Driving Innovation in Crisis Management for European Resilience

D933.11 – DRIVER+ ONLINE TOOLS - IMPLEMENTATION SPECIFICATIONS

SP93 - SOLUTIONS

MARCH 2019 (M59)

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The DRIVER+ project

Current and future challenges, due to increasingly severe consequences of natural disasters and terrorist threats, require the development and uptake of innovative solutions that are addressing the operational needs of practitioners dealing with Crisis Management. DRIVER+ (Driving Innovation in Crisis Management for European Resilience) is an FP7 Crisis Management demonstration project aiming at improving the way capability development and innovation management is tackled. DRIVER+ has three main objectives:

1. Develop a pan-European Test-bed for Crisis Management capability development:
    a. Develop a common guidance methodology and tool, supporting Trials and the gathering of lessons learnt.
    b. Develop an infrastructure to create relevant environments, for enabling the trialling of new solutions and to explore and share Crisis Management capabilities.
    c. Run Trials in order to assess the value of solutions addressing specific needs using guidance and infrastructure.
    d. Ensure the sustainability of the pan-European Test-bed.
2. Develop a well-balanced comprehensive Portfolio of Crisis Management Solutions:
    a. Facilitate the usage of the Portfolio of Solutions.
    b. Ensure the sustainability of the Portfolio of Solutions.
3. Facilitate a shared understanding of Crisis Management across Europe:
    a. Establish a common background.
    b. Cooperate with external partners in joint Trials.
    c. Disseminate project results.

In order to achieve these objectives, five Subprojects (SPs) have been established. **SP91** ***Project Management*** is devoted to consortium level project management, and it is also in charge of the alignment of DRIVER+ with external initiatives on Crisis Management for the benefit of DRIVER+ and its stakeholders. In DRIVER+, all activities related to Societal Impact Assessment are part of **SP91** as well. **SP92** ***Test-bed*** will deliver a guidance methodology and guidance tool supporting the design, conduct and analysis of Trials and will develop a reference implementation of the Test-bed. It will also create the scenario simulation capability to support execution of the Trials. **SP93** ***Solutions*** will deliver the Portfolio of Solutions which is a database driven web site that documents all the available DRIVER+ solutions, as well as solutions from external organisations. Adapting solutions to fit the needs addressed in Trials will be done in **SP93**. **SP94** ***Trials*** will organize four series of Trials as well as the Final Demo (FD). **SP95** ***Impact, Engagement and Sustainability*** is in charge of communication and dissemination, and also addresses issues related to improving sustainability, market aspects of solutions, and standardisation.

The DRIVER+ Trials and the Final Demonstration will benefit from the DRIVER+ Test-bed, providing the technological infrastructure, the necessary supporting methodology and adequate support tools to prepare, conduct and evaluate the Trials. All results from the Trials will be stored and made available in the Portfolio of Solutions, being a central platform to present innovative solutions from consortium partners and third parties, and to share experiences and best practices with respect to their application. In order to enhance the current European cooperation framework within the Crisis Management domain and to facilitate a shared understanding of Crisis Management across Europe, DRIVER+ will carry out a wide range of activities. Most important will be to build and structure a dedicated Community of Practice in Crisis Management, thereby connecting and fostering the exchange of lessons learnt and best practices between Crisis Management practitioners as well as technological solution providers.

Executive summary

This document is deliverable **D933.11** ***DRIVER+ online tools - implementation specifications*** of the DRIVER+ project. It is a result of **SP93** ***Solutions*** and in particular of **WP933** ***DRIVER+ online platforms*** work. The deliverable consolidates all requirements on the Portfolio of Solutions (PoS) and the Trial Guidance Tool (TGT) and indicates how these requirements SHALL be met in the implementation of the PoS and the TGT.

The main audience of this document are the developers and other parties that are interested in learning which requirements DRIVER+ online tools need to fulfil and how they SHOULD be implemented. The implementation specifications described are based on requirements originating from the formal deliverables of the **WP922** ***Guidance Methodology and Guidance Tool*** and **WP932** ***PoS design*** work packages. An additional source of requirements was the feedback from end-users received during tests, and suggestions received from various project internal and external stakeholders.

The specifications are presented in a way that allows development of the two tools as a single platform or as two separate platforms and indicate how the user experience would change in two cases. They are therefore divided in three categories:

1. Generic specifications which are valid for PoS and for TGT.
2. PoS-specific part.
3. TGT-specific part.

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List of Acronyms

Acronym	Definition
AAR	After Action Review
CM	Crisis Management
CMINE	Crisis Management Innovation Network Europe
CMS	Content Management System
CoE	Centre of Expertise
DB	Database
DoW	Description of Work
DRMKC	Disaster Risk Management Knowledge Centre
EU	European Union
JSON	JavaScript Object Notation
LL	Lessons learnt
OOD/P	Object-Oriented Design/Programming
PDF	Portable Document Format
PoS	Portfolio of Solutions
PoS DB	Portfolio of Solutions database (online web site realising the PoS)
PoS site	Used as abbreviation for PoS/TGT site in requirements
PoS/TGT site	A web site implementing both the PoS DB and the TGT
REST	Representational state transfer
SP	Subproject
QA	Quality Assurance
SLR	Systematic literature research
TGT	Trial Guidance Tool (online workflow tool for developing the Trials according to TGM)
TGM	Trial Guidance Methodology
WP	Work Package

1. Introduction

1.1 Requirements

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in RFC 2119 (1).

According to the DRIVER+ DoW, **WP933** has to specify and develop online tools based on inputs from **WP922** and **WP932**, while also considering additional requests from the project management team and the tools' users from all SPs. These inputs were translated into formal requirements which lead to the implementation specifications described in this document. Given that the **WP922** and **WP932** aim to address two completely different use cases - documenting of innovative solutions in the field of crisis management on the one hand and the correct implementation of the Trial Guidance Methodology to assess such solutions on the other hand, two individual tools were developed. These tools are the Portfolio of Solutions which is mainly a result of the inputs from **WP932** and the Trial Guidance Tool which is mainly a result of inputs from **WP922**. Therefore, main sources for the formal requirements of the tools include:

1. DRIVER+ Description of Work, especially **WP932** and **WP933** descriptions.
2. **D932.11** ***Functional design of the PoS database*** (2).
3. **D922.21** ***Trial Guidance Methodology and Guidance Tool Specifications*** (3).
4. **D932.12** ***PoS Tutorials and recommendations*** (4).
5. **D922.41** ***Trial Guidance Methodology and Guidance Tool Specifications v2*** (5).

As indicated in the deliverable names, these deliverables go beyond the task of providing a list of requirements and already indicate how these requirements could be implemented as "functional specifications". It is the task of the **WP933** to consolidate these into a comprehensive set of specifications covering specific aspects of the two tools. Since in some cases having both tools as a part of a common platform made more sense, developers decided to develop them in this way, even though it was initially intended for them to be separated. For example, finding solutions directly in the TGT or having automatic solution suggestions is possible if there is a link to the PoS. Additional cross-linking between the tools is also further elaborated in **D933.21** (6). The following Sections explain implementation specifications of the tools as following:

- Section 2 describes the generic specifications and the features that are common for both TGT and PoS. This includes the overall web site design, user and content management, taxonomies, search, matching and filtering, quality assurance, validation, help/support and exporting. If one of the tools was to be developed individually, specifications described in this Section would have to be implemented.
- Section 3 provides the detailed specifications of the features that are specific to Portfolio of Solutions.
- Section 4 provides detailed specifications of the features that are specific to Trial Guidance Tool.
- Finally, Section 5 provides conclusions and the way forward.

In addition to formal requirements, **WP933** gathered requirements from other sources, mainly from end-user feedback that was collected and the project reviewer's suggestions after the technical review meeting.

All PoS and TGT requirements are summarized in Annex 2 – PoS and TGT requirements in individual tables indicating their origin and are cross-referenced from the main part of this document.

1.2 Methodology used to develop the PoS DB and the TGT

The methodology used to define the functional design of the PoS and TGT is inspired by Zehtaban and Roller (7) and is illustrated in Figure 1.1. This methodology is based on an iterative approach and described in Deliverable **D932.11** (2).

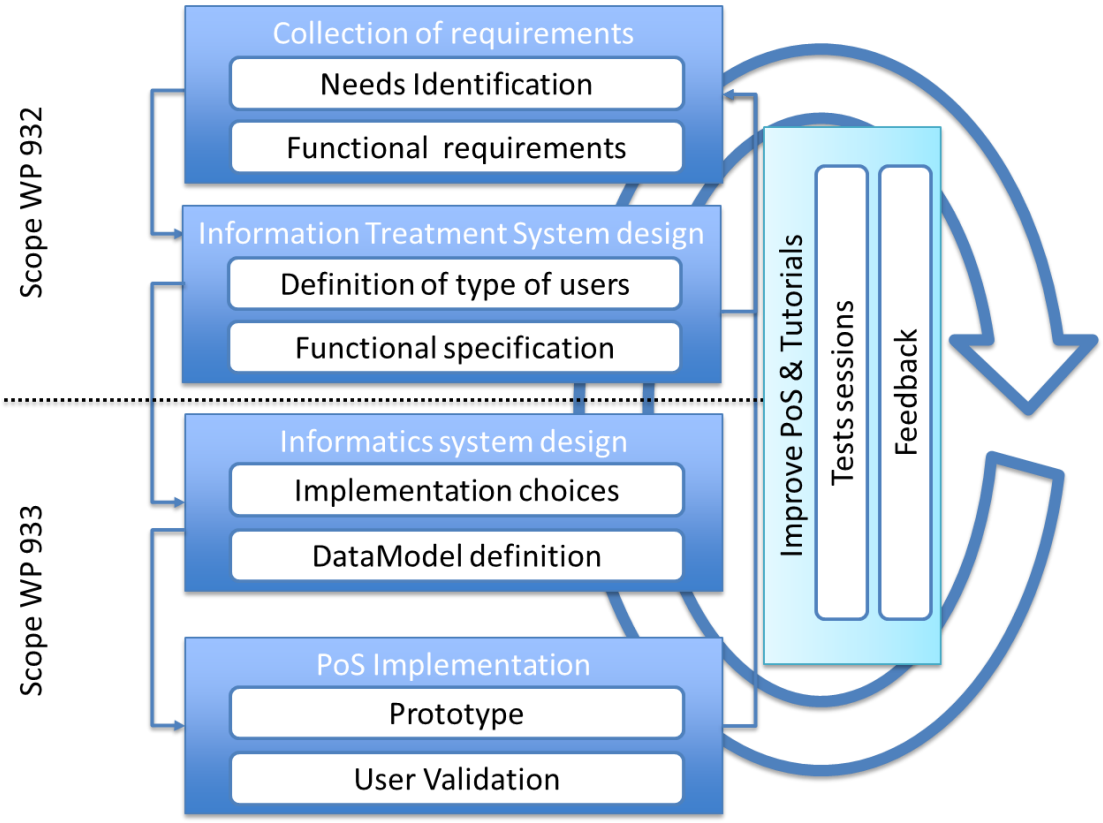

Figure 1.1: Overview of the methodology used to develop the PoS and the TGT from (4)

As described in Deliverables **D932.11** (2) and **D932.12** (4), this methodology covers both **WP932** (elaborating the functional design of the PoS DB) and **WP933** (implementation of the PoS) activities.

To accommodate for the different timings resulting from the **WP922** and **WP932** deliverable schedule and the inputs from other sources (e.g. testing sessions with end-users, requests from other WPs), the **WP933** team has adopted AGILE development that is linked with the work performed in **WP922** and **WP932** but decoupled from their deliverable schedules. Central elements in this development are:

1. **Daily actualized** Online platform (http://driver-pos-ticket.atosresearch.eu/) for recording the feature requests ("wishes" is the term used internally to separate them from other requests), managing the "tickets" and issuing the "changelogs" – concise explanations of the newly introduced or updated features of the PoS and TGT.
2. **Bi-Monthly** coordination teleconferences and occasional physical meetings with the "product owners" that are represented by the TGT management team and with the PoS management team consisting of Project Manager, relevant SP and WP leaders and other key participants where new wishes are presented, decisions made what to implement and the progress and prioritisation of the work agreed upon.
3. **Weekly** developer teleconferences where the progress is monitored, and tactical decisions to prioritise actions are made as necessary.
4. **Monthly** developer teleconferences where the results of the last months' work are analysed and the scope of the next monthly "run" decided upon.

1.3 Design constraints

Based on the requirements in DRIVER+ project, both the PoS DB and the TGT are to be implemented as online (web) tools. Furthermore, developers decided that both SHALL be implemented as a single web site which adds certain constraints if developed individually, because some functionalities would not be available, as explained in Section 1.1. The main reasons for accepting the Drupal content management system as the basis for PoS and TGT development were:

1. The Drupal framework was believed to be well known by the developers.
2. Drupal is one of the widely used content management systems, with a large installed base and a long track record of usage in real-world applications.[1]
3. Drupal is open source, which assures that practically any improvement and extension can be developed within the project if necessary.
4. Unlike the other widely used Open Source content management systems (WordPress, Joomla), Drupal is designed to be a web application framework and suitable for developing interactive applications for knowledge management and business collaboration, rather than a straightforward content management system.

The above stated reasons make the Drupal platform uniquely suitable for development of the two tools, satisfying the requirements in the project as well as taking into account the experience of the development team members.

Given that Drupal is written in PHP, all extensions to main functionalities require knowledge in this scripting language.

[1] Drupal usage statistics: https://www.drupal.org/project/usage/drupal

2. Specifications applicable to both tools

Section 2 describes all requirements and specification for the features that are common for both PoS and the TGT. As stated in the introduction, having both tools merged into one platform was the design choice of the developers which resulted in this overlap. In a practical sense, both in case that the tools are developed as a part of a single platform or individually, implementation of these specifications is necessary and the requirements for the DRIVER+ online tools cannot be fulfilled otherwise.

2.1 Overarching Site Design (GUI, structure, multilingual features)

2.1.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 2.1: Requirements on GUI

ID	Target users	Requirement
TGT-03	All	The TGT is web-based.
PoS-34	All	Website is user friendly.
PoS-45	All	The website's design should be appealing.
W-01	All	The website is multi-lingual.
PoS-05	All	Supports different views of the same data.
W-28	All	PoS DB and TGT SHOULD be usable on a wide range of devices.

2.1.2 Specifications

In DRIVER+, Portfolio of Solutions (PoS) and Trial Guidance Tool (TGT) tools SHALL be realized as a single "PoS/TGT site", but in such a way that the cross-linking between the two tools is kept at a minimum. This is most prominently visible in the overall site design, where the two tools are kept in the separated areas of the site, but also has consequences on the PoS and TGT-specific specifications (Sections 3 and 4).

PoS/TGT site for anonymous users

Developer's assumption is that a great majority of the site users will be anonymous. For these users, only certain menu entries SHALL be visible.

Developers also presume that the front page of the site (<home>) will be the main entry point to the site. This page SHALL be linked from the site logo and thus easily reachable from any other page on the site. From the top of the page to bottom, the front page SHALL feature the following elements[2]:

- "Log in" → <login>, <register>, <reset password>.

Three main menu entries, each with three sub-menus:

- "Trial Guidance Tool" → <trials> overview page:
  - "About TGT" → <TGT documentation>.
  - "Trials" → <trials>.
  - "Knowledge DB" → <TGT knowledge DB>.
- "Portfolio of Solutions" → <solutions> search & overview page:

[2] →<→<page> is used to indicate links to specific PoS DB and/or TGT pages.

  - "About PoS" → <PoS documentation>.
  - "Solutions" → <solutions>.
  - "Solution tests" → <solution tests> overview page.
- "About" → <about> page:
  - "Tutorials" → <tutorials>.
  - "Country profiles" → <country profiles> overview page.
  - "Taxonomies" → <taxonomies>.

In terms of the menu system, the entries belonging to TGT and PoS are cleanly separated on the site. Further design decisions that SHALL allow easy separation of the site in two independent tools are explained in Sections 3.5 and 4.10.

The rest of the page SHALL provide a graphical alternative to the website menu and feature three main elements:

A carrousel featuring some motivational and informational messages:

- "Discover Solutions" → <solutions>.
- "Assess the innovation potential of Solutions" → <TGT documentation>.
- "Join the PoS community" → <registration>.
- "Do you need help" telling the user that "?" on any page leads to contextual help.

"About" row with three elements:

- "What is the Portfolio of Solutions" → <PoS documentation>.
- "What is the Trial Guidance Tool" → <TGT documentation>.
- "DRMKC" → linking to DRMKC Knowledge Centre (external).

"Knowledge" row with links to three main site contents:

- "CM solutions" → <solutions>.
- "CM country profiles" → <country profiles>.
- CM Trials → <trials>.

The grouping of elements SHALL be by type of use (learn about tools vs. explore available contents) and not by type of tool (PoS vs. TGT) as in the menu system. The result of this overall design is, that very shallow site exploration paths are achieved, as illustrated in Figure 2.1. Practically all main site features are just one click away from the <front> page.

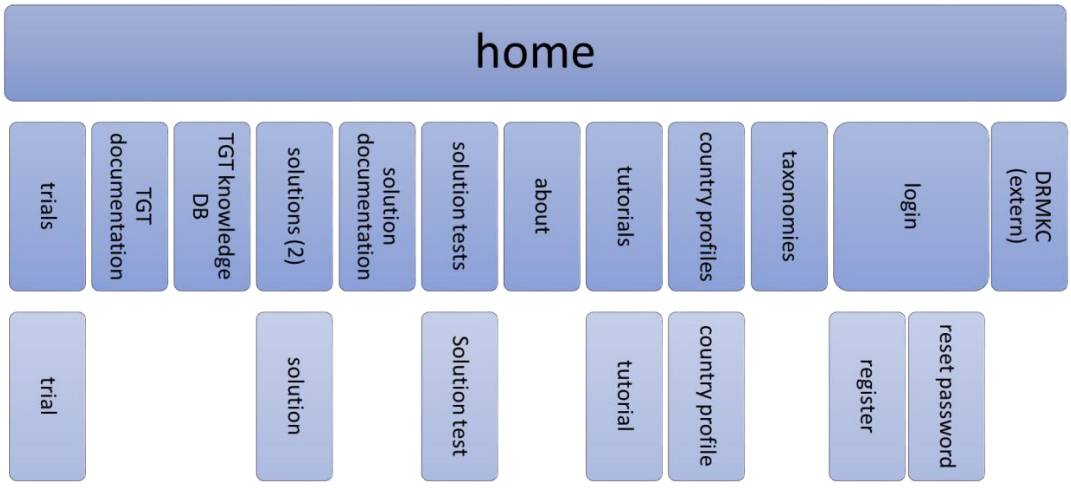

Figure 2.1: Structure tree of the PoS/TGT site, as seen by the anonymous user

The front page and all the other pages that are visible to the anonymous users SHALL be also designed to be usable on mobile devices with small screens, by using the "responsive design" paradigm. Most notably, main page elements SHALL automatically rearrange from rows into columns when viewed on a small screen.

PoS/TGT site for authenticated users

The second group of users are the **authenticated users with no special privileges.** They are expected to use the site occasionally and they SHALL be allowed to generate or update existing content in Trials or solutions. Therefore, they need easy access to tutorials explaining how to use the member-only features of the site, to own solutions and Trials and to the pages allowing them to add new Trials and solutions to the site. This SHALL be achieved in two ways:

- First, by replacing the "login" link at the page top with a link to their user profile and a log-out link
- Second, by replacing the "About" row on the front page with "Your content" row, with three elements:
  - "Tutorials" → <tutorials>.
  - "Your groups" → <profile> page featuring the information about the user, their Trials and solutions.
  - "Contribute" → <contribute> page allowing the users to add new Trials and solutions.

Additional structure tree elements that are only visible to authenticated users are illustrated in Figure 2.2. Specifications of the "Edit functions" in the fourth level of this diagram are provided in Sections 3 and 4 of this document.

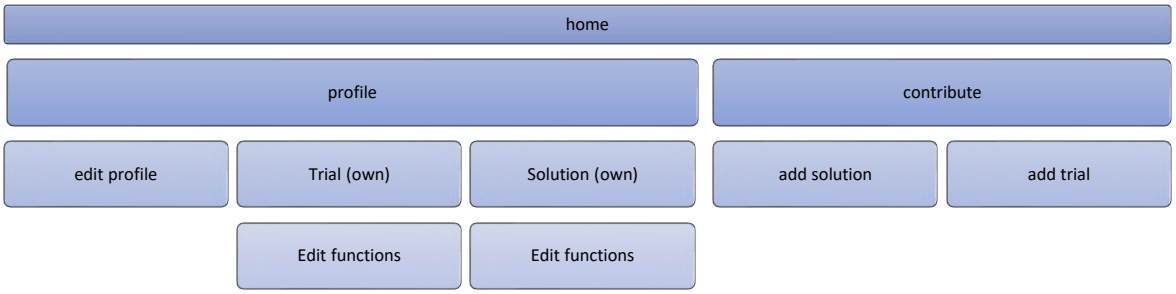

Figure 2.2: PoS/TGT structure tree elements that are only seen by the authenticated users

PoS/TGT site for editors and administrators

Finally, the users with "Editor" role SHALL be able to access a fourth main menu entry called "Quality Assurance". This menu SHALL provide easy access to several QA functions, which are elaborated in Section 2.4.

In addition, the users with the "site administrator" role SHALL have access to the administrator functionality that is provided by Drupal core and modules used to realise the site.

Multi-lingual site

The site SHALL keep English as the default site language and there SHALL be a possibility for translating the solutions and Trials, as well as the taxonomy terms that are used to categorise Trials and solutions to several pre-defined languages. The supported languages SHALL be German, French, Dutch, Polish and Italian. It SHALL be possible to add additional languages. There SHALL also be a possibility to provide an automatic translation of the content and to request professional (paid) service.

2.2 Registration, user management, authentication and authorization

2.2.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 2.2: User management requirements

ID	Target users	Requirement
PoS-01	All	Access right.
PoS-46	All	User management and authentication.
W-04	All	Credentials are shared with community.
W-06	All	Real names are shown on the site, e-mail or username is used for login.
W-07	All	Website users can access different information based on their role.

2.2.2 Specifications

PoS/TGT site SHALL provide a self-service page for requesting an account at the https://pos.driver-project.eu/user/register page. Enabling of the account SHALL require human intervention by site administrators in order to assure that only legit users are using the site. The registration form SHALL require information that allows the site administrator to identify the user as part of the Crisis Management community:

- Real name.
- Professional e-mail address.

In addition to providing the real name and professional e-mail address, the future users SHALL be asked to acknowledge the PoS/TGT Terms and Conditions (Annex 3 – DRIVER+ Portfolio of Solutions Terms and Conditions).

Site/user administrators who received this request SHALL check the plausibility of the request by searching for the user and for the company indicated by their e-mail online. If a plausible match is found, the account SHALL be activated by an administrator, otherwise an e-mail request for clarification is sent to the user and the account activated after a satisfactory answer.

Once the user account is activated, the new user SHALL receive an e-mail with instructions for the first login and a possibility to add more information to their profile. Additional profile information SHALL include the actual user profile (free text), photo, affiliation, and e-mail notification preferences. At subsequent visits, the users SHALL be able to authenticate themselves by providing either the "username" or e-mail address and password on the login page.

Concerning the W04, "credentials sharing", Single Sign On (SSO) method SHALL be available using the LinkedIn platform user credentials.

User "landing" page

After the login, the user SHALL be redirected to their user "landing" page (<profile>). This page SHALL provide the following features:

- A short message reminding the user how to work with the site.
- Publicly visible part of the user profile.
- Links to the groups the user is subscribed to.
- Possibility to edit own account (but not to change the "real name" – only administrator SHALL be able to do this).
- Contact Form (for other site users).

2.3 Collaborative work environment

2.3.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 2.3: Group requirements

ID	Target users	Requirement
W-02	All	The website supports collaborative working
W-05	All	Website users can manage own team
W-06	All	Real names are shown on the site, e-mail or username is used for login
W-07	All	Website users can access different information based on their role
PoS-05	All	Different views of the same data

2.3.2 Specifications

Both PoS and TGT MUST feature a possibility for organizing users in working groups that collaboratively work on specific Trials and solutions. For practical reasons, this CAN NOT be managed centrally by an administrator, given that the workload would be overwhelming. Consequently, the site MUST provide a self-service where users can self-organize in ad-hoc working groups. According to the requirements, two main types of working groups MUST be implemented: "Trials" and "Solutions". In anticipation of the future requirements, "Country profiles" MAY also be implemented as a group, to assure that they can be collaboratively edited if needed. The site COULD thus feature three group types:

- **Solution group:** used for specifying the solution offer (Section 3).
- **Trial group:** allow users to define Trials and document their progress and results (Section 4).
- **Country Profile group:** used to publish the summary of the ways Crisis Management is organized in different EU states (Section 2.12).

Note: Depending on the case, either of the groups can be implemented separately, since there is no direct dependency other than optional content referencing (described in Sections 3.5 and 4.10).

Group roles

Every site user SHALL have a right to add an own solution or Trial group to the site, simply by following the "Contribute" link at the front page. This SHALL automatically make them group owner and allow them to add other group members and assign different right levels to them[3].

The site SHALL support (at least) four group-specific roles with different right levels:

1. **Owner** == Group (co-) owner: can manage other group members, add, edit and delete all group contents.
2. **Team** == Advanced group team member: can create and edit (but not delete) all group content.
3. **Contact** == list as contact on the group landing page.
4. **Member** (no role) == basic group member, can view all the data and comment but cannot edit.

[3] In principle such users SHOULD already be site members, but the site COULD allow the group owners to "nominate" new users and add them to their groups.

Role-specific visualization of the group contents

The group landing pages SHALL look differently to different types of users. Most notably, the Site editors and the group members SHALL be presented with two sets of group specific menus (visualised as "buttons") that aren't visible for other users.

Horizontally aligned menu items SHALL allow the group owners and team members to perform some administrative actions on the whole group:

- **"Edit"** – edit the group contents (Owners & Team).
- **"Delete"** – delete the whole group (Owner).
- **"Related entities"** – a simple (and rather non-intuitive) way for managing complete group content (site editors, MAY be removed at a later stage of the development).
- **"Members"** – a simple list of group members, visible to all registered site users. Group owners SHALL be able to use this page to manage the group members; that is to add new members, manage member roles and remove members from the group.
- **"Group dashboard"** – a page showing all the group contents and indicating if any of the content is "new" or "updated" for the current user (all group members).
- **"Validation"** – a page showing the validation information, e.g. warning the users if no Solution Use Cases have been defined. Solution and Trial-specific validation page specifications are presented in Sections 3 and 4 of this document respectively.

"Contact" link SHALL only be shown and usable for authenticated users, to avoid spamming.

"Nodes" and "group nodes"

Vertically aligned menu items at the left-hand side are group-type specific and lead to the pages that allow editing of additional content ("nodes") that exists independently from the groups and MAY be associated with one or more groups. Types of such content and their use are explained in detail in Sections 3 and 4 of this document.

Nodes SHALL be linked to groups by "group nodes"[4]. Group nodes SHALL allow to:

- Link nodes with one or more groups, as needed.
- Present data that should only be visible to the team members, like "Publication status" and "QA comment"
- Manage references to other content within the group, because otherwise it can't be assured that only the nodes from that group are referenced – especially if the nodes are shared among groups.

Presentation and editing of nodes and group nodes

All vertical menu items SHALL lead to pages showing the tabular overview of group nodes of a specific type.

The left column in the table SHALL present the content of a node, whereas the status and references information SHALL be presented in the "status and references" column.

For usability reasons "Checklist" SHOULD be shown and editable in the same form as the actual content, but nevertheless presented on the "status and references" column. Therefore, the checklists SHALL be part of the node data whenever possible. An exception to this rule SHALL be made for the nodes that can be shared across groups (in this case, the group-specific checklists SHALL be in group nodes).

"Last changed" date SHALL be automatically generated whenever content (node) is edited.

"Backreferences" SHALL indicate what other content is referencing to this one and MUST be automatically calculated by the system.

[4] Drupal specific vocabulary.

Support for collaboration

The site SHALL keep track of all changes to the content (nodes) in the form of **revisions**. Every time content is changed, a new revision SHALL be stored along with the information on the revision author and (optional) description of the changes performed. Group owner and the team members SHALL be able to (re-)view the list of revisions, visually inspect the changes between two (arbitrary) revisions and revert to an older revision at any time.

To further improve the experience of working collaboratively, the site SHALL provide two additional features: group-specific **e-mail notifications** (Section2.8) and the "**group dashboard**". Thanks to the e-mail notifications and group dashboard, each user SHALL be able to easily find out what has changed in the group since their last visit and inspect the changes, rather than having to go through all group contents manually.

2.4 Supervision and quality control

2.4.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 2.4: Requirements on supervision and quality control

ID	Target users	Requirement
PoS-06	Editorial Board (EB), managers	PoS contents validation.
PoS-05	All	Different views at the same data.

2.4.2 Specification

PoS/TGT quality assurance concept SHALL rely on two levels of quality control:

1. Quality assurance by the group owner and their team.
2. Quality assurance by the site editor(s)

The main means of quality control by the group owners and their team have already been introduced in Section 2.3:

- **"Publication Status"** field SHALL be used to indicate if a piece of content belonging to the group should be shown to the rest of the world or not.
- **"QA summary"** fields are used to indicate why this node is or isn't published and what needs to be done.
- **Node revisions** assure that no content is lost due to a mistake or mischief of some group team member. Only the group owners SHALL be able to delete group content.

In combination with the dashboard and e-mail notifications, this SHOULD allow a group of users to effectively work on the group content, to agree when the content is ready for publication and change the visibility of the content between "Draft" and "Published" on their own.

Quality assurance by the site editor(s) SHALL be triggered by the group owner, once they are satisfied with the (initial) description and want to share the results of their work with other site users and visitors. In order to trigger the request for publication, the group owner MUST switch to the group edit mode and change the status of the "Request publication" field.

Once the group owner sets the "request publication" status field to "true" the site SHALL send an e-mail notification to site editors (Section 2.8). In addition, the site MUST provide a "group QA" page that will allow editors to see which groups currently need to be reviewed. This page SHALL offer a filter and a table

listing of the groups with the group summary, “status” tab containing the information that is relevant to decision and a group “edit link”.

Per default, only the groups that are waiting to be published SHALL be shown, but the page SHALL also allow Editors to inspect the already published groups as well as the groups where no request for publication has been made. Editor SHALL have following possibilities to proceed:

1. Accept the group publication by setting the “QA approved” group field to true. This field can only be changed by editors. Once the group is published, it SHALL be visible on the group overview page(s) and appear in the search results.
2. Reject the group publication by setting the “Request publication” flag to “False”.

“Status” field of the group QA table SHALL contain at least the content of the “QA comments” field, but it MAY also contain additional information, such as the list of recently changed group nodes or the group validation status (Section 2.6).

2.5 Search/matching and filtering

2.5.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 2.5: Search and matching functional requirements

ID	Target users	Requirement
PoS-07	All	Search by explicitly linked content.
PoS-08	All	Search for implicitly associated content.
PoS-12	All	Search by keywords.
PoS-13	All	Search by data type.
PoS-14	All	Search by taxonomy tags.
PoS-31	Trial stakeholders and practitioners	Search for CM Solutions or CM Tools by CM Functions.
PoS-32	Trial stakeholders and practitioners	Search solution or tools by Trials.
PoS-33	Trial stakeholders and practitioners	Recommendations system.
PoS-43	All	Website implements search functionality.
W-21	All	PoS site implements various filters.

2.5.2 Specifications

The site SHALL provide a rich set of views and functions to support the user in finding the information they are interested in. These functions SHALL include:

1. Advanced full text search for groups, with configurable relevance ranking and sorting criteria.
2. Faceted search to limit the full text search results by taxonomy terms.
3. Views showing all solution and/or Trial groups that are tagged with a specific taxonomy term.
4. “Similar” and “Related” solutions views.
5. “Suggested solutions” views for the Trials.

In addition, search forms that facilitate cross linking of content (used in the edit mode) SHALL be implemented as needed. For example, a search form SHALL be implemented to facilitate searching for CM functions and associating them with Solution Use cases (Section 3.4) and with the Trial Gaps (Section 0).

In addition to offering sophisticated search mechanisms, the site SHALL also allow users to easily find data that is related by taxonomy terms.

Finally, the site SHALL also perform a more sophisticated form of matching based on the same data. This functionality is specified in Sections 3.7 (PoS) and 4.12 (TGT).

2.6 Validation

2.6.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 2.6: Requirements on validation function

ID	Target users	Requirement
W-22	All	PoS site implements a validation functionality

2.6.2 Specifications

The site SHALL use automated ways for formal validation of user provided input. That is, the site SHALL support following forms of validation:

1. **Validation enforced at entity level** (e.g. group, node and taxonomy type of entities):
   - Mandatory fields.
   - Minimal/maximal number of elements for multi-value fields (e.g. “exactly one”, “at least one”, “between two and ten”.
   - Minimal/maximal text length per field (e.g. 100-500 characters or words).
   - Type and size of attached files (e.g. “txt, doc, pdf”, <=1MB).
   - Minimal/maximal Picture size (e.g. “at least 800x640 pixels”).
2. **Validation enforced at group content level** (Solutions, Trials) and with delay:
   - Any of the above, but “eventually enforced”.
   - Minimal/maximal number of group nodes of a specific type (e.g. “at least one Trial Gap”).
   - Cross-linking between elements (e.g. “Trial objectives must link to at least one gap and must be linked from at least one Research Question”).

Validation at entity level is enforced immediately, that is users cannot save their edits without resolving the errors. Second level validation is enforced “eventually”, mostly at the time a request for publication is made. That is, the users can choose to ignore the related warnings while drafting the documents, but they are expected to resolve the issues before their contents are made public.

2.7 Help functionality

2.7.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 2.7: Requirements on help function

ID	Target users	Requirement
PoS-42	All	Website provides help text and a contact form
W-08	All	Website offers a help desk
W-02	All	The website provides tutorials

2.7.2 Specifications

The site SHALL offer several types of help to the user including:

- Contextual help texts.
- Dynamically generated contextual help.
- Helpdesk.
- Editing help.
- Validation (Section 2.6).
- Tutorials.

Contextual help texts

The site SHALL provide a mechanism for displaying context-specific help on any page. This information SHALL be initially hidden and only displayed when requested by the user by clicking on the help (“?”) icon.

Dynamically generated contextual help

This feature is like contextual help texts in a sense that it appears on a specific page/work step but goes a step further in assuring that users aren’t distracted by irrelevant information by dynamically generating the help content. This CAN be realised on several levels.

1. Database search with specific contextual parameters pre-set COULD be embedded in contextual help area. E.g. searchable DB with examples of the ways research questions were defined in previous Trials or in the literature COULD be added to static help texts on “Research Question” step in TGT (Section 4.6).
2. When cross-linking the contents, users SHOULD NOT be able cross-link between groups, unless this is explicitly required. For example, they MUST only be able to link Trial objectives to Trial gaps that are relevant for this Trial.
3. When cross-linking across groups is required, the users SHOULD be at least *encouraged* to link only the relevant contents. For example, solution team SHOULD only be able to establish relations to the Trials where their solution has been used, and Trial team SHOULD be at least *encouraged* to consider trialling the solutions that appear to be relevant for the Trial.

Helpdesk: the site SHALL provide an easy way for the user to contact the helpdesk. This functionality SHALL be realised as an online form that is accessible through Helpdesk button on top of the contextual help desk. Once submitted the form SHALL register the request in the site database and send an e-mail containing the form information to **driverpos-support@projectdriver.eu** mailing list.

The SHALL contain the following information:

- *Email*: User´s email where the answer to their request SHALL be sent.
- *Title:* short text describing the issue.
- *Category:* to indicate if the user is seeking support ("Support request"), reporting a bug ("Bug report"), suggesting a new feature ("Feature request") or suggesting improve the look and feel or usability of the site ("User interface").
- Priority: to indicate the priority the issue has for the user. One of: "minor", "normal", "major", or "critical".
- *Summary:* a free text field for detailed issue description.

Hidden "Current page URI" parameter SHALL be automatically added to the form to facilitate the work of the helpdesk team.

The helpdesk function SHALL be available for both logged in users and anonymous users and the e-mail field pre-filled and hidden from the view for the authenticated ones.

Help for editing: When the user edits some contents (e.g. a node within a solution or Trial group), the site SHALL display a (short) content-type specific help text.

Tutorials

At least three types of PoS/TGT tutorials SHALL be developed: tutorials explaining the generic features of the site, tutorials explaining how to manage solution descriptions and tutorials related to TGT. Each tutorial SHALL be composed of a title, a scope, an objective (what does this tutorial help the user do?) and a sequence of activities (how to fulfil this objective) and initially developed using one of the standard office document formats (e.g. OpenOffice). Interactive h5p (see https://h5p.org/) tutorials SHOULD be developed at a later stage.

The tutorials SHALL be published on the site and made accessible through the menu system, as well as from the front page. Links to individual tutorials COULD also be added to contextual help.

Clicking on the title of a tutorial SHALL redirect the user to the tutorial page, where they will be able to either preview and download the tutorial document (e.g. Office or PDF format) or use it interactively, once the h5p tutorials have been developed.

2.8 E-mail notification

2.8.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 2.8: E-mail function requirements

ID	Target users	Requirement
PoS-04	All	Notifications mechanism (e.g. per e-mail)

2.8.2 Specification

DRIVER+ PoS/TGT site SHALL provide a notification mechanism to assure that the users are informed of all changes and action requests that are relevant to them. Four main types of notifications SHALL be implemented:

1. E-mails informing the users when someone changes "their" contents.
2. Automated e-mail notifications related to administrative actions of the group owners and site editors.
3. Automated periodical notifications reminding the users of the changes they haven't seen so far.
4. Mass-mailings to the (group of) site users by the site editors.

"Content change" notifications SHALL be sent to all solution and Trial group members whenever a content belonging to one of "their" groups' changes. For example, all Trial group members SHALL be notified when a new Trial objective has been added to their Trial or when a description of the scenario changes.

These notifications SHALL be sent at most once per day, even if the content changes repeatedly during the day.

Following "administrative action" type of e-mails SHALL be implemented:

- When a group owner/team member sets the "request publication", an e-mail SHALL be sent to the site editor(s).
- When editor rejects or accepts the request, an e-mail SHALL be sent to the group owner(s) or team members.

In addition, following types of periodic notifications SHALL be implemented:

- The site editor(s) SHALL receive periodic (e.g. weekly or monthly) notifications reminding them if there are solutions or Trials pending to be evaluated.
- Summary notification SHALL be sent once a month, reminding the users of all the content changes in their groups that they haven't seen yet.
- A monthly reminder that their solution or Trial hasn't been published yet SHALL be sent the group owner and team.

All the messages SHALL be configurable by the site administrator.

Finally, the site SHALL also allow the site users with sufficient privileges (e.g. site administrators or editors) to mass-mail all or a subgroup of the site users. For example, the site administrators or editors SHOULD be able to easily inform all solution group owners if the solution data model changes and their solution descriptions need to be updated.

To satisfy the legal requirements, a field in the user profile SHALL be implemented that allows the users to opt out of the e-mail notifications.

Site administrator SHALL be able to configure the e-mail system, e.g.: decide which types of users receive which types of messages; re-define the message templates; determine the interval of periodically generated messages.

2.9 Content exports

2.9.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 2.9: Requirements on PDF export

ID	Target users	Requirement
PoS-47	All	Website offers a PDF export function.

2.9.2 Specification

The PoS DB and the Trial Guidance Tool SHALL allow the user to extract at least the following types of content from the site:

1. Individual Trial and solution descriptions.
2. List of the solutions corresponding to a search result.

These contents SHALL be exportable as a nicely formatted PDF document with an automatically generated table of content, Sections, tables, lists, and images. Searchable solutions list SHALL also be accessible through a REST GET call in one or more of the machine-readable formats (e.g. xml, json).

Site administrators SHALL be able to configure the output (no coding required).

The solution PDF export COULD e.g. start with a table of contents, followed by a title and summary of the solution, the name of the person to contact, the meta-information (readiness, innovation stage, crisis size and crisis cycle phase), the supported use cases and the available solution illustrations. In addition, a Section listing several "similar solutions" or a Section listing the solution references COULD be included. An example of the generated solution PDF export is included in the Annex 5 – Solution PDF export example.

The Trials PDF export SHALL also start with a table of contents, followed by a Trial title, the names and roles of the people to contact, list the team members and other Trial-specific information. Depending on the concrete requests, this document COULD be structured in Sections and COULD include several views at the same data. For example, the gaps, objectives and research questions COULD be provided twice: once in the form of overview tables illustrating the relations between these contents and once with complete descriptions, e.g. by adding one sub-section or list item per gap/objective/research question to the document.

2.10 The EU law cookie compliance

2.10.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 2.10: EU laws compliance requirements

ID	Target users	Requirement
W-25	All	PoS site SHALL inform the user about cookie usage.

2.10.2 Specification

The site SHALL implement following features to comply with the relevant EU laws:

- A pop up notice explaining that we use cookies and what for SHALL be displayed. Users will have to accept this notice to use the site.
- Explicit terms and conditions for using the site (see Annex 2 – DRIVER+ Portfolio of Solutions Terms and Conditions).
- A way for the users to remove own content (group owners only).
- A way for users to remove their account.
- A way for users to opt out of the site e-mail notifications.

Users SHALL be required to explicitly accept the terms and conditions at registration time, and MAY also be asked again when posting content to assure they are aware of the terms and conditions for using the site.

Furthermore, the site SHALL NOT disclose the user e-mails. Sending e-mails to the users per e-mail SHALL be possible using the contact forms that sends e-mails on behalf of the site.

2.11 Taxonomies and Terminology/Glossary

2.11.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 2.11: Taxonomy and terminology/glossary requirements

ID	Target users	Requirement
PoS-02	All	Tagging of content with Taxonomy.
PoS-03	All	Shared terminology.
PoS-28	All	Mechanism for maintaining the terminology and taxonomies that are used in the PoS DB.
PoS-48	All	PoS site links terminology terms with their definitions.
W-09	Solution providers, Trial stakeholders	PoS site has definitions from different sources.
W-10	All	PoS site calculates similarity between different definitions.

2.11.2 Specification

Following taxonomies SHALL be defined on the site:

- CM Functions – taxonomy of Crisis Management Functions that serves as a basis for matching the solutions with the Trials.
- Crisis Cycle Phases, Crisis Size, Solution Stage of Innovation, Solution TRL level – for classifying the solutions
- Locations, Dimensions, SMART terms, Trial type – used within the Trial group.

Other taxonomies SHALL be defined if necessary. Administrators or site editors SHALL have a possibility to edit, delete and add new taxonomy terms (no programming necessary).

For site users without administrator privileges and visitors, a simple "Taxonomy terms" page SHALL be defined that presents all terms belonging to a specific taxonomy as a hierarchical list. In addition, searchable taxonomy views SHALL be implemented as needed, most notably a view allowing the users to discover and choose the appropriate CM functions for tagging the Trial Gaps and Solution Use Cases.

Terminology SHALL be realized as a special group or node type, featuring the following data fields:

1. **Terminology Term:** title field.
2. **Terminology sources:** source name, summary description and a link to the original source. This MAY be realised as a taxonomy reference.
3. **Terminology definitions:** one or more definitions from different sources. This MAY be realised as embedded paragraphs or as nodes associated with the group.
4. **Default definition:** term definition that is used in DRIVER+ and automatically linked from the texts on the site(s). Ideally, the "default definition" SHOULD be defined as a Boolean field to avoid duplication of content, but this MAY also be realized as a text field in terminology terms entity, to permit using of the existing Drupal glossary module(s). If Default definition duplicates one of the alternative definitions, automated copy of the definition that is marked "default" to the default definition field MAY be implemented at a later stage.
5. Thumbs up/down voting field MAY be attached to the term definition paragraph. The way this is going to be used (e.g. who can vote, what does the voting rank mean...) is not clear yet.

Default view of the terms SHALL show the term name, default definition and a list of all other definitions with their sources. It MAY also include a possibility for voting for the favourite definition of a term. Additional views still need to be specified in detail:

- DRIVER+ Glossary view: show a list or a table of all glossary terms used in DRIVER+.
- Per-source views: show a list or a table of all glossary terms per source.
    - Ideally, it should be possible to build a big table that compares the definitions from different sources (e.g. for 2-6 sources that are selected by user).

- In addition, this table should also contain “similarity” index, e.g. something like https://stackoverflow.com/questions/16925150/php-string-comparison-and-similarity-index/38236357#38236357 or https://dandelion.eu/semantic-text/text-similarity-demo/.
- Search view: allows the user to search for specific terms. Output could be the table as above.

“Calculation of the similarities between term definitions” has not been specified by the requesting stakeholders and therefore SHALL NOT be implemented in the scope of this project.

2.12 Country Profiles

2.12.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 2.12: Country Profiles requirements

ID	Target users	Requirement
W-23	All	PoS stores country profiles information.

2.12.2 Specification

This information SHALL be presented to the users in two ways: as an individual Country Profile page and as an overview page where all country profiles can be browsed.

At the individual Country Profile “landing” page, the embedded document SHOULD be visualized inline and a download link given. This page COULD be enriched by attaching a list of Trials that were held in this country to it.

Country profiles overview page SHOULD present the same content, e.g. as a 3x2 raster with a pager to browse through all country profiles. Ideally, a full text search that (also) searches in the attached documents SHOULD also be implemented.

3. Portfolio of Solutions

Section 3 describes all requirements and specification for features that are specific for the Portfolio of Solutions which need to be implemented together with those described in Section 2 in order to have a functional PoS, which fulfils all requirements. It describes the Solution group, which is a main entity in the PoS, all sub-entities which are extending it, together with other supportive features such as search and matching, export, validation etc. It also aims to describe how the PoS as a whole could be implemented.

3.1 Overarching aspects of the PoS

3.1.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 3.1: Portfolio of Solutions – general requirements

ID	Target users	Requirement
PoS-02	All	Tagging of content with Taxonomy.
PoS-09	All	Tasking support.
PoS-10	All	Cloning of data.
PoS-11	All	Actions and decisions.
PoS-15	All	Dedicated data types for Trials, CM Solutions, CM Tools, CM Functions, CM Gaps, Solution Capabilities and Trial Needs/Requirements.
PoS-16	Solution providers and Trial stakeholders	Select solutions to be used in a Trial.
PoS-19	Solution provider	Define Mapping and linking relations between these data types.
PoS-26	Trial stakeholders and practitioners	Help the solution providers to apply for the Trials.
PoS-35	All	PoS links to the project.
PoS-36	Solution providers	Solution providers can advertise own website.
PoS-37	Solution providers, Trial stakeholders, practitioners	Solutions address taxonomy terms.
PoS-38	Trial stakeholders and practitioners	PoS lists relevant CM gaps.
PoS-39	Solution providers and Trial stakeholders	PoS/TGT allow additional uploads.
PoS-40	Solution providers	Solution creation is intuitive.
PoS-41	Solution providers and Trial stakeholders	PoS describes the difference between tools and Solutions.
W-14	All	PoS offers a list of similar solutions.

Table 3.2. Non-functional requirements on the Portfolio of Solutions Database (PoS DB) (2)

ID	Non-functional requirements
CR1	Adding new content should be easy to do without an extensive training and the entering of the data should be straightforward which should be made possible by implementing common usability practices best measured by doing a heuristic evaluation[5] of the system.
CR2	The search mechanism should be simple and finding of relevant information (e.g. solutions that could be used in aa Trial) should be fast from the user's perspective (near-instant results) and unambiguous. One of the consequences of this high-level requirement is that the PoS data should be tagged by a single (known and used) taxonomy.

3.1.2 Specifications

Portfolio of Solutions Database (PoS DB) is an online platform that stores information about innovative solutions in the crisis management field and implements a sophisticated but easy-to-use search and matching functionality to facilitate finding of solutions addressing specific gaps. It SHALL provide the following main functionality:

Provide a simple to use **template for describing own[6] solutions**. This Section of the document concentrates on design and use of this template for describing the solutions.

A **searchable overview of all solutions** that are described in the PoS, the overview page SHALL present a list of all available solutions with their title, illustration and summary.

The **solutions overview page** SHALL present a list of all available solutions with their title, illustration and summary. In addition, it SHALL also advertise one solution as a **solution of the day**.

All site users including the anonymous ones SHALL be allowed to access this page, as well as to use the search and filtering functions. For authenticated users, the overview page SHALL also indicate "own" solutions by displaying their roles within the group (Figure 3.1).

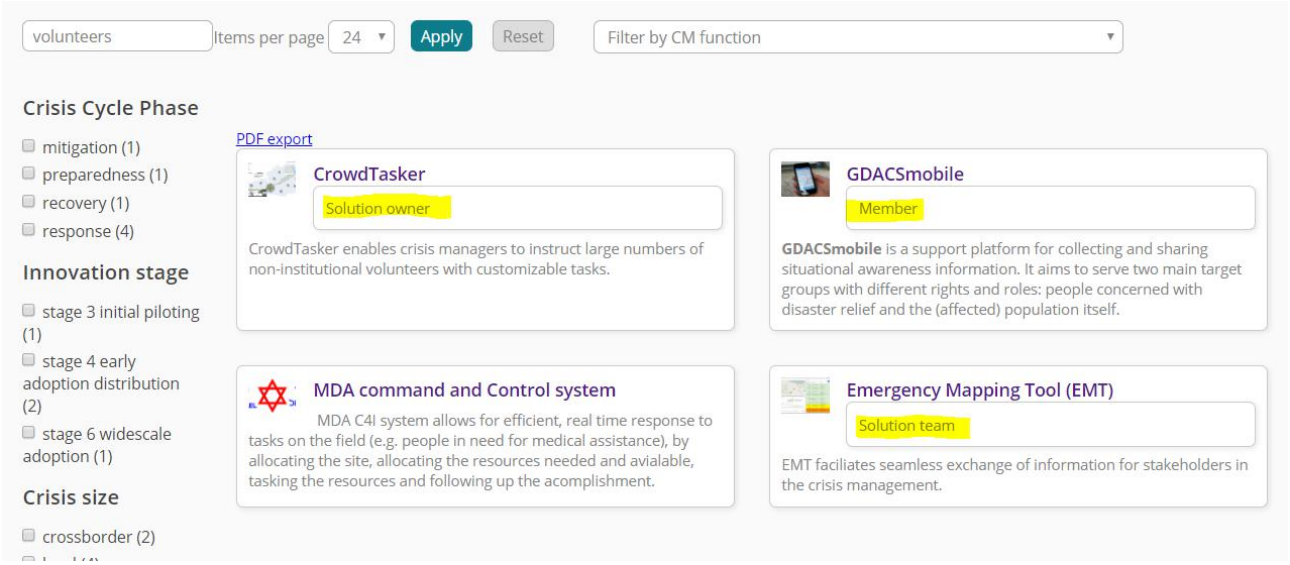

Figure 3.1: List of solutions with indication of the users' role

[5] Nielsen, J. (1994). Heuristic evaluation. In Nielsen, J., and Mack, R.L. (Eds.), Usability Inspection Methods, John Wiley & Sons, New York, NY

[6] They could also describe third party solutions as long as they have the necessary IPRs.

Search and matching functionality, reachable through this page, SHALL be implemented to simplify the task of discovering the promising solutions. Search and matching functionality have already been elaborated in Section 2.5. PoS-specific aspects are further elaborated in Sections 3.5, 3.7 and 3.9.

Solutions SHALL be implemented as groups to support collaborative working on the solution descriptions (see Section 2.2). All authenticated users SHALL be able to describe own solutions[7], whereas the site editors SHALL be able to decide if a solution is described well enough to be published, as explained in Section 2.4. Solution specific team management is further elaborated in Section 3.3.

From the solutions overview page, each short solution description SHALL serve as a link to the **solution's "landing page"** with a more detailed description. Solution landing pages SHALL be visible to all users (including anonymous), but different versions of the page SHALL be shown to different user types:

1. Group owners and other team members SHALL be presented with links that allow them to perform various actions and see the unpublished parts of the group content.
2. Anonymous users and authenticated users that aren't members of the group SHALL NOT see any of the links leading to the functions that are reserved to the group members. Furthermore, only the registered users SHALL be allowed to contact the group members with "contact" role through the site.

Both the solution search/overview page and the solution landing pages SHALL offer alternative **"export" views** for use by humans (PDF, ideally MS Word) or external services (e.g. REST GET with xml or json output), as explained in Section 2.9. Detailed specification of the solution search/overview functionality and individual solution´s export is provided in Section 3.7.

Finally, the PoS DB SHALL also allow the solution owners to publish Trial-like descriptions explaining how their solution could be used in a Trial context (Section 4.2). These "solution tests" SHALL be modelled and managed in the same way as Trials but shown on a separate page within PoS.

3.2 Solution group

3.2.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 3.3: Adding solution requirements

ID	Target users	Requirement
PoS-18	Solution provider	Describe solution.
PoS-20	All	Describe Tool.

3.2.2 Specification

Authenticated PoS DB users (in this case the solution providers) SHALL be allowed to describe their solution(s) without involving the site administrators. Moreover, they SHALL be able to develop such descriptions in self-organised teams, as explained in Section 2.3.

Adding a new solution

First step at defining a solution is adding a new solution group by following the "contribute" link from the front page. If PoS is not realised as a stand-alone tool, this SHALL lead to the "add group" page with following options:

[7] Unless a request for limiting this ability is made by the business developers at some point.

1. **Solution**
   Solution group types are used to describe solutions, as a way to advertise it for use in the Trials. Ideally, the solutions should be added by their owners. If this is not the case, please make sure that the owners are informed and agree with adding their solution to the PoS.
2. **Trial**
   If you wish to organise a Trial or advertise the capabilities of a solution in a Trial-like setting, please start by opening your own group.
   Trial groups are virtual working spaces for organising Trials. They allow the Trial owner to organise a team and assign different roles to team members. For the start, we have defined two roles: "owner" and "team". Owner has all rights on the group, team members can edit documents, comment/participate in discussion.

By choosing the first option, the user SHALL be presented with an online form allowing them to provide the solution description "skeleton", by defining the following fields:

- Title (short text).
- Summary (formatted text).
- Illustrations (image upload).
- IPR confirmation (Boolean, indicates that the user has a right to publish this description).
- Terms and conditions confirmations (indicates that user agrees with the site terms and conditions).

If the PoS is realised independently from TGT, the "add group" link COULD be renamed in "Add solution" and lead directly to this form.

Once the new solution group has been successfully added, **the user who created the group SHALL be automatically assigned a "solution owner" role** and thus able to manage all aspects of the groups, including the group membership (Sections 2.3 and 3.3). In addition, the link to the group SHALL be added to the users' home page. As already indicated, this link SHALL lead to the group landing page that allows further editing of the group contents. The solution "group" editing form SHALL look the same as the creation form.

Solution editing

Once the solution skeleton has been generated, the user SHALL be given an opportunity to complete the core solution description. This edit form SHALL feature three visually separates areas (e.g. tabs):

1. **Solution Summary**.
2. **Meta Information**.
3. **Administrative**.

Solution "Summary" tab SHALL feature the following fields:

- Title: short text field to write the name of the solution.
- Summary: Long text field to describe a solution.
- Provider: URL link field to add reference to the provider's web site.
- Illustrations: Image field to add solution illustrations.
- Video illustrations: Embedder video link field to add solution related videos that must be hosted elsewhere, on YouTube for example.

All fields in this tab, with exception of *video illustrations* field, SHALL be mandatory, as indicated by the (*) symbol. As explained in Section 2.6, assuring that mandatory fields are filled in is part of the basic Drupal functionality and checked at form saving time.

"Meta Information" tab SHALL feature the following multiple-value checkbox fields:

- Crisis cycle phase.
- Innovation stage.
- Readiness.
- Crisis size.

These fields SHALL be realized as references to predefined taxonomies (Section 2.11) and COULD be either mandatory or checked by validation function at a later stage (Section 3.10).

In addition, this tab SHALL also allow the users to indicate which standards are supported by the solution:

- Supported standards – embedded window that presents a searchable list with standards and allows the user to associate zero or more such standards with the solution.

Information provided in this tab SHALL be the used to improve the solution search and implement the solution matching pages (Section 2.5).

"Administrative" tab SHALL feature the following fields:

- IPR confirmation: mandatory Boolean field to indicate that the user is aware of the possible IPR issues and authorized to publish this solution description.
- Terms and conditions confirmation: mandatory Boolean field to indicate that the user agrees with the site terms and conditions (Annex 3 – DRIVER+ Portfolio of Solutions Terms and Conditions).
- Request publication: a Boolean field to indicate that the solution (description) is ready for publication and that the QA process described in the Section 2.4 should be initiated.
- QA approved: a Boolean field that is only visible to site editors and indicates the editors' approval for publishing the solution.
- QA comments: a long text field allowing the solution owners and site editors to exchange comments regarding the QA process.

3.3 Solution team management

3.3.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 3.4: Team management requirements

ID	Target users	Requirement
PoS-01	All	Access right

3.3.2 Specification

The PoS SHALL allow collaborative working with no need for centralised administration, as defined in Section 2.3. Three group-specific roles SHALL be defined as:

Table 3.5: Portfolio of solutions users

User	Can do this:
Solution owner	• Can add/view/modify and delete all solution information. • Can add other site users to (their) Trial group. • Can assign roles to other Trial group members. • Can remove a member from group. • Can delete the group.
Solution member	Can add/view/modify all solution information, but not delete contents.
Contact	No rights to change group content, but the member with this (sub-)role is advertised on the solution landing page and can be contacted by other site users.

3.4 Solution use case

3.4.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 3.6: Use case requirements

ID	Target users	Requirement
W-12	Solution providers	PoS supports description of use cases.
W-13	Solution providers	Use cases are based on CM functions taxonomy.

3.4.2 Specification

The PoS SHALL allow solution team members to add use cases to their solutions to explain how the user stories of their solutions can be tested in order to determine if the solution performs as it is supposed to. Use cases MUST be linked to CM functions taxonomy vocabulary. In order to allow mentioned functionality, the PoS SHALL implement the following:

1. A simple, easy-to-use template, realised inside of a content entity that is added to the solution group, to describe the use case, consisting of:
   - Title: short text field.
   - Summary: long-formatted text field.
   - Illustrations: image-upload field.
   - Attachment: textual file-upload field.
2. A possibility to link one or more CM functions from the taxonomy vocabulary.
   - Related CM functions: entity reference field; realised as an embedded window displaying entities of the CM functions taxonomy that implements a search field.

Use case SHALL be presented on the solution landing page after they are finalised by the solution team and SHALL be visible to all site users.

3.5 Solution “used/tested in” reference

3.5.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 3.7: Solution reference requirements

ID	Target users	Requirement
W-15	Solution providers	PoS allows advertising of Trials from the solutions.
W-16	Solution providers	PoS allows adding external references to the solution.

3.5.2 Specification

The PoS SHALL allow adding references to the solutions.

A simple and easy-to-use template SHALL be implemented, featuring following fields:

- Title: short text field.
- Summary: long-formatted text field.
- External reference: link field (URL).
- Trial reference: link field (optional, links to a Trial).
- Documentation: upload field allowing upload of textual references.

A search function SHALL be implemented that allows the solution owner to easily find the Trials and Trial-like events (Section 4.2) where their solution has been used and reference them using the Trial reference field.[8]

When a Trial reference field is used, the site SHALL automatically visualise the Trial "teaser" on a solution landing page.

The maximal number of references that can be added to the solution COULD be limited.

References that are declared to be finalised by solution team members SHALL be presented on the solution landing page.

3.6 Solution documentation

The following Table 3.8 indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

3.6.1 Requirements

Table 3.8: Solution documentation requirements

ID	Target users	Requirement
W-17	Solution providers	PoS allows adding additional documentation to the solution

3.6.2 Specification

The PoS SHALL provide a possibility to upload different types of solution-related documents. Following elements MUST be implemented.

1. A template realised inside of a content entity consisting of:
   - Title: short text field.
   - Documentation type: single-value select list field referencing a taxonomy vocabulary.
   - Summary: long-formatted text field.
   - External reference: link field.
2. Support for uploading common file formats (such are pdf, doc, docx):
   - Additional documentation: document-upload field.
3. Extendable taxonomy vocabulary to indicate the type of documentation (installation guide, configuration guide, manual etc.).

Uploaded documentation declared to be finalised by solution team members SHALL be presented at the solution overview page and visible to all site visitors.

[8] This feature can only work if the TGT data is available on the PoS site.

3.7 Solution search and matching functionality

3.7.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 3.9: Search and matching functional requirements

ID	Target users	Requirement
PoS-07	All	Search by explicitly linked content.
PoS-08	All	Search for implicitly associated content.
PoS-12	All	Search by keywords.
PoS-13	All	Search by data type.
PoS-14	All	Search by taxonomy tags.
PoS-31	Trial stakeholders and practitioners	Search for CM Solutions or CM Tools by CM Functions.
PoS-43	All	Website implements search functionality.
W-21	All	PoS site implements various filters.

3.7.2 Specifications

PoS SHALL provide following functions to support the user in finding the information they are interested in:

1. Advanced full text search for solutions.
2. Faceted search to limit the full text search results by taxonomy terms.
3. Views showing all solution that are tagged with a specific taxonomy term.
4. “Similar” and “Related” solutions views.

Full text search SHALL be implemented on dedicated “solutions search and overview” page that SHALL also allow narrowing down the search results using facets.

The full-text search SHALL encompass the following information content:

1. Solution title and summary fields (highest relevance).
2. Use Case title and description (medium relevance).
3. Titles and descriptions of the CM functions that are linked to solutions through Use Cases (lower relevance).

The goal of the full text search is to find solutions even if they are only remotely related to the search terms and sort the findings by relevance. The full text search COULD therefore also encompass other text fields in from remotely related data, e.g. titles and descriptions of similar and related solutions or the titles and summaries from the Trials where the solutions were trialled.

Faceted search SHALL be implemented for the taxonomies that are used to characterise the solutions. This includes CM cycle phase, crisis size, either innovation stage or TRL level and the CM functions.

Individual solution landing pages SHALL indicate the relevant crisis cycle phase, innovation stage and crisis size addressed by this solution, as well as the CM functions that are related to solution through use cases as links. By following any of these links, user SHALL arrive at the taxonomy term page listing all other solutions advertising the same taxonomy term.

The solution landing pages SHALL also present the "similar" and "related" solutions.

- **"Similar solutions"** are defined as solutions sharing the CM functions (through use cases).
- **"Related solutions"** are defined as solutions that have proved to be interoperable in Trials (Section 3.9).

Special search forms SHALL be implemented to help the solution owners find relevant standards, Trials where the solution was used (Section 3.5) and related solutions (Section 3.9).

3.8 Solution exports

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

3.8.1 Requirements

Table 3.10: Solution feedback requirements

ID	Target users	Requirement
W-24	All	PoS site SHALL provide interface to other systems.
W-19	CMINE stakeholders	RESTful service to export data to CMINE.
W-20	DRMKC stakeholders	RESTful service to export data to DRMKC.

3.8.2 Specification

PDF export

PoS DB SHALL implement a way to export individual solution descriptions in pdf format. Example of such export is shown in Annex 4 – Data collection plan templates.

In addition, the solution overview page described in Section 3.1.2 and shown in Figure 3.1 SHALL allow the user to export the search results as PDF.

REST GET export

The PoS DB SHALL also provide machine readable export of its content to be used by other systems, in a form of a REST GET page that returns a list of solutions in machine-readable format (e.g. XML, JSON). This page SHALL have the following functionality:

1. Full-text search.
2. Paging.
3. Sorting by last-changed date.
4. Limiting the list to the entries that were added or updated since specific date.

This list SHOULD provide enough information inline to avoid the need for calling individual REST views for each of the solutions. At least the following fields SHALL be included:

- Unique group ID.
- Title.
- Summary (possibly truncated).
- Link to first solution illustration.
- Link to solution landing page.

The export MAY also need to include an indication if the solution owner agrees with use of this information by third parties. This is only necessary if not already covered by site terms and conditions. If this feature is used, the solution data model MUST be extended by an additional Boolean field ("allow reusing").

Swagger description of the REST GET call and parameters SHOULD be provided

3.9 Related solutions

3.9.1 Requirements

The following table indicates the requirements that are addressed by this section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 3.11: Related solution requirements

ID	Target users	Requirement
W-18	Solution providers, Trial stakeholders	PoS shows which solutions can work together

3.9.2 Specification

The PoS DB SHALL advertise "related solutions" on the solution landing pages[9].

Related solutions defined as solutions that have been proven interoperable in Trials or Trial-like events. The site SHALL automatically establish the relations between solutions by checking which solutions were used together in Trial Test Cases (described in Section 4.11).

3.10 Group-level solution validation

3.10.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 3.12: Requirements on validation function

ID	Target users	Requirement
W-22	All	PoS site implements a validation functionality
PoS-06	Editorial Board (EB), managers	PoS contents validation

3.10.2 Specifications

Group level solution validation SHALL warn the users when:

- Solution is not published.
- Solution publishing has not been requested.
- Solution meta-information is incomplete (e.g. Crisis cycle phase or crisis size not defined).
- No use cases are defined and made public (critical error).
- No "used/tested in" references are defined and made public (warning).
- No solution documentation is defined and published (recommendation).
- No "related solutions" is defined and published (recommendation).

Different levels of severity (critical/warning/recommendation) SHALL be shown to indicate which validation messages MUST be resolved before requesting publication.

[9] This is only possible if TGT information is available on the PoS site.

4. Trial Guidance Tool

Section 4 describes all requirements and specification for features that are specific for the Trial Guidance Tool which need to be implemented together with those described in Section 2 in order to have a functional TGT, which fulfils all requirements. It describes the Trial group, which is a main entity in the TGT, all sub-entities which are extending it, together with other supportive features such as validation or knowledge database.

Since the Trial Guidance Methodology foresees three phases of a Trial, this section also describes them separately in the following manner:

- Sections 0 - 4.10 describe the supportive features of the TGT in the preparation phase.
- Sections 4.12 - 4.16 in the execution phase.
- Sections 4.17 - 4.21 in the evaluation phase.

Furthermore, Section 4 also aims to describe how the TGT could be implemented as a whole.

4.1 Overarching aspects of the TGT

4.1.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 4.1: General requirements

ID	Target users	Requirement
TGT-01	All	The TGT is used by Trial Committees in general and is not restricted to the project.
TGT-02	All	The TGT has a procedure for assigning accounts.
TGT-03	All	The TGT is web-based.
TGT-04	Trial stakeholders and practitioners	The TGT mainly supports the preparation phase of the Trials.
TGT-05	Trial stakeholders and practitioners	The TGT provides help functionality.
TGT-06	Trial stakeholders and practitioners	The TGT provides checklists for each step and has validation criteria to ensure correctness.
TGT-07	Trial stakeholders and practitioners	The TGT provides links to the TGM Handbook.
TGT-08	Trial stakeholders and practitioners	The TGT contains a repository of examples.
TGT-09	Trial stakeholders and practitioners	The TGT implements search and filter function for examples.
TGT-10	Trial stakeholders and practitioners	The TGT validates the Trial definition.
TGT-11	Trial stakeholders and practitioners	The TGT supports different types of users.
TGT-12	Trial stakeholders and practitioners	The TGT implements a three-layer quality assurance.
TGT-13	Trial stakeholders and practitioners	The TGT provides e-mail notifications for Trial members to inform them of changes.
TGT-14	Practitioners	The TGT provides support in describing other types of Trial-like experiments.

ID	Target users	Requirement
TGT-15	Trial stakeholders and practitioners	The TGT allows Test-case descriptions.
TGT-16	Trial stakeholders and practitioners	The TGT provides a live chat functionality.
TGT-17	Trial stakeholders and practitioners	The TGT provides a link to contact the TGM experts.
TGT-28	Trial stakeholders and practitioners	Allow interaction between different users with the Trial Committee.

Table 4.2: Trial preparation

ID	Target users	Requirement
TGT-21	Trial stakeholders and practitioners	The TGT supports the iterative six-step approach.
TGT-22	Trial stakeholders and practitioners	The TGT implements a relation between Trial elements such as gaps, objectives, research questions etc., as required by the TGM.
TGT-23	Trial stakeholders and practitioners	The output of the TGT may be directly imported into Section 2 of the Trial Action Plan (TAP).
TGT-24	Trial stakeholders and practitioners	The TGT extracts information from the PoS.
PoS-25	Tool and solution providers	Help Trial stakeholders to pre-select the solutions for use in a Trial.

4.1.2 Specifications

The Trial Guidance Tool (TGT) is a knowledge management and workflow support (web) tool that shall provide the following main functionality:

1. A simple to use templates and workflows that help the TGT users in defining Trials or Trial-like events and documenting the progress and results.
2. An overview of existing Trials, visible to all site visitors (including anonymous).
3. As searchable database of systematic literature research results.
4. Documentation explaining the Trial Guidance Methodology as well as how to use the TGT.

The main page of the TGT SHALL be divided into three sub-pages:

- “About Guidance Tool”.
- “Trials”.
- “Knowledge DB”.

The **about Guidance Tool page** SHALL display all relevant information about the DRIVER+ Trial Guidance Methodology since the TGT is directly derived from the TGM. It SHALL also store an online version of the TGM Handbook mentioned in the **D922.41** deliverable.

The **Trials page** SHALL display all published Trials to the site users and provide links to individual Trial landing pages.

The information shown on the individual Trial landing pages will depend on the user’s role in the Trial:

- Site users with no special privileges will only see information that was published as described in Section 2.4.
- Trial group members will see information based on their group specific privileges, as further elaborated in Section 4.3.

The **knowledge DB page** SHALL present the results of systematic literature research (SLR). This page SHALL allow full text search and filtering of the SLR entries by SLR criteria taxonomy:

- Data analysis.
- Data collection plan.
- Ethical procedures.
- Experiment planning and deviations.
- Methodological Lessons learnt.
- Metrics and key performance indicators (KPIs).
- Research methods.
- Research questions.
- Results.
- Simulation.
- Trial objectives.

The content presented to the user SHALL be split into two parts, one linking to the actual publication where the user can access more detailed information, and the other showing the core findings for quick access.

4.2 Trial group

4.2.1 Requirements

The following table indicates the requirements that are addressed by this Section. Full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 4.3: Adding a Trial

ID	Target users	Requirement
TGT-18	Trial stakeholders and practitioners	Access to the TGT for authorized users only.
TGT-19	Trial stakeholders and practitioners	Authorized users can add or modify Trials in the TGT.
PoS-21	Trial stakeholders	Describe Trial.
PoS-22	Trial stakeholders and practitioners	Describe Trial needs and requirements (User Stories).

4.2.2 Specification

The TGT MUST support users in defining own Trials. To do so, functionalities described in the following paragraph SHALL be implemented into the tool.

Adding a new solution

The first step when defining a Trial is adding a new Trial group by following the “contribute” link from the front page. This SHALL lead to the “add group” page with following options:

1. **Solution**
   “Solution group types are used to describe solutions, as a way to advertise it for use in the Trials.
   Ideally, the solutions should be added by their owners. If this is not the case, please make sure that the owners are informed and agree with adding their solution to the PoS.”
2. **Trial**
   “If you wish to organise a Trial or advertise the capabilities of a solution in a Trial-like setting, please start by opening your own group.
   Trial groups are virtual working spaces for organising Trials. They allow the Trial owner to organise a team and assign different roles to team members. For the start, we have defined two roles: "owner" and "team". Owner has all rights on the group, team members can edit documents, comment/participate in discussion.”

By choosing the second option, the user SHALL be presented with an online form allowing them to provide the Trial description "skeleton", by defining the following fields:

- Trial Type.
- Title (short text).
- Lead organisation (link to organisation or free text).
- Trial Description (formatted text).
- Trial Illustrations (image upload).
- Terms and conditions confirmations (indicates that user agrees with the site terms and conditions).

If the TGT is realised independently from PoS, the "add group" link COULD be renamed in "Add Trial" and lead directly to this form.

Once the new Trial group has been successfully added, **the user who created the group SHALL be automatically assigned a "Trial owner" role** and thus able to manage all aspects of the group, including the group membership (Sections 2.3 and 4.3). In addition, the link to the group SHALL be added to the users' home page. As already indicated, this link SHALL lead to the group landing page that allows further editing of the group contents.

Trial editing

Once the Trial skeleton has been generated, the user SHALL be given an opportunity to complete the core Trial description. This edit form SHALL feature four visually separates areas (e.g. tabs):

1. **Trial Summary**.
2. **Trial Context**.
3. **Meta Information**.
4. **Administrative**.

The Trial Summary tab SHALL display the following fields SHALL be implemented:

- Title: short textual field the write the title.
- Lead organisation: a selectable list of organisations that references content type containing this information, where a maximum of one value can be selected.
- Cooperation partners: a multiple-value selectable list that references the same content type.
- Trial description: long text field to write the textual description of a Trial.
- Trial illustration: an image field-type to save an illustration of a Trial used for better visualisation.

All the fields in this tab except for the "Cooperation partners" shall be mandatory.

The **Trial context tab** SHALL contain the following information:

- Who to involve and how?
- Physical and logical locations of the Trial (more specific than "Trial location").
- Timing of the Trial in the "real world" and "Trial" timeframes.
- Area/setting of the Trial (e.g. "large urban area" or "mountains").
- Special equipment/facilities that is required for the Trial.
- Doctrines, standards and laws of importance for the Trial.
- Ethical, legal and social issues relevant for the Trial.

All these fields shall be "optional" and their existence checked by validation function (Section 4.25). They CAN be implemented as pre-filled free text fields (e.g. pre-filled table form where user just needs to add text in the table fields).

The **Meta-information tab** SHALL contain links to various taxonomy terms that are used to characterise the Trial. Following fields SHALL be implemented:

- Trial type: mandatory one-value field referencing Trial type taxonomy.
- Trial location: mandatory multiple-values field referencing Country profiles described in Section 2.12.
- Crisis cycle phase: mandatory multiple-values field referencing crisis cycle phase taxonomy.
- Crisis size: mandatory multiple-values field referencing crisis size taxonomy.
- Incident category: optional multiple-values field referencing incident category taxonomy.

Finally, the "Administrative" tab SHALL contain administrative information and the information related to site quality control (see Section 2.4). This tab SHALL feature the following fields:

- Terms and conditions confirmation: mandatory Boolean field to indicate that the user agrees with the site terms and conditions (Annex 3 – DRIVER+ Portfolio of Solutions Terms and Conditions).
- Request publication: a Boolean field to indicate that the solution (description) is ready for publication and that the QA process described in Section 2.4 should be initiated.
- QA approved: a Boolean field that is only visible to site editors and indicates the editors' approval for publishing the solution.
- QA comments: a long text field allowing the solution owners and site editors to exchange comments regarding the QA process.

4.3 Trial team management

4.3.1 Requirements

The following table indicates the requirements that are addressed by this Section. Full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 4.4: Trial management

ID	Target users	Requirement
TGT-18	Trial stakeholders and practitioners	Access to the TGT for authorized users only.
TGT-19	Trial stakeholders and practitioners	Authorized users can add or modify Trials in the TGT.

4.3.2 Specification

The TGT SHALL allow collaborative working with no need for centralised administration, as defined in Section 2.3. Three group-specific roles SHALL be defined as:

Table 4.5: Guidance tool users

User	Can do this:
Trial owner	• Can add/view/modify and delete all Trial information. • Can add other site users to (their) Trial group. • Can assign roles to other Trial group members. • Can remove a member from group. • Can delete the group.
Trial member	Can add/view/modify all Trial information, but not delete contents.
Contact	No rights to change group content, but the member with this (sub-)role is advertised on the Trial landing page and can be contacted by other site users.

4.4 Trial gap

4.4.1 Requirements

The following table indicates the requirements that are addressed by this Section. Full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 4.6: Requirements: Gaps

ID	Target users	Requirement
TGT-25	Trial stakeholders and practitioners	The validated DRIVER+ CM gaps are input to the TGT.
TGT-26	Trial stakeholders and practitioners	The TGT provides a possibility to define new Trial gaps.
TGT-27	Trial stakeholders and practitioners	For each Trial, at least one gap must be selected.

4.4.2 Specification

From TGM: "CM Capability gap" is the difference between a current crisis management capability and the capability necessary for an adequate performance of different tasks. In the context of a Trial, CM capability gaps are also referred to as "Trial Gaps". Before setting up a Trial, during the so-called Step Zero, Trial teams are urged to think about the problems they are currently dealing with and the ideal situation they are aiming at.

Defining a Trial Gap is thus the expression of an operational (real-life) crisis management problem and should state a limit in the ability to perform a crisis management task to the adequate level of performance. **At least one Trial Gap has to be defined for each Trial.** More than one gap can be defined per Trial, but the number of gaps that are addressed in a single Trial should be kept low to simplify the Trial design."

TGT SHALL allow the users to link the gaps that were already defined in other Trials as well as to define new gaps and use them in a Trial. "Trial Gap" SHALL feature the following fields:

- Title: short text field.
- Gap description: formatted-long text field.
- Rationale & related CM functions: mandatory compound field consisting of a "rationale", plain long text field and a "CM functions reference" field that references 1-7 CM function taxonomy terms.

While adding gaps to a Trial, a user SHALL be presented with a non-mandatory checklist for self-assessment. In addition, the contextual help, together with links to the knowledge database and examples SHALL be implemented, as described in Section 2.7.

Validation

The validation function (Section 4.25) SHALL be used to assure that all Trials defined with the help of the TGT have at least one gap assigned to them and that each gap is referenced from at least one objective.

4.5 Trial objective

4.5.1 Requirements

The following table indicates the requirements that are addressed by this Section. Full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 4.7: TGM requirements - Trial preparation (objectives)

ID	Target users	Requirement
TGT-29	Trial stakeholders and practitioners	Trial objectives are linked to at least one CM gap and each CM gap is related to a CM function.
TGT-30	Trial stakeholders and practitioners	The TGT provides a template to facilitate the formulation of the Trial objectives in a manner that is SMART.
TGT-31	Trial stakeholders and practitioners	Each objective is categorized as either “Crisis Management objective”, “solution objective” or “Trial objective”.
TGT-32	Trial stakeholders and practitioners	The TGT provides a list of identified Trial objectives in the Trial.
TGT-33	Trial stakeholders and practitioners	Examples of Trial objectives used in other Trials are provided, supported by a search filter.
TGT-34	Trial stakeholders and practitioners	Include metrics with Trial objectives.

4.5.2 Specification

From TGM: “An objective is defined as “something that one’s efforts or actions are intended to obtain or accomplish; purpose; goal; target” So coming from the gaps and the Trial Context, now the users have to clearly define the Trial Objectives in a SMART (Specific, Measurable, Achievable, Reasonable and Time-bound) way. This is the pre-requisite for formulating clear Research Questions. Trial Objectives indicate the concrete expectations on the Trial results.”

The TGT SHALL provide a definition as well as templates and examples of Trials objective(s). Trial Objectives data model includes:

- Title: short text field.
- Trial dimension: checkbox or select list field (each objective is categorized to either “crisis management objective”, “solution objective” or “Trial objective”).
- Trial objective: long-formatted text field.
- Documentation: file-upload field.

Furthermore, the TGT SHALL allow the users to relate the Trial objective with previously defined Trial gaps.

Help

The TGT SHOULD provide a contextual help text for this step, examples of objectives that were defined in earlier Trials and a checklist for self-assessment during the objective formulation.

Validation

The validation function (Section 4.25) SHALL be used to assure that all Trials defined with the help of the TGT have at least one gap assigned to them and that each gap is referenced from at least one objective.

The TGT validation function SHALL warn the user if no such relation exists. Furthermore, it SHALL also warn the users if some gaps aren’t referenced from any objectives as well as in the case that some gaps or objectives aren’t published.

4.6 Trial research question

4.6.1 Requirements

The following table indicates the requirements that are addressed by this Section. Full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 4.8: requirements - Trial preparation (research questions)

ID	Target users	Requirement
TGT-35	Trial stakeholders and practitioners	A research question relates to a Trial objective.
TGT-36	Trial stakeholders and practitioners	The TGT provides a template for the research question dealing with crisis management task, process, content, crisis management roles and the solution required.
TGT-37	Trial stakeholders and practitioners	Examples of research methods are provided from the DRIVER+ knowledge base, including lessons learnt.

4.6.2 Specification

From TGM: "Research questions elaborate the Objectives and help the TGT users to understand what specific questions need to be answered in order to validate the Trial objectives."

The TGT SHALL support the user in the formulation of research questions (RQ) by providing a "Research Question" data model with following fields:

- Title: short text field.
- Research Question: long-formatted text field.
- Documentation: optional file-upload field.

Furthermore, the TGT SHALL allow the users to relate the RQs with previously defined Trial objectives.

Help

The TGT SHOULD provide a contextual help text for this step, examples of RQs that were defined in earlier Trials and a checklist for self-assessment during the RQ formulation.

Validation

The validation function (Section 4.25) SHALL be used to assure that all Trials defined with the help of the TGT have at least one RQ assigned to them and that each objective is referenced from at least one RQ.

The TGT validation function SHALL warn the user if no such relation exists. Furthermore, it SHALL also warn the users if some objectives aren't referenced from any RQs as well as in the case that some RQs aren't published.

4.7 Trial data collection plan

4.7.1 Requirements

The following table indicates the requirements that are addressed by this Section. Full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 4.9: requirements - Trial preparation (data collection plan)

ID	Target users	Requirement
TGT-38	Trial stakeholders and practitioners	The TGT offers a list of possible methods for data collection.
TGT-39	Trial stakeholders and practitioners	The TGT offers Excel-file templates for users to download.
TGT-40	Trial stakeholders and practitioners	Every metric is linked to at least one assessment method.
TGT-41	Trial stakeholders and practitioners	Examples of research methods with associated data collection plans are provided from the DRIVER+ knowledge base.
TGT-42	Trial stakeholders and practitioners	Provide a description of different data collection and analysis techniques.
TGT-43	Trial stakeholders and practitioners	Provide a checklist (for the data collection plan).
TGT-38	Trial stakeholders and practitioners	The TGT offers a list of possible methods for data collection.

4.7.2 Specification

From TGM: "The data collection plan describes how all the necessary will be collected and measured, by whom and by which means during the Trial. This structured plan is key to addressing the RQs."

The TGT SHALL provide a definition as well as templates and examples of Trial data collection plan. Trial data collection plan data model includes:

- Title: short text field.
- Dimension: select-list field (consisting of: Crisis Management dimension, solution dimension, Trial dimension) that the data collection plan is related to, where only one option is allowed.
- Summary: long-formatted text field.
- Evaluation plan: file-upload field, with embedded pre-defined templates for each dimension.
- Documentation: file-upload field.

Furthermore, the TGT SHALL allow the users to relate the data collection plan with previously defined RQs.

Help

The TGT SHOULD provide a contextual help text for this step, examples of evaluation plans that were defined in earlier Trials and a checklist for self-assessment during the plan formulation. The pre-defined templates for each of the dimensions SHALL be provided (see Annex 4 – Data collection plan templates).

Validation

The validation function (Section 4.25) SHALL be used to assure that all Trials defined with the help of the TGT have at least one data collection plan identified for each of the three dimensions.

Linking of data collection plans with RQs is considered optional and MAY NOT be checked by validation function

4.8 Trial evaluation approaches and metrics

4.8.1 Requirements

The following table indicates the requirements that are addressed by this Section. Full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 4.10: TGM requirements (evaluation approaches and metrics)

ID	Target users	Requirement
TGT-45	Trial stakeholders and practitioners	Examples of data analysis techniques and metrics from previous Trials are derived from the DRIVER+ knowledge base.
TGT-46	Trial stakeholders and practitioners	Examples of evaluation approaches applied in previous Trials.
TGT-47	Trial stakeholders and practitioners	Provide explanation on evaluation approaches, distinguishing between literature and practice (past Trials).
TGT-48	Trial stakeholders and practitioners	Examples for data techniques to measure/observe metrics in a Trial.

4.8.2 Specification

Although the initial specifications for this step were provided in **D922.11**, these specifications were obsoleted by subsequent re-design of the "data collection plan" step. Therefore, no explicit support for this step is foreseen in the TGT.

Help

The TGT COULD provide a contextual help text for this step, based on the TGM handbook.

4.9 Trial scenario

4.9.1 Requirements

The following table indicates the requirements that are addressed by this section. Full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 4.11: TGM requirement - Trial preparation (scenario)

ID	Target users	Requirement
TGT-49	Trial stakeholders and practitioners	Scenario text can be entered by uploading a text file.
TGT-50	Trial stakeholders and practitioners	Scenario text can be edited.

4.9.2 Specification

Scenario is a step by step "script" explaining who does what, when, where, with what equipment. Scenario describes a specific line of action that will permit resolving of RQs (objectives, gaps) by the Trial and helps in understanding which types of solutions should be included in the Trials.

The TGT SHALL provide a definition as well as templates and examples of Trials scenarios. Trial scenario data model includes:

- **"Title"**, short text field.
- **"Summary"**, long-formatted text field.
- **"Scenario",** file-upload filed.

Help

The TGT SHOULD provide a contextual help text for this step, examples of scenarios that were defined in earlier Trials and a checklist for self-assessment during the scenario formulation.

Validation

The validation function (Section 4.25) SHALL be used to assure that all Trials defined with the help of the TGT have at least one scenario assigned to them.

4.10 Solution selection

4.10.1 Requirements

The following table indicates the requirements that are addressed by this Section. Full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 4.12: TGM requirements - Trial preparation (select solutions)

ID	Target users	Requirement
TGT-51	Trial stakeholders and practitioners	Solutions are related to one or more CM functions.
TGT-52	Trial stakeholders and practitioners	The TGT supports the DRIVER+ CM function taxonomy.
TGT-53	Trial stakeholders and practitioners	The TGT supports searching the PoS for possible solutions for the objectives formulated, using filter options.
TGT-54	Trial stakeholders and practitioners	The TGT offers a list of possible solutions based on Trial gaps.
TGT-55	Trial stakeholders and practitioners	Selected solutions are presented in the TGT for review, including all information relevant.
TGT-56	Trial stakeholders and practitioners	Solutions can be included / excluded into the Trial by the user.

4.10.2 Specification

From TGM: "The ultimate aim of a Trial is to find out how the socio-technical solution can address the Trial gaps. Solutions can be e.g. hardware, software, training, a new procedure or a mixture of these. Within D+ the solution selection process has therefore different phases: (1) call for application that anyone can apply to; (2) assessing of applications by independent experts; (3) solution demonstration-meeting where solution owners can demonstrate why their solution is suitable for the Trial, etc."

The TGT SHALL provide a possibility to indicate which solutions have been considered for use in the Trial, and which have been actually used in a Trial. This will be supported by a template containing the following fields:

- "Title", a short text field.
- "Summary", a long-formatted text field.
- "Documentation", a file upload field.

If the PoS data is available, the TGT SHALL also provide a "solution reference" field to link the PoS solutions to the Trial. This will be facilitated by a search form that will allow the users to:

1. Both search for and choose any of the solutions from the PoS.
2. Or search in a subset of solutions that is considered relevant for this Trial.

The relevance for the Trial SHALL be based on overlap between the CM functions that are advertised by the solution (through use cases, Section 3.4) and the CM functions that are requested by the Trial (through Trial gaps, Section 0).

Help

The TGT SHOULD provide a contextual help text for this step and a checklist for self-assessment during the solution selection and testing.

Validation

The validation function (Section 4.25) SHALL be used to assure that all Trials defined with the help of the TGT have at least one solution assigned to them.

4.11 Test case

4.11.1 Requirements

The following table indicates the requirements that are addressed by this section. Full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 4.13: TGM requirements – Test cases

ID	Target users	Requirement
PoS-23	Trial stakeholders and practitioners	Describe solution capabilities (test cases).
PoS-24	Solution provider	Describe the level of integration of a tool or solution in the Test-bed (a set of software tools and middleware to systematically create an appropriate (life and/or virtual) environment in which the trialling of solutions is carried out. The Test-bed infrastructure can enable existing facilities to connect and exchange data.)
PoS-29	Editorial Board (EB), management	Validate test cases.

4.11.2 Specification

From TGM: “A test case is a specification of the inputs, execution conditions, testing procedure, and expected results that define a single test to be executed to achieve a particular objective. Test cases underlie testing that is methodical, and they allow the same tests to be run repeatedly, allowing effective and consistent regression testing.”

The TGT SHALL provide a definition as well as examples of test cases from previous Trials. Test Case data model includes:

- Title: short text field.
- Objective.
- Sequence of actions.
- Preconditions/Test data.
- Criteria for success.
- Expected results.
- Illustration.
- Test case attachment.
- Results: a select list field with predefined values: “okay”, “not okay”, “partially ok”.

Furthermore, the TGT SHALL allow the users to relate the Test cases with the previously selected solutions.

Similarly to gaps, the Test cases SHALL be reusable across Trials. They SHALL only be editable within a context of the Trial where they were initially developed, with exception of the relation to solutions and "results" that SHALL be Trial-specific and editable independently in each Trial.

Help

The TGT SHOULD provide a contextual help text for this step and a checklist for self-assessment during the objective formulation.

Validation

The validation function (Section 4.25) COULD be used to assure that all solutions used in a Trial have been successfully tested in at least one Test Case.

4.12 Execution phase

4.12.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 4.14: TGM requirements (evaluation approaches and metrics)

ID	Target users	Requirement
W-26	Trial team	TGT shall provide contextual help texts for the execution and evaluation phase of the Trial.
A-16	Trial stakeholders and practitioners	The TGT SHALL provide checklists for execution and evaluation phase.

4.12.2 Specification

From the TGM: "Execution phase – getting the Trial done".

According to the TGM, this phase consists of several steps: "Trial integration meeting", "Dry run 1", "Dry run 2", and "Trial run".

The TGT SHALL provide following general support functionalities for the execution phase:

- Checklists, as defined in the Trial Guidance Methodology Handbook.
- Contextual help texts as described by the TGM.
- Document repository that allows the Trial team to upload all information.

Apart from these general functionalities for the whole execution phase, individual steps have their own specific ones which are described in Sections 4.13 to 4.16.

4.13 Trial integration meeting

4.13.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 4.15: Trial integration meeting requirements

ID	Target users	Requirement
A-1	Trial stakeholders and practitioners	The TGT SHALL provide a possibility to define test cases.
A-2	Trial stakeholders and practitioners	The TGT SHALL provide a possibility to re-use previously defined test cases.
A-3	Trial stakeholders and practitioners	The TGT SHALL provide examples of previously defined test cases.

4.13.2 Specification

From the TGM: "The Trial integration meeting (TIM) aligns the perspectives of the practitioners, solution providers and Trial committee".

According to the TGM, in this step the integration of solutions into the practitioners' operations is defined, together with the required information to be exchanged.

Apart from general support functionalities, in this step the TGT SHALL provide the following functionalities:

- The TGT SHALL provide assistance in defining test cases which describe the information exchange between solutions. A link to the pre-defined template SHALL be directly accessible at Trial integration meeting step.
- Exact data model for the test cases template is described in Section 4.11.
- The TGT SHALL provide examples of test cases defined in previous Trial directly at the Trial integration meeting step. The examples SHALL be directly accessible while describing new or editing existing test cases.

4.14 Dry Run 1

4.14.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 4.16: Dry run 1 requirements

ID	Target users	Requirement
A-4	Trial stakeholders and practitioners	The TGT SHALL provide a possibility to monitor and document the progress of test cases.
A-5	Trial stakeholders and practitioners	The TGT SHALL provide a possibility to reference test cases.
A-6	Trial stakeholders and practitioners	The TGT SHOULD be able to import data from After Action Review (AAR) tool.

4.14.2 Specification

From the TGM: "In this step, the Trial design and all Test-bed technical infrastructure arrangements are tested at the location(s) where the actual Trial will take place".

According to the TGM, the aim of this step is to test whether or not the results of all the six steps have been implemented correctly.

Apart from general support functionalities, the TGT SHALL provide a possibility to monitor the progress of previously defined test cases, by implementing a simple data model that COULD have the following fields:

- Title: short text field.
- Execution step: select-list field (consisting of: “Dry Run 1”, “Dry Run 2”) that the data is related to.
- Summary: long-formatted text field.
- Test case: reference field allowing the selection of previously defined test cases.
- Passed: Boolean field allowing to indicate a status.
- Test summary, long-formatted text field.

In addition, the TGT SHOULD be able to import data directly from the After Action Review tool, via a RESTful interface.

4.15 Dry Run 2

4.15.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 4.17: Trial integration meeting requirements

ID	Target users	Requirement
A-4	Trial stakeholders and practitioners	The TGT SHALL provide a possibility to monitor and document the progress of test cases.
A-5	Trial stakeholders and practitioners	The TGT SHALL provide a possibility to reference test cases.
A-6	Trial stakeholders and practitioners	The TGT SHOULD be able to import data from After Action Review (AAR) tool.

4.15.2 Specification

From the TGM: “Dry Run 2 is a full test: a general test in preparation for the real Trial”.

According to the TGM, the aim of this step is to do a final test of the Test-bed technical infrastructure arrangements and to do a test whether (a) adjustments that have been appointed at the end of Dry Run 1 have been implemented in a proper way, and (b) that the constellation as a whole functions properly.

Apart from general support functionalities, the TGT SHALL provide same functionalities as those described in Section 4.14.2, since both steps are very similar in nature and having the same functionalities makes sense.

4.16 Trial run

4.16.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 4.18: Trial integration meeting requirements

ID	Target users	Requirement
A-6	Trial stakeholders and practitioners	The TGT SHOULD be able to import data from After Action Review (AAR) tool.

4.16.2 Specification

According to the TGM, in this step the Trial is executed and all kinds of data are collected.

Apart from general support functionalities for this step, the TGT SHOULD provide a RESTful interface to the After Action Review Tool, where all collected data during the Trial run COULD be stored. In case the AAR tool is not used, manual upload of data SHALL be possible.

4.17 Evaluation phase

4.17.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 4.19: TGM requirements (evaluation approaches and metrics)

ID	Target users	Requirement
W-26	Trial team	TGT shall provide contextual help texts for the execution and evaluation phase of the Trial
W-27	Trial Team	TGT shall allow the Trial team to publish the lessons learnt in the Trial
A-16	Trial stakeholders and practitioners	The TGT SHALL provide checklists for execution and evaluation phase

4.17.2 Specification

From the TGM: “evaluation phase is dedicated to help you finding the results you were looking for”.

According to the TGM, this phase consists of several steps: “Data quality check”, “Data analysis”, “Data synthesis”, and “Disseminate results”.

The TGT SHALL provide following general support functionalities for the evaluation phase:

- Checklists, as defined in the Trial Guidance Methodology Handbook.
- Contextual help texts as described by the TGM.
- Document repository that allows the Trial team to upload all information.

Apart from these general functionalities for the whole evaluation phase, individual steps have their own specific ones which are described in Sections 4.19 to 4.21.

4.18 Data quality check

4.18.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 4.20: Data quality check requirements

ID	Target users	Requirement
A-7	Trial stakeholders and practitioners	The TGT SHALL display data at a common place

4.18.2 Specification

From the TGM: "During your Trial you gathered a lot of different kinds of data with various means (observer, Test-bed technical infrastructure, questionnaire etc.)".

Apart from general support functionalities for this step, the TGT SHALL display all relevant data at this step:

- Defined gaps.
- Defined research questions.
- Defined scenario.
- Data imported from the After Action Review tool.

All displayed data SHALL be structured to enable an easy and clear overview.

4.19 Data analysis

4.19.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 4.21: Data analysis requirements

ID	Target users	Requirement
A-8	Trial stakeholders and practitioners	The TGT SHALL provide examples of analysed data
A-9	Trial stakeholders and practitioners	The TGT SHALL provide a possibility to indicate which data is relevant for which dimension

4.19.2 Specification

From the TGM: "Here you will structure, visualise and identify patterns. Furthermore, you will put your data in a first relation to your KPIs".

According to the TGM data should be separated in the 3 dimensions: Trial, solution, and CM.

Apart from general support functionalities for this step, the TGT SHALL provide a possibility to select different sets of collected data and indicate for which dimension is it relevant. Presented data SHALL have simple list of Boolean fields with following values:

- Trial dimension.
- Solution dimension.
- Crisis Management dimension.

There SHALL be a possibility to choose more than one value.

In addition, the TGT SHALL provide examples of analysed data from previous Trials directly at this step.

4.20 Data synthesis

4.20.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 4.22: Data synthesis requirements

ID	Target users	Requirement
A-10	Trial stakeholders and practitioners	The TGT SHALL provide a possibility to document answers to research questions
A-11	Trial stakeholders and practitioners	The TGT SHALL provide a possibility to document answers to gaps
A-12	Trial stakeholders and practitioners	The TGT SHALL advertise results of a Trial

4.20.2 Specification

From the TGM: "This is the point in time where you need your three-dimensional approach and see how your gap has been addressed and what more needs to be done to reach that goal."

Apart from general support functionalities for this step, the TGT SHOULD implement a simple data model that has:

- A list of selected gaps.
- A list of defined research questions.
- Text field to write the results.

In addition, this information SHALL be shown on the Trial overview page for all users of the TGT.

4.21 Disseminate results

4.21.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 4.23: Document and disseminate requirements

ID	Target users	Requirement
A-13	Trial stakeholders and practitioners	The TGT SHALL provide a link to a Lessons Learned Library
A-14	Trial stakeholders and practitioners	The TGT SHALL store lessons learned
A-15	Trial stakeholders and practitioners	The TGT SHOULD publish lessons learned information to Lessons Learned Library

4.21.2 Specification

According to the TGM, after the end of a Trial, lessons learned need to be documented.

The TGT SHALL support the user in the formulation of Lessons learnt (LL). by providing a "Lessons learnt" data model with following fields:

- Title: short text field.
- Summary: formatted long text.
- Documentation: optional file upload field.

In addition, the TGT data model of lessons learnt COULD also include:

- LL type – type of the lesson learned, e.g. the same taxonomy as used for classifying the SLRs
- Sentiment – to indicate if this lesson learned is positive or negative.

Furthermore, the TGT COULD allow the users to relate the LLs with any of the previously defined Trial contents (gaps, objectives, etc.)

Help

The TGT SHOULD provide a contextual help text for this step, examples of LLs that were defined in earlier Trials and a checklist for self-assessment during the LL formulation.

Validation

The validation function (Section 4.25) COULD be used to assure that all Trials defined with the help of the TGT have at least one LL assigned to them.

In the DRIVER project a Lessons Learned Library has been developed as an individual tool. The TGT SHOULD publish the saved information to this tool using a RESTful interface and a link to it SHALL be available directly at this step.

4.22 Trial search and matching

4.22.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 4.24: Search and matching functional requirements

ID	Target users	Requirement
PoS-44	Trial stakeholders and practitioners	Website accommodates a searchable knowledge database

4.22.2 Specifications

TGT is primarily designed as a tool for defining the Trials, rather than as a tool for publishing the Trial results. Therefore, the TGT COULD, but does not have to implement a fully-fledged Trials search.

For the purpose of preparing the Trials, following search functions SHALL be implemented:

- Search for previously defined gaps (Section 4.4 Trial Gap").
- Search for solutions addressing the CM functions that are requested by the Trial through Trial gaps (Section 4.10 "Solution").

Furthermore, some form of search SHOULD also be implemented for all previously defined Trial contents and SLR entries (Section 4.24 "Knowledge database"), to improve the contextual help.

Similarly, to solutions, Individual Trial overview pages SHALL indicate the links to relevant taxonomy terms. By following any of these links, user SHALL arrive at the taxonomy term page listing all other Trials advertising the same taxonomy term.

4.23 Trial exports

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

4.23.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 4.25: Solution feedback requirements

ID	Target users	Requirement
TGT-23	Trial stakeholders and practitioners	The output of the TGT may be directly imported into Section 2 of the Trial Action Plan (TAP).
TGT-20	Trial stakeholders and practitioners	Trials can be exported (xml/json format).

4.23.2 Specification

TGT SHALL implement a way to export individual Trial descriptions in PDF format. If possible, MS Word export SHOULD also be provided, to simplify the task of including this information in the Trial Action Plan (5). Ideally, the exported document SHOULD replace the Trial Action Plan or at least generate an essential part of it.

The exported data SHALL be structured in sections corresponding to the steps in the Trial Action Plan and, in addition to full-data entries, provide overview tables with references and back-references where appropriate.

If a search page, analogous to Solution Search in PoS is implemented, the TGT SHALL also allow the user to export the Trial search results as PDF.

4.24 Knowledge database

4.24.1 Requirements

The following table indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 4.26: TGM requirements – Knowledge database

ID	Target users	Requirement
PoS-30	Tool and solution providers, Trial stakeholders, managers	Indicate the results of the trialling for a specific solution.
PoS-52	Trial stakeholders and practitioners	Website accommodates a searchable knowledge database.

4.24.2 Specification

Knowledge DB SHALL contain two distinct pieces of information:

1. **Article:** Title, abstract, full article PDF, URI to full article PDF, possibly other (e.g. references to gaps or CM functions that are addressed by this article, article “type” etc.).
2. **Codebook:** textual description of the SLR results for each of the following categories/criteria: “objective”, “research questions”, “experiment planning & deviations”, “Research Methods”, “metrics & KPIs”, “Data Collection Plan” and “Data analysis”.

The first part of the information SHALL be unique for the analysed article, whereas the second part can appear more than once for each article. Moreover, “article” doesn’t necessarily have to be a journal or a conference article. We could just as well reference a Trial or some Trial report.

The codebooks SHALL be presented in a separate view (page or block), e.g. as a contextual help for the users that are designing a Trial. This view:

1. SHALL link the codebooks to the articles.
2. SHALL sort codebooks by voting results.

3. SHALL allow filtering of the codebooks by category.
4. SHOULD allow full text search on codebooks.
5. COULD allow filtering by Gaps or by CM functions[10].

4.25 Group-level Trial validation

4.25.1 Requirements

The following Table 4.27 indicates the requirements that are addressed by this Section. The full list of PoS and TGT requirements is presented in Annex 2 – PoS and TGT requirements.

Table 4.27: Requirements on validation function

ID	Target users	Requirement
W-22	All	PoS site implements a validation functionality.
TGT-06	Trial stakeholders and practitioners	The TGT provides checklists for each step and has validation criteria to ensure correctness.
TGT-10	Trial stakeholders and practitioners	The TGT validates the Trial definition.

4.25.2 Specifications

Group level Trial validation SHALL warn the users when:

- Trial is not published.
- Trial publishing has not been requested.
- Optional Trial fields are incomplete (e.g. Trial context fields).
- No data has been defined and published in one or more of the steps in Trial preparation, execution and evaluation phase (depending on the step, this COULD result in “critical” error, “warning” or “recommendation”).
- No links to other steps have been defined where required (critical) or possible (recommendation). For example, each Trial objective MUST link to at least one Trial gap.
- No back-links have been defined where required or suggested.

Different levels of severity (critical/warning/recommendation) SHALL be shown to indicate which validation messages MUST be resolved before requesting publication.

More information on per-step validation is provided in Sections describing the individual step specifications.

[1010] For this, the articles or codebooks would have to be tagged by gaps or by CM functions first.

5. Conclusion

As mentioned in the Introduction, most of the requirements for the Portfolio of Solutions (PoS) and the Trial Guidance Tool (TGT) came from **WP922** and **WP932**, while also considering additional requirements from other WPs and even from the test users outside of the consortium. They were gathered and turned into specifications of both online tools and described in this document, with indications as to how each of these tools could be developed separately. With regards to internal partners, not only structural feedback is collected and processed, but also lessons learnt from the supporting activities are taken into account.

The requirements and specifications presented in this document are considered “nearly final” in a sense that the overall design of the PoS and TGT is not expected to change drastically between now and the project end. However, additional requirements COULD be gathered through feedback from the PoS and TGT users or as a request from key stakeholders.

An example of such a case is a reason for re-opening of this deliverable, where a shortcoming in functionalities of the TGT in the execution and evaluation phases was identified and a request was made to extend them.

This document in its first 4 Sections provided insights into the DRIVER+ online tools - the Portfolio of Solutions and the Trial Guidance Tool, as how they were developed during the course of the project, what their common and individual requirements are and their implementation specifications. It is to be used together with **D933.21** (6) as a starting point for any further developments of the two tools.

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Annexes

Annex 1 - DRIVER+ Terminology

In order to have a common understanding within the DRIVER+ project and beyond and to ensure the use of a common language in all project deliverables and communications, a terminology is developed by making reference to main sources, such as ISO standards and UNISDR. This terminology is presented online as part of the Portfolio of Solutions and it will be continuously reviewed and updated[11]. The terminology is applied throughout the documents produced by DRIVER+. Each deliverable includes an annex as provided here-under, which holds an extract from the comprehensive terminology containing the relevant DRIVER+ terms for this respective document.

Table A1: DRIVER+ Terminology

Terminology	Definition	Source
Crisis	Unstable condition involving an impending abrupt or significant change that requires urgent attention and action to protect life, assets, property or the environment.	ISO 22300:2018(en), Security and resilience — Vocabulary. Link:https://www.iso.org/obp/ui/#iso:std:iso:22300:ed-2:v1:en:term:3.59.
Crisis Management	Holistic management process that identifies potential impacts that threaten an organization and provides a framework for building resilience, with the capability for an effective response that safeguards the interests of the organization's key interested parties, reputation, brand and value-creating activities, as well as effectively restoring operational capabilities. Note 1 to entry: Crisis management also involves the management of preparedness, mitigation response, and continuity or recovery in the event of an incident, as well as management of the overall programme through training, rehearsals and reviews to ensure the preparedness, response and continuity plans stay current and up-to-date.	ISO 22300:2018(en) Security and resilience — Vocabulary. Link: https://www.iso.org/obp/ui/#iso:std:iso:22300:ed-2:v1:en:term:3.60.
Crisis Management Taxonomy	A taxonomy of Crisis Management Functions describing strategically-directed activities to prevent, prepare, respond to and mitigate the effects of and recover from a crisis. Note 1 to entry: Taxonomy is a scheme of categories and subcategories that can be used to sort and otherwise organize itemized knowledge or information that are processed, organized and correlated to produce meaning.	ISO 5127:2017(en) Information and documentation — Foundation and vocabulary. Link: https://www.iso.org/obp/ui/#iso:std:iso:5127:ed-2:v1:en:term:3.8.6.07.

[11]The Portfolio of Solutions and the terminology of the DRIVER+ project are accessible on the DRIVER+ public website (https://www.driver-project.eu/). Further information can be received by contacting coordination@projectdriver.eu.

Terminology	Definition	Source
End-users	Individual person who ultimately benefits from the outcomes of the system. Note 1 to entry: The End-user can be a regular operator of the software product or a casual user such as a member of the public. DRIVER+ note 1: In the context of DRIVER+ End-user encompasses practitioners, solution providers and other stakeholders.	ISO/IEC 25010:2011(en) Systems and software engineering — Systems and software Quality Requirements and Evaluation (SQuaRE) — System and software quality models. Link: https://www.iso.org/obp/ui/#iso:std:iso-iec:25010:ed-1:v1:en.ttps://www.iso.org/obp/ui/#iso:std:iso-iec:25010:ed-1:v1:en.
Gap	Gaps between the existing capabilities of responders and what was actually needed for effective and timely response.	Project Responder 5, Homeland Security, Science and Technology, August 2017. Link: https://www.dhs.gov/sites/default/files/publications/Project-Responder-5-Report_170814-508.pdf.
Portfolio of Solutions (PoS)	A database driven web site that documents the available Crisis Management solutions. The PoS includes information on the experiences with a solution (i.e. results and outcomes of Trials), the needs it addresses, the type of practitioner organisations that have used it, the regulatory conditions that apply, societal impact consideration, a glossary, and the design of the Trials.	Initial DRIVER+ definition.
Solution	A solution is a means that contributes to a crisis management function. A solution is either one or more processes or one or more tools with related procedures.	Initial DRIVER+ definition.
Trial	An event for systematically assessing solutions for current and emerging needs in such a way that practitioners can do this following a pragmatic and systematic approach.	Initial DRIVER+ definition.
Trial Guidance Methodology (TGM)	A structured approach from designing a Trial to evaluating the outcomes and identifying lessons learnt.	Initial DRIVER+ definition.
Trial Guidance Tool (TGT)	A software tool that guides Trial design, execution and evaluation in a step-by-step way (according to the Trial Guidance Methodology) including as much of the necessary information as possible in form of data or references to the Portfolio of Solutions.	Initial DRIVER+ definition.

Annex 2 - PoS and TGT requirements

The following tables summarize ALL requirements originating **WP922** deliverables (Table A.2), **WP932** deliverables (Table A.3) and other sources

Table A.4).

Table A.2: Requirements from WP922

ID	Target users	Requirement	Description
TGT-01	All	The TGT is used by Trial Committees in general and is not restricted to the project.	The TGT can be used by people that are not a part of the DRIVER+ project
TGT-02	All	The TGT has a procedure for assigning accounts.	Only legitimate users are allowed to use the TGT, so the procedure should assure legitimacy.
TGT-03	All	The TGT is web-based.	The TGT is a web-based tool available to a broad audience.
TGT-04	Trial stakeholders and practitioners	The TGT mainly supports the preparation phase of the Trials.	The main focus of the TGT is assisting Trial stakeholders and practitioners in the preparation phase of a Trial.
TGT-05	Trial stakeholders and practitioners	The TGT provides help functionality.	The TGT implements help functionality in order to provide assistance.
TGT-06	Trial stakeholders and practitioners	The TGT provides checklists for each step and has validation criteria to ensure correctness.	The TGT implements different helping functionalities (explanations, checklists, references).
TGT-07	Trial stakeholders and practitioners	The TGT provides links to the TGM Handbook.	The TGT is linked to the TGM Handbook and provides direct access to relevant sections from the Handbook.
TGT-08	Trial stakeholders and practitioners	The TGT contains a repository of examples.	The TGT offers examples from the repository to the users. *Input from the DRIVER+ Trials will provide additional examples.*
TGT-09	Trial stakeholders and practitioners	The TGT implements search and filter function for examples.	The repository of examples can be searched and filtered in order to find relevant information easily.
TGT-10	Trial stakeholders and practitioners	The TGT validates the Trial definition.	The TGT implements validation criteria and algorithms in order to check the correctness of the input. *The validation comprises simple checks at first (i.e. all fields filled in; each gap/objective addressed). Experiences in using the Trial will provide additional checks.*
TGT-11	Trial stakeholders and practitioners	The TGT supports different types of users.	Different user types with separate permissions can be assigned.
TGT-12	Trial stakeholders and practitioners	The TGT implements a three-layer quality assurance.	The TGT has a three-layer quality assurance in order to assure the quality of the content that is stored in the tool.

ID	Target users	Requirement	Description
TGT-13	Trial stakeholders and practitioners	The TGT provides e-mail notifications for Trial members to inform them of changes.	The TGT implements a possibility to inform all Trial team members of any changes that they are not aware of via e-mail.
TGT-14	Practitioners	The TGT provides support in describing other types of Trial-like experiments.	The TGT extends types of references that solutions can advertise.
TGT-15	Trial stakeholders and practitioners	The TGT allows Test-case descriptions.	The TGT provides support in description of Test-cases.
TGT-16	Trial stakeholders and practitioners	The TGT provides a live chat functionality.	TGT team members can communicate within the tool.
TGT-17	Trial stakeholders and practitioners	The TGT provides a link to contact the TGM experts.	The users of the TGT have a direct link to contact experts from CoE to receive professional assistance.
TGT-18	Trial stakeholders and practitioners	Access to the TGT for authorized users only.	Only people that have an account on the website can access the functionalities of the TGT.
TGT-19	Trial stakeholders and practitioners	Authorized users can add or modify Trials in the TGT.	People that have an account on the website can add new Trials or modify those that they are members of.
TGT-20	Trial stakeholders and practitioners	Trials can be exported (xml/json format).	The TGT offers a possibility to export all Trial information in machine-readable format.
TGT-21	Trial stakeholders and practitioners	The TGT supports the iterative six-step approach.	The TGT is designed so that it supports the users in the implementation of the six-step approach defined by the TGM.
TGT-22	Trial stakeholders and practitioners	The TGT implements a relation between six step components (in both directions).	The TGT is designed so that components of the six-step approach are in relation with each other in both directions.
TGT-23	Trial stakeholders and practitioners	The output of the TGT may be directly imported into Section 2 of the Trial Action Plan (TAP).	The TGT allows users to export information from the TGT in PDF format which can be used as starting point for the TAP document.
TGT-24	Trial stakeholders and practitioners	The TGT extracts information from the Portfolio of Solutions (PoS).	The TGT can add direct links to solution descriptions from the PoS and this information will be reused where it is needed.
TGT-25	Trial stakeholders and practitioners	The validated DRIVER+ CM gaps are input to the TGT.	The TGT offers a list of predefined CM gaps to the user to choose from.
TGT-26	Trial stakeholders and practitioners	The TGT provides a possibility to define new Trial gaps.	The TGT gives a possibility and helps users in defining new gaps.
TGT-27	Trial stakeholders and practitioners	For each Trial, at least one gap must be selected.	The TGT ensures that each defined Trial addresses at least one gap.

ID	Target users	Requirement	Description
TGT-28	Trial stakeholders and practitioners	Allow interaction between different users with the Trial Committee.	The TGT provides a possibility that different types of users work on the same Trial. *Users who are involved in preparation, execution or evaluation of the Trial, such as scientists or a scenario writer.*
TGT-29	Trial stakeholders and practitioners	Trial objectives are linked to at least one CM gap and each CM gap is related to a CM function.	The TGT implements a way to ensure that objectives are linked with CM gaps and also that CM gaps are linked with CM functions.
TGT-30	Trial stakeholders and practitioners	The TGT provides a template to facilitate the formulation of the Trial objectives in a manner that is SMART.	The TGT provides a template that assures that when it is used for defining a Trial objective, it will be SMART (specific, measurable, assignable, realistic and timely).
TGT-31	Trial stakeholders and practitioners	Each objective is categorized as either “Crisis Management objective”, “solution objective” or “Trial objective”.	The TGT implements a taxonomy for objectives.
TGT-32	Trial stakeholders and practitioners	The TGT provides a list of identified Trial objectives in the Trial.	The TGT offers a list of all objectives that were identified in a Trial to the user.
TGT-33	Trial stakeholders and practitioners	Examples of Trial objectives used in other Trials are provided, supported by a search filter.	The TGT provides a searchable list of examples of objectives that were identified and described by other users. *Users can copy such examples into his/her Trial definition and modify the Trial objective.*
TGT-34	Trial stakeholders and practitioners	Include metrics with Trial objectives.	The TGT allows assigning of metrics to Trial objectives. *User can select from a list or enter additional metric.*
TGT-35	Trial stakeholders and practitioners	A research question relates to a Trial objective.	The TGT assures that a Trial research questions are linked to corresponding Trial objectives.
TGT-36	Trial stakeholders and practitioners	The TGT provides a template for the research question dealing with crisis management task, process, content, crisis management roles and the solution required.	The TGT offers a template to the user that guides him in definition of research questions.
TGT-37	Trial stakeholders and practitioners	Examples of research methods are provided from the DRIVER+ knowledge base, including lessons learnt.	The TGT provides examples of previously defined research methods including relevant lessons learnt.
TGT-38	Trial stakeholders and practitioners	The TGT offers a list of possible methods for data collection.	The TGT provides a list of all methods that are used for data collection.
TGT-39	Trial stakeholders and practitioners	The TGT offers Excel-file templates for users to download.	The TGT provides pre-defined Excel files to the user in order to guide him through the data collection process.

ID	Target users	Requirement	Description
TGT-40	Trial stakeholders and practitioners	Every metric is linked to at least one assessment method.	The TGT assures that every chosen metric is linked to at least one assessment method.
TGT-41	Trial stakeholders and practitioners	Examples of research methods with associated data collection plans are provided from the DRIVER+ knowledge base.	The TGT provides examples of research methods together with data collection plans from previous Trials.
TGT-42	Trial stakeholders and practitioners	Provide a description of different data collection and analysis techniques.	The TGT has a list of different data collection plans and analysis techniques with respective descriptions that is provided to the user.
TGT-43	Trial stakeholders and practitioners	Provide a checklist (for the data collection plan).	The TGT implements a checklist for the user to help him in formulation of data collection plans.
TGT-44	Trial stakeholders and practitioners	Relate metrics to the Observer Support Tool which is a component of the reference implementation of the Test-bed.	The TGT supports an export function with measurements/observations for the Observer Support Tool.
TGT-45	Trial stakeholders and practitioners	Examples of data analysis techniques and metrics from previous Trials are derived from the DRIVER+ knowledge base.	The TGT offers examples of data analysis techniques and metrics from previous Trials to the user.
TGT-46	Trial stakeholders and practitioners	Examples of evaluation approaches applied in previous Trials.	The TGT offers examples of evaluation approaches from previous Trials to the user.
TGT-47	Trial stakeholders and practitioners	Provide explanation on evaluation approaches, distinguishing between literature and practice (past Trials).	The TGT offers explanation of evaluation approaches from previous Trials to the user.
TGT-48	Trial stakeholders and practitioners	Examples for data techniques to measure/observe metrics in a Trial.	The TGT offers examples of data techniques from previous Trials to the user.
TGT-49	Trial stakeholders and practitioners	Scenario text can be entered by uploading a text file.	The TGT allows users to upload text files.
TGT-50	Trial stakeholders and practitioners	Scenario text can be edited.	The TGT allows editing of uploaded files.
TGT-51	Trial stakeholders and practitioners	Solutions are related to one or more CM functions.	The TGT assures that information extracted from the PoS is related to CM functions.
TGT-52	Trial stakeholders and practitioners	The TGT supports the DRIVER+ CM function taxonomy.	The TGT implements taxonomy vocabularies of DRIVER+ terms.
TGT-53	Trial stakeholders and practitioners	The TGT supports searching the PoS for possible solutions for the objectives formulated, using filter options.	The TGT offers a searchable list of solutions that can be filtered by the user. *The users can refine/broaden the search by changing the filter options or keywords.*

ID	Target users	Requirement	Description
TGT-54	Trial stakeholders and practitioners	The TGT offers a list of possible solutions based on Trial gaps.	The TGT checks the CM functions mentioned by solutions and compares them with those that are mentioned in gaps and presents the list to the user.
TGT-55	Trial stakeholders and practitioners	Selected solutions are presented in the TGT for review, including all information relevant.	The TGT presents relevant information of the selected solution from the PoS. *For example (if available) the description of the solution, previous Trial results, experiences from end-users, TRL level.*
TGT-56	Trial stakeholders and practitioners	Solutions can be included / excluded into the Trial by the user.	The TGT offers a possibility to the user to add/remove links to the solution description from the PoS.

Table A.3: Requirements from WP932

ID	Target users	Requirement	Description
PoS-01	All	Access right	The PoS DB SHALL implement access rights for various data content and for various functions. These access rights should apply to different user roles related to user types in the PoS DB.
PoS-02	All	Tagging of content with Taxonomy	The PoS DB SHALL associate the data with taxonomy terms from one single taxonomy in order to ensure the coherence and the homogeneity of the description. This will allow improving the search and matching capabilities of the site as well as provide this benefit for external stakeholders and standardization bodies.
PoS-03	All	Shared terminology	The PoS DB SHALL assure that all team members understand and use the terminology in the same way to facilitate the common understanding. This will allow improving the common understanding of the crisis management within the project team and provide benefit to external stakeholders and standardization.
PoS-04	All	Notifications mechanism (e.g. per e-mail)	In order to assure that the stakeholders who work with the PoS DB are aware of the changes and requests which are of relevance to them, the site MUST provide a way to assign work items to specific team members as well as to "subscribe" to elements of interest, e.g., a solution must have a dedicated "owner" who will be informed of requests for improving the solution description, "editors" who will be informed when these requests are fulfilled…

ID	Target users	Requirement	Description
PoS-05	All	Different views at the same data	The PoS DB SHALL provide a mechanism to present the data in a form suitable for the needs of the different stakeholders. E.g., the editorial board members and managers will need overviews of the work competition. Trial owners will need Trial-centric views showing which solutions are used in their Trials and the current status of the Trial planning and execution. Solution owners will need a solution-centric view that shows where "their" solution is used, how the users reacted to it, which tools are incorporated, which test cases have been defined for the solution and the status of testing.
PoS-06	Editorial Board (EB), managers	PoS contents validation	PoS DB MUST support the editorial process for all data entries, in order to transparently document that the DRIVER+ quality assurance process has been followed and thus the data can be trusted. This is also important for the PoS DB sustainability as the validation makes the PoS information more valuable to the practitioners.
PoS-07	All	Search by explicitly linked content	PoS DB MUST allow searching for the data that is explicitly linked to some other content. It SHOULD allow the users to find all the solutions that are used in a specific Trial or to find all the Trials that address specific CM Functions.
PoS-08	All	Search for implicitly associated content	PoS DB MUST allow searching for the data that is implicitly linked with some other content. It SHOULD allow the users to find all the solutions that may be useful in a specific Trial or to find all the Trials that might make use of a specific solution or to find "similar" Trials and solutions to the one currently viewed.
PoS-09	All	Tasking support	In order to understand which work items are waiting for a team member to be solved, the PoS DB SHOULD provide some kind of a user-specific "open tasks" list. Such a list needs to show all data items where users action is required, e.g. all the solutions that need to be reviewed by him/her, etc. This mechanism is a kind of TODO list for the PoS DB and complementary to the project management mechanism in place for informing the DRIVER+ team members of new tasks.
PoS-10	All	Cloning of data	The platform SHALL allow the use of existing content as a basis to develop new content in order to make it easier to describe a new solution or develop a new Trial.
PoS-11	All	Actions and decisions	To assure that the actions and decisions made by the PoS DB users are traceable and get resolved, some mechanism is needed that will allow any PoS DB user to assign actions to other users, search for specific types of actions and decisions and indicate when such actions/decisions have been resolved, rejected or obsoleted.
PoS-12	All	Search by keywords	PoS DB SHOULD allow searching for all the data containing a specific keyword.
PoS-13	All	Search by data type	PoS DB SHOULD allow searching for all the data of a specific type (e.g. CM Solution).

ID	Target users	Requirement	Description
PoS-14	All	Search by taxonomy tags	PoS DB SHOULD allow searching for all the data tagged with specific taxonomy terms.
PoS-15		Dedicated data types for Trials, CM Solutions, CM Tools, CM Functions, CM Gaps, Solution Capabilities and Trial Needs/Require-ments	The PoS DB SHALL provide dedicated data types for at least these entities: Trials, CM Solutions, CM Tools, CM Functions, CM Gaps, Solution Capabilities and Trial Needs and Requirements.
PoS-16	All	Select solutions to be used in a Trial	The PoS DB SHALL allow the Trial stakeholders to explicitly link a solution already present in the system with a Trial.
PoS-17	Trial stakeholders and practitioners	Describe Test-bed	The PoS DB SHALL provide a way to describe the elements of the Test-bed so that the tool providers can plan the integration work and so that the Trial stakeholders can decide which elements of the Test-bed to use in a Trial and how. This COULD be implemented by describing the Test-bed components as a type of solutions. The advantage of this approach is that it allows the same components and solutions to be either tested or used to facilitate testing of other solutions as a part of the Test-bed, depending on the Trial needs.
PoS-18	Test-bed stakeholders	Describe solution	PoS DB SHALL allow the solution providers to fulfil at least the following metadata on their solutions: Solution name, a summary of the solution capabilities, description of the solution “business case”, a detailed description of the capabilities, used tools and methods, responsible party or parties that can support the application of the solution in Trials. PoS DB COULD also facilitate describing the solution training and linking to additional information on the solution, e.g. user manuals, administrators manuals etc. PoS DB SHOULD also allow solution owners and other stakeholders to provide relevant information to use the solution in future Trials (TBD.).
PoS-19	Solution provider	Define Mapping and linking relations between these data types	The PoS DB SHALL facilitate mapping and linking of the data types listed above. The site SHOULD allow the users to explicitly link solutions to Trials, Trial requirements to solution capabilities, and all of these to CM functions and CM Gaps.
PoS-20	All	Describe Tool	PoS DB SHALL allow the tool providers to fulfil at least the following metadata on their tools: Tool name, summary description, Technology readiness level (TRL), license terms and other conditions for use, responsible party or parties, etc. It SHOULD also allow the tool providers and other stakeholders to indicate the level of integration of the tool in the DRIVER+ Test-bed.

ID	Target users	Requirement	Description
PoS-21	Trial stakeholders	Describe Trial	The PoS DB SHALL allow Trial stakeholders to provide a description of the Trial. This description MUST provide sufficient information for the solution providers to decide if they could apply for participation in a specific Trial or not. In addition, the PoS DB SHOULD allow the Trial stakeholders to explicitly indicate which solution(s) are used in that Trial, how and what was learned from the Trial for a specific solution.
PoS-22	Trial stakeholders, practitioners	Describe Trial needs and requirements (User Stories)	The PoS DB (or the guidance tool) MUST support the Trial stakeholders in describing the detailed Trial needs and requirements on the solutions and also on the Test-bed. This COULD be realized in the form of User Stories and SHOULD facilitate the task of matching the solutions to Trials. The PoS DB COULD allow the solution providers to explicitly link the relevant detailed solution capabilities with the specific Trial needs. Furthermore, the Trial needs SHOULD be linked to CM Functions and CM Gaps and SHOULD facilitate the formulation of the Trial research questions.
PoS-23	Trial stakeholders and practitioners	Describe solution capabilities (test cases)	The PoS DB SHALL allow the solution providers to include a detailed description of the solution capabilities in form of a verifiable step by step checklist (Test Case). Test Cases COULD be included as separate data items and SHOULD be explicitly linked to the solution on the one and to the Trial on the other. In addition, the solution capabilities SHOULD also be linked to relevant CM functions and Gaps. For practical reasons, PoS DB MAY need to differentiate between the inherent solution capabilities that are provided as a part of the solution description and the Trial-specific “offer” that is provided as a response to one or more Trial needs and requirements.
PoS-24	Solution provider	Describe the level of integration of a Tool or solution in the Test-bed.	The PoS DB SHALL provide a way to indicate how the tool or a solution is or will be integrated into the Test-bed as well as to indicate who and when verified the claims and the results of this verification. For practical reasons, this COULD also be modelled as a Test Case.
PoS-25	Tool and solution providers	Help Trial stakeholders to pre-select the solutions for use in a Trial	The PoS DB MUST aid the Trial stakeholders in the preselection of solutions. For this, the platform MUST be able to match the Trial needs with the solution capabilities and provide a list of “best matches” to the Trial stakeholders.
PoS-26	Trial stakeholders and practitioners	Help the solution providers to apply for the Trials	The PoS DB SHOULD help the solution providers in finding the appropriate Trial Calls for participation and answering to such calls. This COULD be facilitated by mean of the Trial-specific test cases that are explicitly linked with one or more of the Trial User Stories.

ID	Target users	Requirement	Description
PoS-27	Solution providers	Validate tool integration	The results of the tests to be performed in order to validate the interaction between the tool and the Test-bed SHALL be included in the PoS DB.
PoS-28	All	Mechanism for maintaining the terminology and taxonomies that are used in the PoS DB	PoS DB SHALL provide a mechanism to assure that term descriptions can be improved, and new terms added in an orderly manner, with minimal overhead.
PoS-29	Editorial Board (EB), management	Validate test cases	The PoS DB SHALL provide a way to validate the test cases. Trial-specific test cases should be validated through Trials, whereas the integration test cases will be validated through integration testing.
PoS-30	Tool and solution providers, Trial stakeholders, managers	Indicate the results of the trialling for a specific solution	The PoS DB SHOULD allow the Trial stakehold7ers to provide the results of the evaluation of a specific Trial or user story for a specific solution. This COULD be done by validating the relevant test cases.
PoS-31	Trial stakeholders and practitioners	Search for CM Solutions or CM Tools by CM Functions	PoS DB SHALL provide a comparative table of solutions and tools for certain functionality.
PoS-32	Trial stakeholders, practitioners	Search solution or tools by Trials	PoS DB SHALL provide an overview of solutions and tools for a certain Trial.
PoS-33	Trial stakeholders, practitioners	Recommendations system	PoS DB COULD provide a functionality that will recommend solutions to a user based on his previous navigation or marks (“this Trial seems interesting”) to enhance that practitioners can find solutions in an effective way.
PoS-34	All	Website is user friendly	The PoS should be more user-friendly. This means that it should present much less text and more images. Besides, it is important that the texts could be understood by everyone, including users outside of the consortium and non-technical users.
PoS-35	All	PoS links to the project	DRIVER+ should be presented in the PoS. There should be a page presenting the project.
PoS-36	Solution providers	Solution providers can advertise own website	Solutions providers should be allowed to add a link or at least a screenshot of their website. This is meant to enable the user to find the solution or to communicate with its owner more easily.
PoS-37	Solution providers, Trial stakeholders, practitioners	Solutions address taxonomy terms	Some information is missing in the creation of a solution, such as the crisis phase that is addressed, who is addressed by the solution, which crisis type is addressed.
PoS-38	Trial stakeholders, practitioners	PoS lists relevant CM gaps	Links to the CM gaps addressed by a solution should be added.
PoS-39	Solution providers, Trial stakeholders	PoS/TGT allow additional uploads	It would be good to allow solution owners and Trial owners to add some other material.

ID	Target users	Requirement	Description
PoS-40	Solution providers	Solution creation is intuitive	The way to create a solution is not really intuitive; the different tabs should be better differentiated.
PoS-41	Solution providers, Trial stakeholders	PoS describes the difference between tools and solutions	The difference between solution and tool is not clear; it should be explained somewhere or clarified.
PoS-42	All	Website provides help text and a contact form	The help texts, when present, are appreciated. There should be more of them. Besides, it would be interesting to have a contact form, so that users can have a way to ask questions that where not answered by the help texts.
PoS-43	All	Website implements search functionality	Some search function is needed in the website.
PoS-44	Trial stakeholders, practitioners	Website accommodates a searchable knowledge database	Knowledge DB stores the information from the systematic literature review (SLR) in the database. It makes this information searchable and show the information when needed to help in Trial development.
PoS-45	All	The site's design should be appealing	The site must look attractive and offer a simple to use entry point for all major work items such as "Add/manage Trial", "Look for a solution" etc.
PoS-46	All	User management and authentication	GT and PoS/TGT must support authentication, authorization & user management. It has to provide an easy way for adding users that are CM professionals while keeping the spammers and other non-professional users out.
PoS-47	All	Website offers a pdf export function	Users should be able to export solution or Trial description information in PDF format.
PoS-48	All	PoS site links terminology terms with their definitions	PoS site MUST link occurrences of the key terminology words in all texts with their definitions.

Table A.4: Requirements not recorded in WP922 and WP932 deliverables (http://driver-pos-ticket.atosresearch.eu/wishes)

ID	Target users	Requirement	Description
W-01	All	The website is multi-lingual	The website offers a possibility to present its content in different languages.
W-02	All	The website supports collaborative working	GT and PoS MUST support collaborative working on Trials, solutions.
W-03	All	The website provides tutorials	The website offers tutorials for the users in order to further explain site's functionality
W-04	All	Credentials are shared with community	PoS and GT SHOULD share credentials and user profiles with the DRIVER+ community site.
W-05	All	Website users can manage own team	Users should be able to assign the necessary privileges to themselves and to their team members on their own – avoid the need for central administration of the authorization.

ID	Target users	Requirement	Description
W-06	All	Real names are shown on the site, e-mail or username is used for login	User's real name should be shown to other participants on the site. For login, an e-mail address or an arbitrary login chosen by the user.
W-07	All	Website users can access different information based on their role	GT & PoS must allow different view & edit presentations to users depending on their group roles.
W-08	All	Website offers a help desk	The website has a help desk functionality which can be accessed everywhere, so the users can report errors or ask for help anytime.
W-09	Solution providers, Trial stakeholders	PoS site has definitions from different sources	PoS site SHOULD allow the users to maintain several definitions from different sources in parallel. The "default" one should be automatically linked with all texts; others are used for other purposes.
W-10	All	PoS site calculates similarity between different definitions	PoS site SHOULD be able to calculate and present similarity between different definitions of the same term.
W-11	All	PoS site has feedback section for solutions	Update: During the technical review meeting, it was decided that this functionality will not be in the final version and all eventual discussions will be transferred to CMINE. There should be a possibility to leave feedback on solutions, and the solution owner should be able to decide if this feedback is to be published.
W-12	Solution providers	PoS supports description of use cases	PoS offers support for adding use cases to solutions, as a separate entity.
W-13	Solution providers	Use cases are based on CM functions taxonomy	PoS ensures that all described use cases reference CM functions.
W-14	All	PoS offers a list of similar solutions	PoS site uses the CM functions taxonomy to check similarity between solutions and displays all solutions on a solution overview page that are similar.
W-15	Solution providers	PoS allows advertising of Trials from the solutions	It is possible to add a link to a Trial where the solution was used in and the information from the TGT is shown on the solution overview page. Solution owner decides if this link is going to be established.
W-16	Solution providers	PoS allows adding external references to the solution	PoS offers a possibility to add external references to solutions by allowing linking with external websites, or by uploading reference documents.
W-17	Solution providers	PoS allows adding additional documentation to the solution	It is possible to add different types of documents to a solution and they are categorised by a taxonomy.
W-18	Solution providers, Trial stakeholders	PoS shows which solutions can work together	Solutions are used in Trials and other Trial-like events. Solutions can also work together with other solutions. PoS automatically finds the candidates, but the solution owner can decide to show links to them.
W-19	CMINE stakeholders	RESTful service to export data to CMINE	PoS has a RESTful service that allows exchange of information between the PoS and the CMINE.
W-20	DRMKC stakeholders	RESTful service to export data to DRMKC	PoS has a RESTful service that allows exchange of information between the PoS and the DRMKC.

ID	Target users	Requirement	Description
W-21	All	PoS site implements various filters	PoS site allows filtering of content based on defined taxonomies in order to make searching for information easier.
W-22	All	PoS site implements a validation functionality	PoS site has the possibility to automatically validate content provided by the user.
W-23	All	PoS stores country profiles information	PoS site displays information about how CM is handled in each EU country in a form of a word file that can be viewed or downloaded.
W-24	All	PoS site SHALL provide interface to other systems	The PoS site will provide a RESTful interface to export machine readable format of its content.
W-25	All	PoS site SHALL inform the user about cookie usage	There SHALL be a visual indication to the user that the PoS site uses cookies, and he will be asked to comply with this. A “more info” link will be included to provide additional information on the circumstances.
W-26	Trial team	TGT shall provide contextual help texts for the execution and evaluation phase of the Trial	While TGM and the Trial Guidance Handbook define these phases in details, no specific TGT functionality has been requested for these phases (except for the lessons learnt).
W-27	Trial Team	TGT shall allow the Trial team to publish the lessons learnt in the Trial	Trial already provides a wealth of contextual information, so publishing the “lessons learnt” can be is very simple: title, LL type (optional), summary, optional long description (e.g. attached document), link to relevant contents.
W-28	All	PoS site and TGT SHOULD be usable on a wide range of devices	Wherever possible, the PoS DB and TGT should be usable on smartphones.

Table A.5: Additional requirements defined to extend functionalities of the TGT in execution and evaluation phase

ID	Target users	Requirement	Description
A-1	Trial stakeholders and practitioners	The TGT SHALL provide a possibility to define test cases	It SHALL be possible to define test cases that describe the interaction between different solutions, and it SHALL be possible to add a reference to solutions that are used in a Trial.
A-2	Trial stakeholders and practitioners	The TGT SHALL provide a possibility to re-use previously defined test cases	It SHALL be possible to re-use test cases that exist in the TGT (within or outside of a Trial) with different solutions and results to be documented.
A-3	Trial stakeholders and practitioners	The TGT SHALL provide examples of previously defined test cases.	While defining a test case, there SHALL be a possibility to see examples from test cases that were defined and published in previous Trials.

ID	Target users	Requirement	Description
A-4	Trial stakeholders and practitioners	The TGT SHALL provide a possibility to monitor and document the progress of test cases	It SHALL be possible to document the progress of test cases and to indicate their status.
A-5	Trial stakeholders and practitioners	The TGT SHALL provide a possibility to reference test cases	It SHALL be possible to add a reference to a test case previously defined in a Trial.
A-6	Trial stakeholders and practitioners	The TGT SHOULD be able to import data from After Action Review (AAR) tool	There SHOULD be a possibility to directly import data from the AAR tool into the TGT.
A-7	Trial stakeholders and practitioners	The TGT SHALL display data at a common place	The TGT SHALL display all relevant data (research questions, scenarios, data from Trial run) at one page for an easy overview.
A-8	Trial stakeholders and practitioners	The TGT SHALL provide examples of analysed data	Examples of data analysed in previous Trials SHALL be provided at Data analysis step.
A-9	Trial stakeholders and practitioners	The TGT SHALL provide a possibility to indicate which data is relevant for which dimension	It SHALL be possible to select data from a list and indicate to which dimension it is relevant, and it SHALL be possible to indicate that some data is relevant for several dimensions.
A-10	Trial stakeholders and practitioners	The TGT SHALL provide a possibility to document answers to research questions	It SHALL be possible to indicate based on which data it is possible to give an answer to a research question and it SHALL be possible to add a reference to it.
A-11	Trial stakeholders and practitioners	The TGT SHALL provide a possibility to document answers to gaps	It SHALL be possible to indicate based on which data it is possible to give an answer if a gap is bridged and it SHALL be possible to add a reference to it.
A-12	Trial stakeholders and practitioners	The TGT SHALL advertise results of a Trial	Answers to research questions and gaps SHALL be shown on a Trial overview page.
A-13	Trial stakeholders and practitioners	The TGT SHALL provide a link to a Lessons Learned Library	There SHALL be a link from the TGT to the Lessons Learned Library
A-14	Trial stakeholders and practitioners	The TGT SHALL store lessons learned	There SHALL be a possibility to document lessons learned for individual steps of a Trial.

ID	Target users	Requirement	Description
A-15	Trial stakeholders and practitioners	The TGT SHOULD publish lessons learned information to Lessons Learned Library	There SHOULD be an interface to automatically exchange information between the tools.
A-16	Trial stakeholders and practitioners	The TGT SHALL provide checklists for execution and evaluation phase	The TGT SHALL provide checklists as defined in the TGM for all steps in Trial execution and evaluation phases.

Annex 3 - DRIVER+ Portfolio of Solutions Terms and Conditions

Introduction

DRIVER+ Platform contains a range of solutions, Trials and experiments descriptions in regard to Crisis and Disaster Management. The mission of this DRIVER+ Platform is to improve the work of the European Crisis Management sector. It aims to achieve this by:

- Helping the CM professionals to discover and Trial the available CM solutions following the well-defined CM trialling methodology.
- Helping the Solution Owners to advertise their solutions to potential users and participate in Trials.
- Providing additional information in form of a searchable database of various items, such as “country profiles” or “lessons learnt” from previous Trials.

DRIVER+ Platform contains elements which are subject to intellectual property rights, in particular software, pictures, presentation and other documents protected by copyright. Furthermore, solution providers can also provide content though documents, pictures and other copyrighted works. Therefore, the use of the DRIVER+ Platform needs detailed regulations in order to regulate the rights and obligation of the users as well as the platform provider.

1. Definition
   - 1.1. Agreement shall mean these Terms and Conditions for Service Provider
   - 1.2. DRIVER+ Platform is the platform of the DRIVER+ project providing the Portfolio of Solution as well as Trial Guidance Tool (TGT) functionalities as described in https://www.driver-project.eu/ .
   - 1.3. Solution provider is a legal person on whose behalf the User becomes active and can post solutions of a crisis management tool on the DRIVER+ platform.
   - 1.4. User is the natural person who is granted personal, password-protected access to DRIVER+
   - 1.5. We or us are the parties of the DRIVER+ project as listed in https://www.driver-project.eu/driver-project/who-are-we/ as a group as well as any party of the DRIVER+ project individually, depending on the meaning in the Agreement.
2. Accepting these Terms and Conditions
   - 2.1. The User shall read this Agreement carefully before using the services provided by us. The User accepts this Agreement by clicking "I accept the terms of the agreement" box where this option is made available to the User during registration on the DRIVER+ Platform. The User provides his data on the foreseen interface on the DRIVER+ Platform.
   - 2.2. Through clicking on the “I accept the terms of this agreement” box the User agrees to be bound by this Agreement and binds the solution provider he represents. Furthermore, the User warrants that he/she has the full legal authority to bind the solution provider to this Agreement. If he/she does not have the requisite authority, he/she may not accept the Agreement on behalf of the solution provider.
3. Scope
   The following term of use shall apply to using the DRIVER+ Platform. The use of the DRIVER+ Platform is only permitted if the Service Provider and the User accept these Terms and Conditions as described in section 1 and 2.
4. Registration/access
   - 4.1. To provide one or more solution descriptions on the DRIVER+ Platform as a solution provider, a prior registration on the platform is needed. The first and last name and email address of the User as well as the name and some details of the solution provider are to be given in the registration form.
   - 4.2. Access as a User can be only granted to natural person. The Service Provider may request access for several Users representing him.
   - 4.3. We confirm the registration of User by notifying the respective user with the request for notification the registration information. The access details only grant the registered person access to the DRIVER+ Platform. The access password may not be disclosed or shared with any

other natural person, co-workers or a third party. The sharing of such an access password will be considered a material breach of the Agreement.

4.4. If details of the Users or the Service Provider he registered for change, we have to be informed immediately through driverpos-support@projectdriver.eu of the change. The changes on the DRIVER+ Platform site for solution provider itself are not enough. If details of the User or solution description change, they have to be updated by user or solution provider immediately on the platform. This update is subject to quality assurance process by the platform provider.

5. Services provided by us.

5.1. We will grant the solution provider, as technically possible with the usual limits of accessibility of platforms, use of the DRIVER+ Platform, at no charge. **The platform provider retains the right to change pricing or service offering modalities in the future upon prior and timely adequate notice of all affected Users**. We will try to maintain a good access to the platform, but the Service Providers have no claim to a permanent and continuous availability of the DRIVER+ Platform.

5.2. For the avoidance of doubt, we are not obligated to provide these services. We retain the right, to immediately prevent or restrict access to the DRIVER+ Platform or parts thereof or take any other action as necessary in case of technical problems, infringing or objectionable material, inaccurate listings, inappropriate services, or any other action or prohibition infringing applicable law or the DRIVER+ project aim or for any other reason in the sole and absolute discretion of us and to correct any inaccurate listing or technical problems on the DRIVER+ Platform. Therefore, any content provided on the DRIVER+ Platform provided by the solution provider that is not in line with this Agreement can be deleted by us immediately.

5.3. Should the User have any problems accessing, deleting or modifying his content or wishes to communicate with us, he can reach us at driverpos-support@projectdriver.eu. We will contact him as soon as possible.

6. Use of the Platform by solution provider

6.1. The solution provider shall only include content on the DRIVER+ Platform that is owned or licensed by him. Any infringement of third-party rights through the upload and usage on DRIVER+ Platform of the solution provider content shall be in the sole responsibility of the solution provider. Furthermore, the solution provider shall only use content on the DRIVER+ Platform that is factual, non-inflammatory and relevant to the mission aim as described on the DRIVER+ Platform. All content that offends, is racist, defamatory or pornographic, or which publication would constitute a criminal or administrative offence may not be uploaded on the DRIVER+ Platform.

6.2. Through uploading of copyrighted material or other intellectual property rights on the DRIVER+ Platform, the solution provider warrants that he is legally allowed to do so and that he received all needed consent, i.e. in case of personal data on the content uploaded (a picture of a person) the non-infringement of the general data protection regulations (EU 2016/679 of 27th of April 2016). Furthermore, the solution provider warrants that he is allowed to grant the user Rights to us as described in section 6.4.

6.3. The solution provider is solely responsible in regards to the content uploaded by him through his Users. We have no responsibility in regards to such content. The user shall be responsible for having a copy of any uploaded content as backup.

6.4. The solution provider through uploading of content on the DRIVER+ Platform grants us a worldwide, non-exclusive, unrestricted user right to use through publication the uploaded content on the Diver+ Platform and forward it to interested participants (e.g. CMINE, emergency services practitioners and other stakeholders that can access the PoS) without removing any copyright notices of the solution provider.

6.5. The solution provider agrees not to do any of the following: (i) use or attempt to use any engine, software, tool, agent or other device or mechanism (including without limitation browsers, spiders, robots, avatars or intelligent agents) to navigate or search the DRIVER+ Platform other than with the search engine and search agents available on the DRIVER+ Platform and other than generally available third party web browsers; (ii) attempt to decipher, decompile,

disassemble or reverse engineer any of the software embodied in the DRIVER+ Platform, (iii) sell, rent or otherwise sub-license other content from the DRIVER+ Platform, (iv) reproduce, duplicate, copy or otherwise exploit other content for a commercial end of the DRIVER+ Platform or (v) edit or otherwise modify any content on the DRIVER+ Platform without the consent of the owner of the content.

7. Indemnity
   7.1. Solution provider agrees to indemnify, defend and hold us harmless from and against any claims, costs, liabilities and expenses – including reasonable attorneys 'fees- paid or payable to an third party or the parties involved in the creation of the platform arising from (i) solution providers or Users breach of this Agreement, (ii) any claim that solution provider or Users has infringed another's intellectual property rights (iii) any violation of applicable law by solution provider or User (iv) any violation of applicable law through the uploading or publishing of the content provided by the solution provider.
   7.2. To the extent that the DRIVER+ Platform and information and services are provided free of charge, we will not be liable for any loss or damages of any nature. We will not be liable for any consequential, indirect or special loss or damage. We will make every effort to ensure that the DRIVER+ Platform is free from viruses or defects; however, we cannot guarantee that the use of the DRIVER+ Platform will not cause damage to the end device that is used by User to access the DRIVER+ Platform.
8. Data protection
   We will treat all personal data of the User in responsible manner. We will use, store and process the data resulting from the registration only for the purpose or this Agreement and treat is as confidential in line with the provisions of the applicable data protection laws. For the management of the access, it is necessary to store the names and email addresses of contact persons provided by solution providers on the platform. By agreeing to this Agreement, the User agrees to their name and email address being visible to us. The User may revoke his consent through information at driverpos-support@projectdriver.eu. In such a case we will delete all access to the DRIVER+ Platform and User will be precluded from using the DRIVER+ Platform.
9. Termination
   This Agreement shall terminate immediately in case of breach of this Agreement by User or Service Provider. Should a solution provider choose to discontinue using the DRIVER+ Platform he shall inform us, and we will delete all content provided by him. References to removed content in Trials or experiment description however will remain, and solution provider agrees hereto. Should the solution provider or his User not be active for more than 1 year and/or not react to our communication attempts we can at our own discretion decide to delete the content provided by the solution provider.
   We can terminate this Agreement at any time trough information to the email address of the User.
10. Miscellaneous
    10.1. This document comprises any and all agreements entered into by the solution provider and us. There are no written or oral ancillary agreements. We reserve the right, at our sole discretion, to modify or replace this Agreement, or change, suspend, or discontinue all or parts of the DRIVER+ Platform and our services (including without limitation, the availability of any feature, database or content) at any time by posting a notice on the DRIVER+ Platform or by sending the User an email. It is the Users responsibility to check this Agreement periodically for changes. Users and Service Providers continued use of the DRIVER+ Platform following the postings of any changes to this Agreement constitutes acceptance of those changes.
    10.2. All disputes or claims arising out of or in connection with this Agreement including disputes relating to its validity, breach, termination or nullity shall be finally settled under the Rules of Arbitration of the International Arbitral Centre of the Austrian Federal Economic Chamber in Vienna (Vienna Rules) by one or three arbitrators appointed in accordance with the said Rules. The provisions on expedited proceedings are applicable. The number of arbitrators shall be one. The substantive law of Austria shall be applicable under exclusion of the United Nations Convention on Contracts for the International Sale of goods, 1980. The language to be used in the arbitral proceedings shall be English.

10.3. The Service Provider irrevocably waive any objection which he or she might at any time have towards the International Arbitral Centre of the Austrian Federal Economic Chamber in Vienna, being nominated as the forum to hear and determine any proceedings and to settle any disputes and agree not to claim that the courts of Vienna are not convenient or appropriate forum.

10.4. Should any provisions of this Agreement be or become wholly or partly invalid or unenforceable, this shall not affect the validity or enforceability of the remaining provisions. In this event, the invalid or unenforceable provision shall be substituted by such valid/enforceable provision, which comes as close as possible to the legal and economic purposes pursued by DRIVER+ with such invalid/unenforceable provision.

10.5. This Agreement shall be governed in its entirety by the laws of the Republic of Austria excluding any legal norms referring to other legal systems. This includes disputes on its conclusion, binding effect, amendment and legal consequences of this agreement.

Annex 4 - Data collection plan templates

Three data collection template plans are

Crisis Management KPIs				
Overall CM operation perspective				
Operation related KPIs	Result	Target/Reference Data	Comparison	Comment
Session 1				
Process related (K)PIs	Result	Target/Reference Data	Comparison	Comment
Process 1				
Process n				
Session n				
Process related (K)PIs	Result	Target/Reference Data	Comparison	Comment
Process 1				
Process n				

Figure A5.1: Data collection plan template - CM Dimension

Trial generic KPIs				
Result indicators and KPIs		**Target/Threshold**	**Result from Trial X**	**Average from past Trials**
numer of trialled solutions				
number of participants				
number of countries represented in Trial				
number of participants with a background in…				
	…Crisis Mangement			
	… Technology			
	…Rescue Service			
	…Research			
years of experience in that area…				
	…1-5 years			
	…5-10 years			
	…10-15 years			
	more			
Safety measures were sufficient…			(Likert -2 to +2)	
Organization of the Trial Days was sufficient…			(Likert -2 to +2)	
Level of participant involvement was sufficient…			(Likert -2 to +2)	
the Trial Set-up was clear (role, task, …)			(Likert -2 to +2)	
The Trial-Scenario was clear			(Likert -2 to +2)	
The evaluation was clear?			(Likert -2 to +2)	
The Training on the solution was sufficient?			(Likert -2 to +2)	
Trial specific KPIs				
Result indicators and KPIs		**Target/Threshold**	**Result from Trial X**	**Comments**
Session 1 requirement				
Session n requirement				

Figure A5.2: Data collection plan template - Trial Dimension

Solution generic metrics				
Solution 1				
KPI (Usability acc to ISO 9241-11)	**Result**	**Average all solutions**	**Past trials**	**Comments**
Effectiveness:				
Could you manage the tasks more easily with the propos	Yes to no (Likert -2 to +2)			
Efficiency:				
Would you say, that you could finish the tasks faster with the help of the provided solution?	Yes to no (Likert -2 to +2)			
Satisfaction:				
I would like to use the solution frequently	Yes to no (Likert -2 to +2)			
I found the solution unnecessarily complex	Yes to no (Likert -2 to +2)			
I thought the solution was easy to use	Yes to no (Likert -2 to +2)			
I think that I would need the support of a technicel person to use this solution	Yes to no (Likert -2 to +2)			
I found the various functions of the solution well integrated	Yes to no (Likert -2 to +2)			
I thought there was too much inconsistency in this solution	Yes to no (Likert -2 to +2)			
I would imagine that most people learn to use this solution very quickly	Yes to no (Likert -2 to +2)			
I found the solution very cumbersome to use	Yes to no (Likert -2 to +2)			
I felt very confident in using the solution	Yes to no (Likert -2 to +2)			
I needed to learn a lot of things before I could going with this solution	Yes to no (Likert -2 to +2)			
Solution related KPIs	**Result**	**Reference Data**	**Comparison**	**Comment**
(perceived) Feature availability				
Feature 1	(Likert -2 to +2)			
Feature n	(Likert -2 to +2)			
(perceived) Feature relevance				
Feature 1	(Likert -2 to +2)			
Feature 2	(Likert -2 to +2)			
Feature maturity				
Feature 1	(Likert -2 to +2)			
Feature 2	(Likert -2 to +2)			
Future potential of the solution	(Likert -2 to +2)			
Suggested improvements / additional considerations (positive/negative)	open text			
Solution n				
KPI (Usability acc to ISO 9241-11)	**Result**	**Average all solutions**	**Past trials**	**Comments**
Effectiveness:				
Could you manage the tasks more easily with the propos	Yes to no (Likert -2 to +2)			
Efficiency:				
Would you say, that you could finish the tasks faster with the help of the provided solution?	Yes to no (Likert -2 to +2)			
Satisfaction:				
I would like to use the solution frequently	Yes to no (Likert -2 to +2)			
I found the solution unnecessarily complex	Yes to no (Likert -2 to +2)			
I thought the solution was easy to use	Yes to no (Likert -2 to +2)			
I think that I would need the support of a technicel person to use this solution	Yes to no (Likert -2 to +2)			
I found the various functions of the solution well integrated	Yes to no (Likert -2 to +2)			
I thought there was too much inconsistency in this solution	Yes to no (Likert -2 to +2)			
I would imagine that most people learn to use this solution very quickly	Yes to no (Likert -2 to +2)			
I found the solution very cumbersome to use	Yes to no (Likert -2 to +2)			
I felt very confident in using the solution	Yes to no (Likert -2 to +2)			
I needed to learn a lot of things before I could going with this solution	Yes to no (Likert -2 to +2)			
Solution related KPIs	**Result**	**Reference Data**	**Comparison**	**Comment**
(perceived) Feature availability				
Feature 1	(Likert -2 to +2)			
Feature n	(Likert -2 to +2)			
(perceived) Feature relevance				
Feature 1	(Likert -2 to +2)			
Feature 2	(Likert -2 to +2)			
Feature maturity				
Feature 1	(Likert -2 to +2)			
Feature 2	(Likert -2 to +2)			
Future potential of the solution	(Likert -2 to +2)			
Suggested improvements / additional considerations (positive/negative)	open text			

Figure A5.3: Data collection plan template - Solution Dimension

Annex 5 - Solution PDF export example

Table of Contents

(*Generated from https://pos-dev.driver-project.eu/group/20 on 15 Mar 2019*)

CrowdTasker

CrowdTasker enables crisis managers to instruct large numbers of non-institutional volunteers with customizable tasks.

The received feedback is evaluated and visualized and provides crisis managers with a detailed overview of the situation, which is used in turn to trigger adequate disaster relief services.

Information is provided by volunteers that are already at a disaster site allowing to exploit numerous benefits:

Meta-information

Readiness

- TRL 7 - System prototype demonstration in operational environment

Innovation stage

- Stage 4: Early Adoption/ Distribution

Crisis size

- Local
- Regional

Crisis Cycle Phase

- Preparedness
- Response

Supported standards

1. Qualifications Handbook Incident Command in Fire and Rescue Services
2. Risk management - Vocabulary
3. VISOV: Social media in emergency situation #MSGU see also DICOM
4. Crisis management. Guidance and good practice
5. Customer Notification Process for Disasters

Provider:

- CrowdTasker description at AIT site
- CrowdTasker portal

Supported Use Cases

Conduct just in time micro-training

CrowdTasker allows the responsible organisations to micro-train the solution users "just in time" and on a "need to know basis", taking into account their geographic position and profile.

For example, the pre-registered volunteers can be informed of an approaching storm or flood and given explanations on how to prepare and how to react if and when the crisis occurs. Volunteers with special skills can be given different information from those that do not have such skills and a response form can be used to control if the volunteers have understood the information.

Related CM functions

- Train individuals, teams and organisations
- Train resilient communities
- Manage spontaneous volunteers
- Deliver public information and advice

- Manage spontaneous volunteers during recovery

Inform and warn the population

CrowdTasker allows the responsible organisations to inform people (solution users) in affected areas in advance, while simultaneously offering a situation map of the measures already implemented. The information provided to CrowdTasked users can be context specific, e.g. dependent on the users position or skills. Furthermore, they can also be instructed to deliver the message to their friends, family and neighbours if necessary.

Related CM functions

- Communicate hazard information to the public
- Set-up dissemination and information sharing
- Manage warnings
- Provide warning and alerts for secondary hazards
- Maintain public awareness on hazards and respective services

Manage volunteered situation reporting

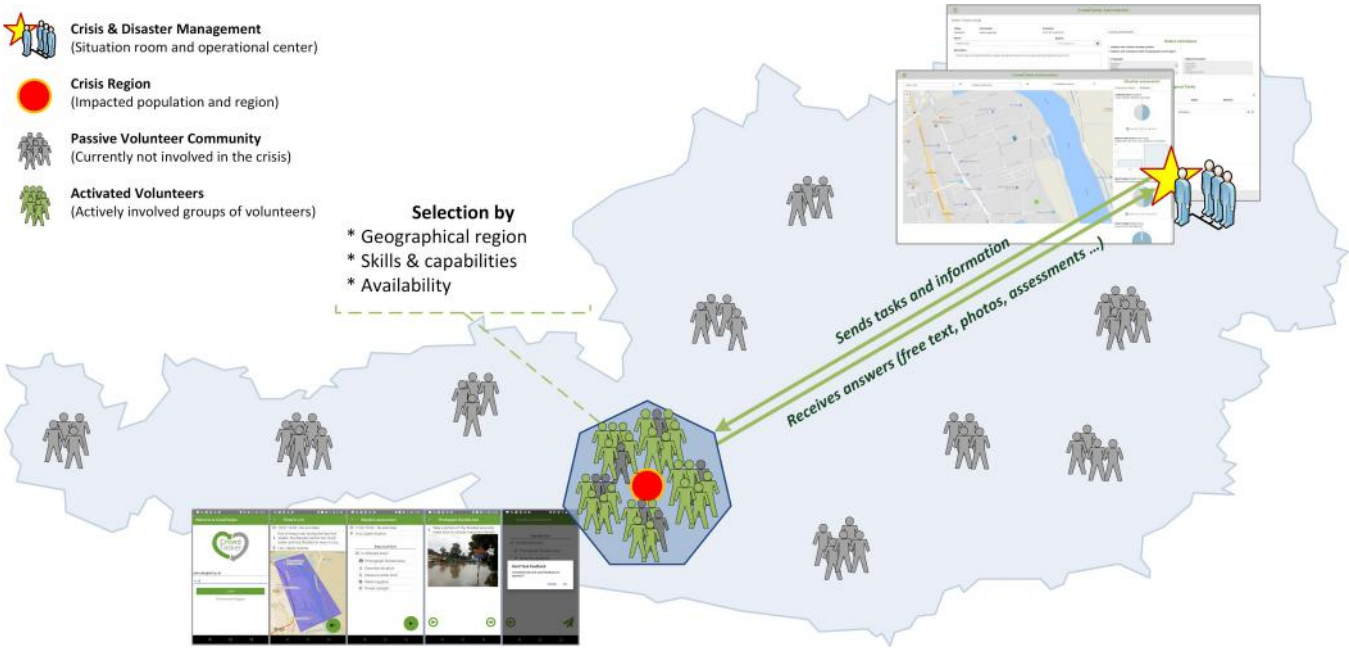
Volunteers using the CrowdTasker can be instructed to report the situation on the field, e.g. for initial damage assessment in a particular area. Helpers can be asked specific questions before reporting back on the situation and providing images where appropriate. All reports are located and displayed on an interactive map for the incident commander, helping to improve task planning and prioritisation.

Related CM functions

- Conduct damage and needs assessment
- Monitor the affected area
- Conduct systematic monitoring and data collection

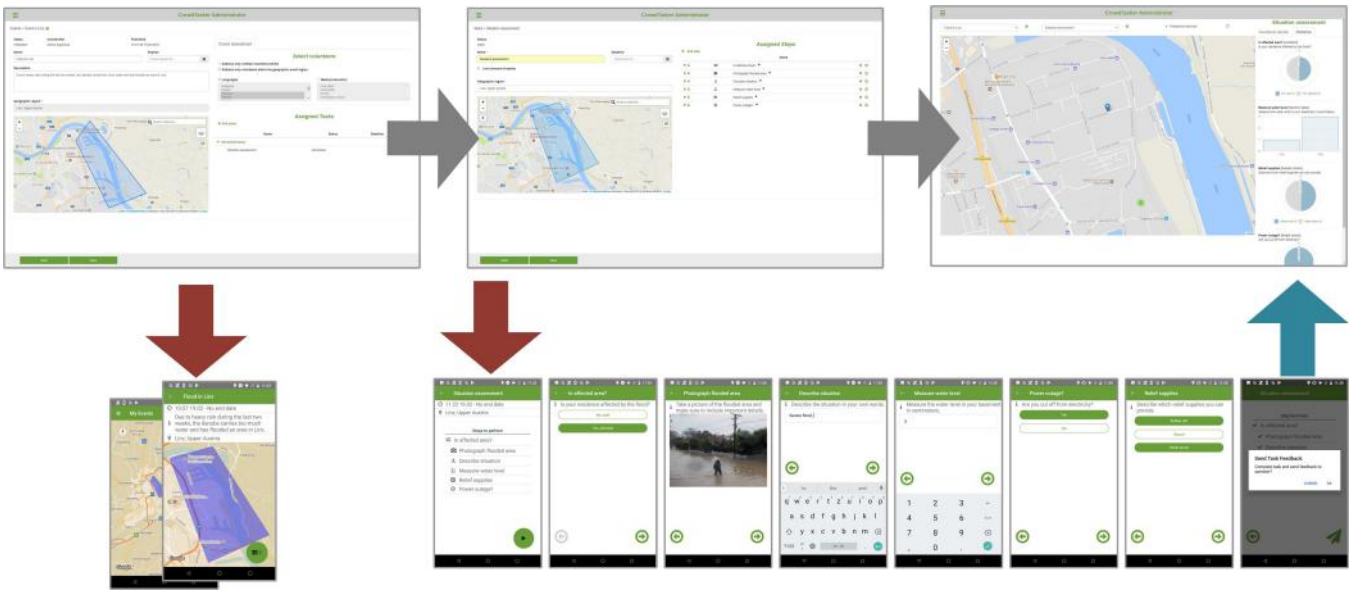
Illustrations

Situation



CrowdTasker situation overview

Business Process



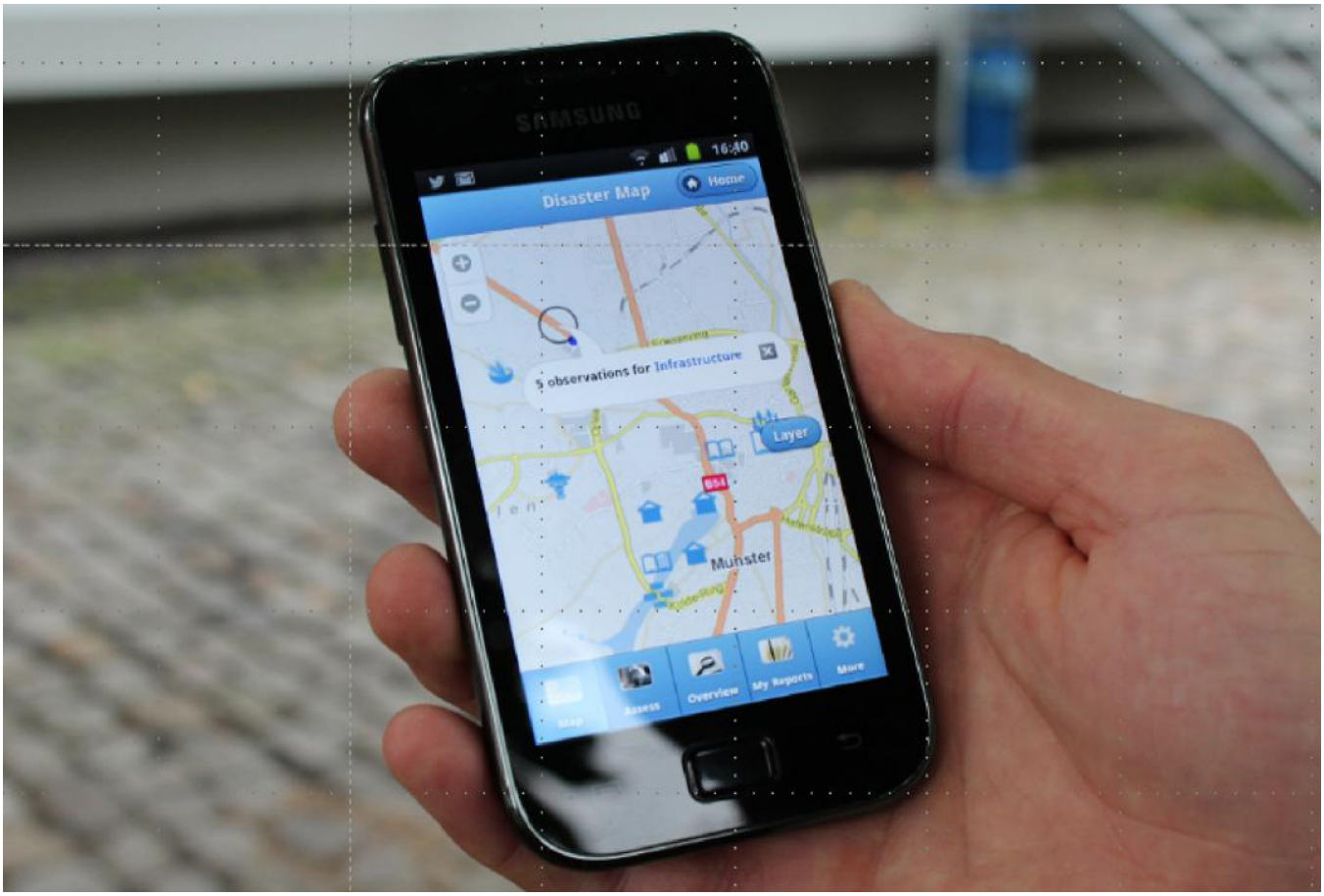
CrowdTasker Business Process

Similar solutions

Similar Solutions

GDACSmobile

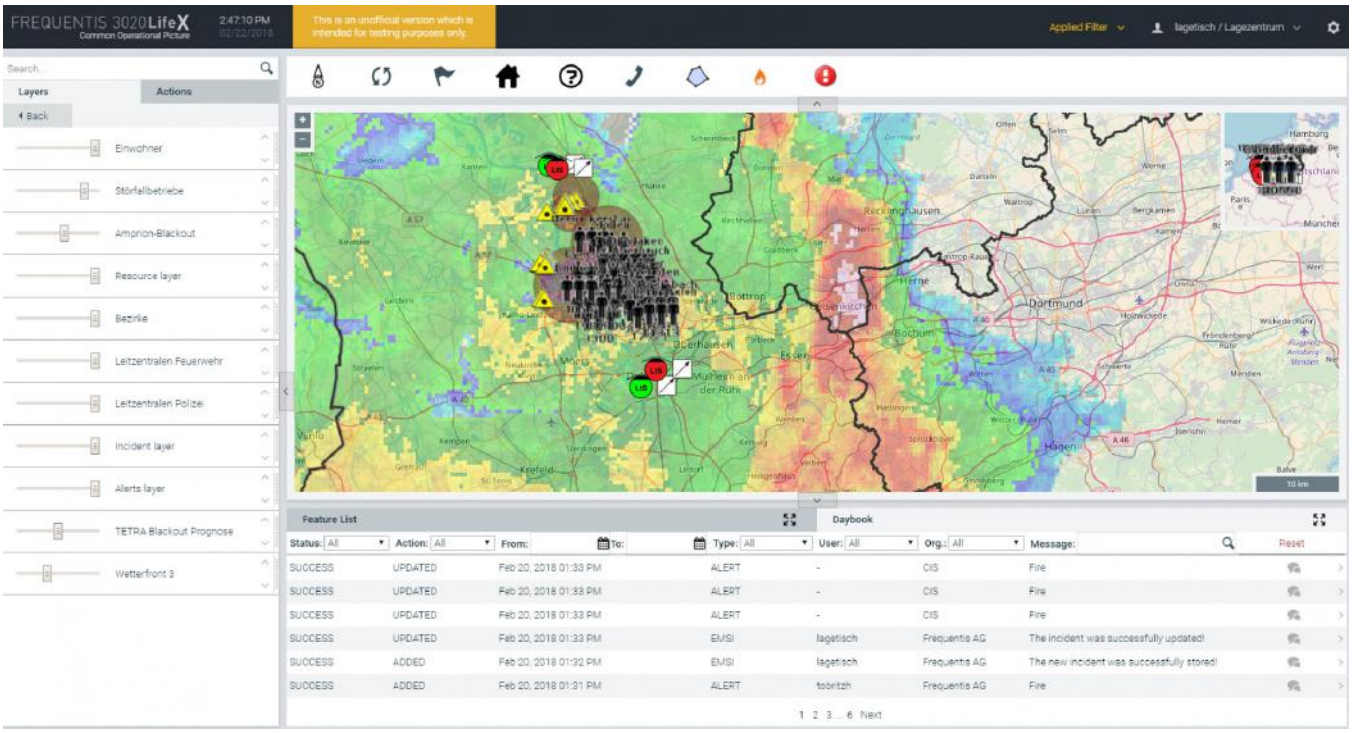
Stage 3: Initial Piloting
Relevance: 9



GDACSmobile device view

LifeX COP

Stage 4: Early Adoption/ Distribution
Relevance: 2


FREQUENTIS 3020 LifeX
Common Operational Picture
2:47:10 PM
02/22/2018
This is an unofficial version which is intended for testing purposes only.
Applied Filter
tagetisch / Lagezentrum
Search...
Layers
Actions
Back
Einwohner
Störfallbetriebe
Amprion-Blackout
Resource layer
Bezirke
Leitzentralen Feuerwehr
Leitzentralen Polizei
Incident layer
Alerts layer
TETRA Blackout Prognose
Wetterfront 3
Feature List
Daybook
Status: All
Action: All
From:
To:
Type: All
User: All
Org.: All
Message:
Reset
SUCCESS UPDATED Feb 20, 2018 01:33 PM ALERT - CIS Fire
SUCCESS UPDATED Feb 20, 2018 01:33 PM ALERT - CIS Fire
SUCCESS UPDATED Feb 20, 2018 01:33 PM ALERT - CIS Fire
SUCCESS UPDATED Feb 20, 2018 01:33 PM EMSI tagetisch Frequentis AG The incident was successfully updated!
SUCCESS ADDED Feb 20, 2018 01:32 PM EMSI tagetisch Frequentis AG The new incident was successfully stored!
SUCCESS ADDED Feb 20, 2018 01:31 PM ALERT tobritzh Frequentis AG Fire
1 2 3 ... 6 Next

GUI