clean interfaces for implementing the various extensions needed for building the TOPIC *CarePortfolio*. The first important interface needed for TOPIC *CarePortfolio* is the interface into the Social Engine Theme and styling engine on which we want to build the TOPIC *CarePortfolio* Portal Theme for our various target platforms: Desktops, Tablets, and Android Smartwatches.

The second important interface is the Social Engine Plugin System which we will use to implement all the features that are not covered with the standard functionality of SE and have been described in section 2 of this document.

Besides the TOPIC *CarePortfolio* core functions, that will be completely integrated in our SE base system, the TOPIC *CarePortfolio* will also connect to external services which will need to access the various objects and entities managed inside SE (users, profiles, user content, notifications etc.). To achieve this, Social Engine offers a REST based interface which we will use and extend to also connect the TOPIC *CarePortfolio* to professional, external support services.

An overview of the TOPIC *CarePortfolio* can be seen in the following figure, the boxes in blue represent our main implementation focus:



**Figure 5: The TOPIC *CarePortfolio* and its components.**





# The Online Platform for Informal Caregivers

## 4.1 TOPIC *CarePortfolio* Social Engine Plugins

To provide the features described in the requirements, the following TOPIC Social Engine plugins (TOSEPs) will be developed:

- TOSEP Real-time Communication  
Enables our TOPIC users to interactively communicate in real-time by the means of audio, video and text-chat.
- TOSEP Activity Tracking  
Based on home automation technology and sensors this plugin allows to get feedback on the care receivers activity in an unobtrusive way
- TOSEP CareCam  
This plugin allows the caregivers to check the situation at the care receiver's home via one or multiple live video streams.
- TOSEP Knowledge Base  
The Knowledge Base plugin enables our TOPIC users to browse and search the EDP care database.
- TOSEP Notes Board  
The Notes Board will implement the ability to create notes and share them also with external people like professional nurses.
- TOSEP Professional Support  
This plugin will implement a simple interface that allows our informal caregivers to interact with external, professional, care related support services.

TOSEP Professional Support is implemented as ticketing system on the professional side, which resides outside of the TOPIC *CarePortfolio* base system and will be used by the external support services to respond and interact with the support request that originate from the integrated plugin. The users of this external application are the employees of the external service provider and are, as the application itself, completely separated from the TOPIC users and the TOPIC *CarePortfolio*. The two systems and the respective users will be interconnected via the extended Social Engine API.

## 4.2 TOPIC *CarePortfolio* Portal Theme

To achieve our goal to provide a consistent user experience, we want to provide all our content, features and especially our extensions and plugins inside a common user interface, targeted and optimized for informal caregivers. The TOPIC *CarePortfolio* user interface will utilize the SE Theming engine and implement the TOPIC *CarePortfolio* user interface as a SE compatible theme providing the following qualities:

- Multi-platform support
  - basic support for all platforms with compatible browsers
  - using HTML5 and CSS
- Multi-screen support
  - support different screen sizes and form factors
  - Desktops, Tablets, Smartphones
  - Responsive design if possible
- Multi language support
  - Utilizing the i18n/NLS support of the base platform



# The Online Platform for Informal Caregivers

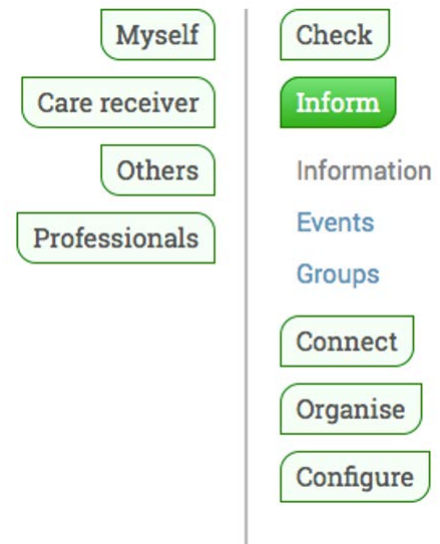
As the TOPIC SE Plugins are developed by different partners also a common style guide has to be developed. To fit the theme technology and to be usable by the developers, the style guide will be defined in form of Cascading Style Sheets (CSS) that have to be used and extended in agreement with the theme development team.

## 4.3 TOPIC Navigation

The central navigation menu for TOPIC *CarePortfolio* will group and present the features and functions of the TOPIC platform in an redundant way by offering two perspectives:

1. Who – With whom do I want to interact?  
In this perspective the functions are grouped based on whom I want to interact.
2. What – What do I want to do?  
In this more traditional grouping the functions are grouped based on what a user is likely to do inside the TOPIC platform.

These two perspectives will be presented to the TOPIC users in form of an interactive tree where the functions are accessible via clickable leaves. On devices with touch displays, the leaves will also be big enough to be accessible without a mouse (Tablets, Smartphones). The tree offers easy navigation in different use contexts and will be our central navigation facility (single point of return). When returning to the tree, it also remembers the last used subgroup for easy orientation.





## 5 Glossary

Entity	Description
User	A person who has an account in the TOPIC <i>CarePortfolio</i> web-portal. A TOPIC user may also be referred to as 'member'.
Member	see 'User'
User Profile	<p>The set of all properties that describe a user. It consists of the information provided by a user when registering on the platform and any other information entered through the 'My Profile' space, where users can add further information about themselves and the care situation they handle. The standard user profile includes the following properties:</p> <ul style="list-style-type: none"><li>• First Name</li><li>• Last Name</li><li>• Gender</li><li>• Birthday</li><li>• Website</li><li>• Twitter Id, Facebook Id and/or AIM Id</li><li>• About me (short personal description)</li></ul> <p>Care-related information can be entered in the 'About me' field. A more precise set of fields, including, for instance, the health condition of the care receiver, the relationship with him/her, etc., are yet to be defined.</p>
User Profile Privacy	<p>Configuration options regarding the visibility of each user profile information. The user can control which platform visitors; TOPIC users or user groups can see each piece of information provided by them in the platform. For specifying visibility, a user has the following options:</p> <ul style="list-style-type: none"><li>• Everyone – Even non-members/visitors may see the property.</li><li>• All members – Only members can see the property.</li><li>• Peer – Only members that are has joined the user network have access to it.</li><li>• Only Me – Nobody can see the property, but the user him/herself.</li></ul>
Peer	Another TOPIC user for which the special 'Peer' status has been granted. To become somebody's peer, one can either send a request or accept a request from others. The 'Peer' status can be used as a precondition for content visibility.



# The Online Platform for Informal Caregivers

Entity	Description
Group	<p>Sub-communities of a member's community. They are places of discussion and sharing under member's control. Members can create groups to socialize around any topic with other members who have similar interests. Content, which can be shared within groups, includes 'Discussions', 'Photos' and 'Events'.</p> <p>Group creators can decide if their groups are public, which means any member can join freely, or closed only, which requires an invitation to join.</p> <p>Furthermore, Group creators can grant group members Officer status. Officers can moderate group content, and can perform leadership roles within the group.</p>
Discussion	<p>Set of messages exchanged within a Group. They offer the possibility of asking questions or starting a conversation with other Group members, who can participate in it by posting a 'Reply'. A discussion can include formatted text and photos.</p>
Reply	<p>A response to an ongoing 'Discussion' or 'Forum topic'. It can include formatted text and photos.</p>
Group Message Comment	<p>see 'Discussion'</p> <p>Basic instrument for TOPIC members to participate in the community and/or reflect on all kinds of content available in the TOPIC <i>CarePortfolio</i> web-portal. Comments are simple (no advanced formatting) and short text-statement.</p>
Event	<p>A planned social occasion organized or shared by platform members. They can be online or face-to-face meetings. The mandatory properties describing an event are:</p> <ul style="list-style-type: none"><li>• Event name</li><li>• Start Time and End Time</li><li>• Privacy</li></ul> <p>Regarding privacy, users can choose among the following options:</p> <ul style="list-style-type: none"><li>• Just me</li><li>• Friends, Friends including Friends of Friends</li><li>• Event guests only</li><li>• Everyone</li></ul>
Appointment	<p>Any agenda entry concerning a meeting arrangement – be them care-related (e.g., visit to the doctor) or social-related (e.g., meet friends or attend an event). Events mandatorily generate one (one-to-one events) or several (group events) appointments.</p>
Agenda	<p>List of all events user plans to participate in and all other appointments s/he has.</p>

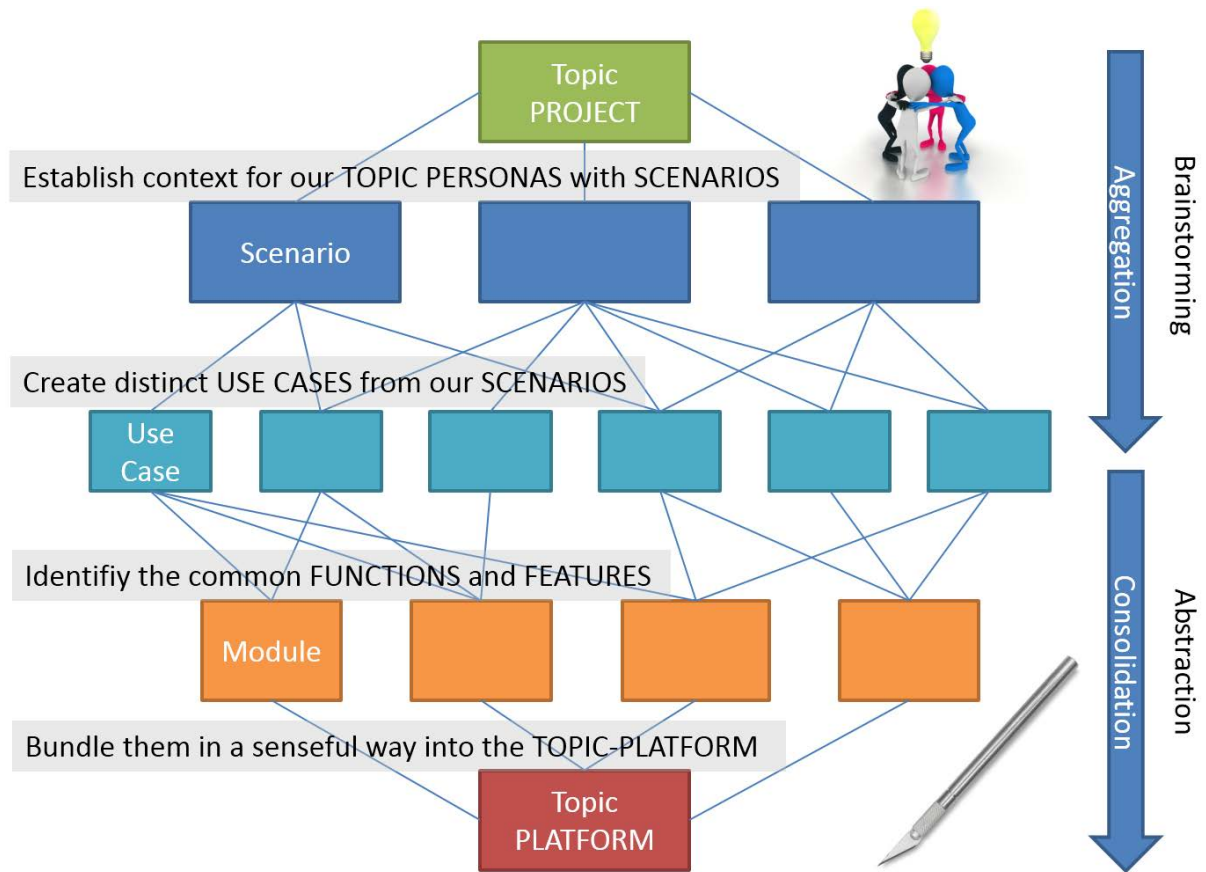


## The Online Platform for Informal Caregivers

Entity	Description
Forum	Online discussion place in the TOPIC <i>CarePortfolio</i> web-portal where people can hold conversations in the form of Forum topics and replies on these topics. They differ from 'Chat rooms' in that messages are often longer than one line of text, and are at least temporarily archived. Also, depending on the access level of a user or the forum set-up, a posted message might need to be approved by a moderator before it becomes visible.
Forum topic	Themes of discussion within a forum.
Chat room	Real Time Communication (RTC) or synchronous conferencing environment. The primary use of a chat room is to share information in form of chat messages with one or a group of other users.
Chat message	Short blocks of text that used to communicate in Chat rooms.
Polls	Instrument to gather community feedback on arbitrary topics. Members can ask one another questions and see results with illustrated statistical data.
Blog	Set of long personal posts on assorted themes, through which users voice their opinion on them. A blog entry can be dedicated to predefined categories and associated with one or multiple tags.
Tag	System- or user-defined keywords that can be associated to content from Blogs, Forums, Groups, Events, among others.

## 6 Interconnection with Use Cases

The deliverables in WPI, especially “D1.3 – Use cases” define the TOPIC use cases that should be covered by the functional modules described in this document.



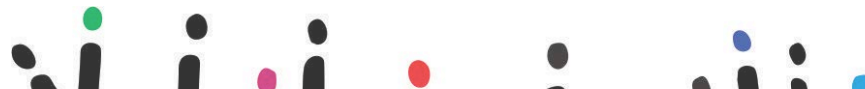
**Figure 6: Interconnection of the TOPIC CarePortfolio with use cases defined in WPI.**

The following tables show the mapping of “D1.3 – Use cases” to their corresponding identified services and functional modules. Besides the mapping of the use cases and the building blocks presented in this document, it also shows the implementation responsibility on a per use-case basis.



# The Online Platform for Informal Caregivers

Key	Summary	Assignee-JIRA	Reporter-JIRA	Use case Responsibility	Implementation Responsibility	Priority	Component/s
<a href="#">TOPICSPEC-124</a>	5-Professional releases a media content to a TOPIC User/ userGroup	WEBINAGE	WEBINAGE	WEBINAGE	WEBINAGE	Mandatory	ProfSupportModule
<a href="#">TOPICSPEC-125</a>	TOPICSPEC-70 access the status (read/unread) of a sent alert	WEBINAGE	WEBINAGE	WEBINAGE	WEBINAGE	Mandatory	ProfSupportModule
<a href="#">TOPICSPEC-127</a>	TOPICSPEC-70 Selecting recipients: by name, by disease, by status, by location, by contract, ...	WEBINAGE	WEBINAGE	WEBINAGE	WEBINAGE	Mandatory	ProfSupportModule
<a href="#">TOPICSPEC-19</a>	Browse the Learning Corner	ILOGS	ILOGS	ILOGS	ILOGS	Mandatory	
<a href="#">TOPICSPEC-76</a>	Create an event in the agenda	USI	ILOGS	USI	ILOGS	Mandatory	PlanModule
<a href="#">TOPICSPEC-89</a>	Switch video source during video communication	WEBINAGE	ILOGS	AVINOTEC	AVINOTEC	Optional	CommunicateModule
<a href="#">TOPICSPEC-112</a>	Leave a group	UTT	TUW	UTT	UTT	Mandatory	ShareModule
<a href="#">TOPICSPEC-113</a>	Create a group	UTT	TUW	UTT	UTT	Mandatory	ShareModule
<a href="#">TOPICSPEC-126</a>	TOPICSPEC-70 Using models to speed up writing	WEBINAGE	WEBINAGE	WEBINAGE	WEBINAGE	Mandatory	ProfSupportModule
<a href="#">TOPICSPEC-128</a>	2-The professional handles questions&demands from a topic user	WEBINAGE	WEBINAGE	WEBINAGE	WEBINAGE	Mandatory	ProfSupportModule





# The Online Platform for Informal Caregivers

Key	Summary	Assignee-JIRA	Reporter-JIRA	Use case Responsibility	Implementation Responsibility	Priority	Component/s
<a href="#">TOPICSPEC-129</a>	TOPICSPEC-128 Collaboration within the professional support team	WEBINAGE	WEBINAGE	WEBINAGE	WEBINAGE	Mandatory	ProfSupportModule
<a href="#">TOPICSPEC-130</a>	TOPICSPEC-128 Professional can collaborate with other professionals outside the platform	WEBINAGE	WEBINAGE	WEBINAGE	WEBINAGE	Mandatory	ProfSupportModule
<a href="#">TOPICSPEC-131</a>	Add a member to my peers	WEBINAGE	UTT	AVINOTEC	USI/UTT	Mandatory	ShareModule
<a href="#">TOPICSPEC-21</a>	Search for information in Learning Corner	ILOGS	ILOGS	ILOGS	ILOGS	Mandatory	LearnModule
<a href="#">TOPICSPEC-23</a>	Check a surveilled room	TUW	ILOGS	TUW	ILOGS	Mandatory	CommunicateModule
<a href="#">TOPICSPEC-3</a>	Create the user profile visible to others	UTT	ILOGS	UTT	USI	Mandatory	ShareModule
<a href="#">TOPICSPEC-37</a>	I-Caregiver asks a question to professional support	WEBINAGE	WEBINAGE	WEBINAGE	WEBINAGE	Mandatory	ProfSupportModule
<a href="#">TOPICSPEC-62</a>	Browse discussion threads	UTT	UTT	UTT	UTT	Mandatory	ShareModule
<a href="#">TOPICSPEC-63</a>	Start a new group discussion thread	UTT	UTT	UTT	UTT	Mandatory	ShareModule
<a href="#">TOPICSPEC-64</a>	Participate in a discussion thread	UTT	UTT	UTT	UTT	Mandatory	ShareModule
<a href="#">TOPICSPEC-68</a>	9-Professional support service can create a TOPIC account for its end users	WEBINAGE	WEBINAGE	WEBINAGE	WEBINAGE	Mandatory	ProfSupportModule





# The Online Platform for Informal Caregivers

Key	Summary	Assignee-JIRA	Reporter-JIRA	Use case Responsibility	Implementation Responsibility	Priority	Component/s
<a href="#">TOPICSPEC-69</a>	4- Professional broadcast information to several TOPIC users	WEBINAGE	WEBINAGE	WEBINAGE	WEBINAGE	Mandatory	ProfSupportModule
<a href="#">TOPICSPEC-70</a>	3- Professionnal sends a targeted quick delivery message (notification alert)	WEBINAGE	WEBINAGE	WEBINAGE	WEBINAGE	Mandatory	ProfSupportModule
<a href="#">TOPICSPEC-83</a>	Join a group	UTT	ILOGS	UTT	UTT	Mandatory	ShareModule
<a href="#">TOPICSPEC-85</a>	Start a video communication	WEBINAGE	ILOGS	AVINOTEC	AVINOTEC	Mandatory	CommunicateModule
<a href="#">TOPICSPEC-88</a>	Conduct video communication	WEBINAGE	ILOGS	AVINOTEC	AVINOTEC	Mandatory	CommunicateModule
<a href="#">TOPICSPEC-90</a>	Log in	E-Seniors	TUW	UTT	ILOGS	Mandatory	IdentMngtSyst
<a href="#">TOPICSPEC-99</a>	Edit the user profile visible to others	UTT	TUW	UTT	USI	Mandatory	ShareModule
<a href="#">TOPICSPEC-106</a>	List my contact	UTT	TUW	UTT	ILOGS	Mandatory	PlanModule
<a href="#">TOPICSPEC-108</a>	See content shared by my peers	UTT	TUW	UTT	UTT	Mandatory	ShareModule
<a href="#">TOPICSPEC-114</a>	Comment peers' posts	UTT	TUW	UTT	UTT	Mandatory	ShareModule
<a href="#">TOPICSPEC-120</a>	TOPICSPEC-118 Set up a Surveillance Corner notification	TUW	TUW	TUW	ILOGS	Mandatory	PlanModule
<a href="#">TOPICSPEC-41</a>	Write a note (handwritten, voice, typed)	TUW	ILOGS	TUW	TUW	Mandatory	CommunicateModule



# The Online Platform for Informal Caregivers

Key	Summary	Assignee-JIRA	Reporter-JIRA	Use case Responsibility	Implementation Responsibility	Priority	Component/s
<a href="#">TOPICSPEC-48</a>	Read/Listen to a "Notes Board" note	TUW	ILOGS	TUW	TUW	Mandatory	CommunicateModule
<a href="#">TOPICSPEC-92</a>	Display a notification	UTT	TUW	UTT/TUW	ILOGS	Mandatory	CommunicateModule
<a href="#">TOPICSPEC-94</a>	Issue an alert	ILOGS	TUW	ILOGS	ILOGS	Mandatory	CareModule
<a href="#">TOPICSPEC-95</a>	Browse peers' activities	UTT	TUW	UTT	UTT	Mandatory	ShareModule
<a href="#">TOPICSPEC-58</a>	Submit news, photos and links to personal profiles	UTT	TUW	UTT	USI	Mandatory	ShareModule
<a href="#">TOPICSPEC-4</a>	Find people in similar situation	UTT	ILOGS	UTT	USI	Mandatory	
<a href="#">TOPICSPEC-102</a>	Remove a personal note from the agenda	USI	TUW	USI	ILOGS	Mandatory	PlanModule
<a href="#">TOPICSPEC-103</a>	Add a reminder to an agenda item	USI	TUW	USI	ILOGS	Mandatory	PlanModule
<a href="#">TOPICSPEC-104</a>	Edit a reminder in the agenda	USI	TUW	USI	ILOGS	Mandatory	PlanModule
<a href="#">TOPICSPEC-105</a>	Remove a reminder from the agenda	USI	TUW	USI	ILOGS	Mandatory	PlanModule
<a href="#">TOPICSPEC-57</a>	Send a message	TUW	ILOGS	TUW	AVINOTEC	Mandatory	CommunicateModule
<a href="#">TOPICSPEC-100</a>	Add a personal note to an agenda item	USI	TUW	USI	ILOGS	Mandatory	PlanModule
<a href="#">TOPICSPEC-101</a>	Edit a personal note in the agenda	USI	TUW	USI	ILOGS	Mandatory	PlanModule
<a href="#">TOPICSPEC-107</a>	See events of my peers (and public events)	UTT	TUW	UTT	ILOGS	Mandatory	ShareModule



# The Online Platform for Informal Caregivers

Key	Summary	Assignee-JIRA	Reporter-JIRA	Use case Responsibility	Implementation Responsibility	Priority	Component/s
<a href="#">TOPICSPEC-109</a>	Display my chat conversations	TUW	TUW	TUW	AVINOTE	Optional	CommunicateModule
<a href="#">TOPICSPEC-110</a>	Find new events	USI	TUW	UTT	ILOGS	Mandatory	ShareModule
<a href="#">TOPICSPEC-111</a>	Invite additional people to an appointment	USI	TUW	USI	ILOGS	Mandatory	PlanModule
<a href="#">TOPICSPEC-115</a>	Configure user modes	UTT	TUW	UTT	UTT	Mandatory	
<a href="#">TOPICSPEC-116</a>	Switch between the user modes	UTT	TUW	UTT	UTT	Mandatory	ConfigureModule
<a href="#">TOPICSPEC-117</a>	Export User Data	UTT	UTT	UTT	ILOGS	Mandatory	ConfigureModule
<a href="#">TOPICSPEC-118</a>	Configure my TOPIC platform	TUW	TUW	TUW	ILOGS, AVINOTEC, UTT	Mandatory	PlanModule
<a href="#">TOPICSPEC-119</a>	TOPICSPEC-118 Set up sound level for the TOPIC cube	TUW	TUW	TUW	TUW	Optional	ConfigureModule
<a href="#">TOPICSPEC-121</a>	TOPICSPEC-118 Share my agenda	USI	TUW	USI	ILOGS	Mandatory	PlanModule
<a href="#">TOPICSPEC-122</a>	TOPICSPEC-118 Different user levels in the TOPIC platform	TUW	TUW	TUW	AVINOTEC	Optional	ConfigureModule, PlanModule
<a href="#">TOPICSPEC-132</a>	TOPICSPEC-37 1a- Caregiver can call professional support to have a live conversation over the phone	WEBINAGE	WEBINAGE	WEBINAGE	WEBINAGE	Mandatory	CommunicateModule, ProfSupportModule
<a href="#">TOPICSPEC-133</a>	9- caregiver can browse a catalog of available professional services	WEBINAGE	WEBINAGE	WEBINAGE	WEBINAGE	Mandatory	ProfSupportModule



# The Online Platform for Informal Caregivers

Key	Summary	Assignee-JIRA	Reporter-JIRA	Use case Responsibility	Implementation Responsibility	Priority	Component/s
<a href="#">TOPICSPEC-134</a>	TOPICSPEC-37 1b- Caregiver can call professional support to have a live video conversation	WEBINAGE	WEBINAGE	WEBINAGE	WEBINAGE	Mandatory	CommunicateModule, ProfSupportModule
<a href="#">TOPICSPEC-14</a>	Personas	-	ILOGS	-	-	Mandatory	
<a href="#">TOPICSPEC-15</a>	Fill the Topic Jira with the consolidated Personas, Scenarios and Use-Cases	-	ILOGS	-	-	Mandatory	
<a href="#">TOPICSPEC-16</a>	Find personalized content	UTT	ILOGS	UTT	ILOGS	Mandatory	ShareModule
<a href="#">TOPICSPEC-17</a>	TOPICSPEC-118 Manage privacy settings of user profiles	USI	ILOGS	USI	UTT	Mandatory	CommunicateModule
<a href="#">TOPICSPEC-31</a>	Check forthcoming events	USI	ILOGS	USI	ILOGS	Mandatory	PlanModule
<a href="#">TOPICSPEC-34</a>	Send notification to people in the shared agenda	USI	ILOGS	USI	ILOGS	Optional	PlanModule
<a href="#">TOPICSPEC-35</a>	Add external people to an agenda notification	USI	ILOGS	USI	ILOGS	Optional	PlanModule
<a href="#">TOPICSPEC-36</a>	Notify a delay	USI	ILOGS	USI	ILOGS	Optional	PlanModule
<a href="#">TOPICSPEC-38</a>	Access "Notes Board" from the main screen	TUW	ILOGS	TUW	TUW	Mandatory	ShareModule
<a href="#">TOPICSPEC-43</a>	Set up a Notes Board visitor account	TUW	ILOGS	TUW	TUW	Optional	IdentMngtSyst



# The Online Platform for Informal Caregivers

Key	Summary	Assignee-JIRA	Reporter-JIRA	Use case Responsibility	Implementation Responsibility	Priority	Component/s
<a href="#">TOPICSPEC-49</a>	Tag a content	UTT	ILOGS	UTT	ILOGS	Mandatory	ShareModule
<a href="#">TOPICSPEC-51</a>	Adding a category to a tag scheme	UTT	ILOGS	UTT	ILOGS	Mandatory	ShareModule
<a href="#">TOPICSPEC-53</a>	Start a new question discussion thread	UTT	ILOGS	UTT	UTT	Mandatory	ShareModule
<a href="#">TOPICSPEC-54</a>	Start a new tips/advice discussion thread	UTT	ILOGS	UTT	UTT	Mandatory	ShareModule
<a href="#">TOPICSPEC-55</a>	Mark a discussion thread message as tips/advice	UTT	ILOGS	UTT	UTT	Mandatory	ShareModule
<a href="#">TOPICSPEC-56</a>	Mark a contribution as "helpful"	UTT	ILOGS	UTT	UTT	Mandatory	ShareModule
<a href="#">TOPICSPEC-61</a>	Find a group	UTT	UTT	UTT	UTT	Mandatory	ShareModule
<a href="#">TOPICSPEC-65</a>	Join an event	USI	UTT	USI	ILOGS	Mandatory	PlanModule
<a href="#">TOPICSPEC-67</a>	Organising online/face-to-face group activities	USI	ILOGS	USI	WEBINAGE	Mandatory	ShareModule
<a href="#">TOPICSPEC-74</a>	Browse the agenda	USI	ILOGS	USI	ILOGS	Mandatory	PlanModule
<a href="#">TOPICSPEC-78</a>	Comment an event	USI	ILOGS	USI	ILOGS	Mandatory	ShareModule
<a href="#">TOPICSPEC-86</a>	Display missed video call notification in the TOPIC cube	TUW	TUW	TUW	TUW	Optional	CareModule, CommunicateModule
<a href="#">TOPICSPEC-87</a>	Return missed video communication call through the TOPIC cube	TUW	ILOGS	TUW	TUW	Optional	CareModule, CommunicateModule



## The Online Platform for Informal Caregivers

Key	Summary	Assignee-JIRA	Reporter-JIRA	Use case Responsibility	Implementation Responsibility	Priority	Component/s
<a href="#">TOPICSPEC-96</a>	Accept an appointment	USI	TUW	USI	ILOGS	Mandatory	PlanModule
<a href="#">TOPICSPEC-97</a>	Reject an appointment	USI	TUW	USI	ILOGS	Mandatory	PlanModule
<a href="#">TOPICSPEC-98</a>	Join a live (video, audio, or chat) online/face-to-face group activity	USI	TUW	USI	AVINOTEC	Mandatory	CommunicateModule



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