Title:	Document Version:
D6.1 Demonstrators definition	1.2

Project Number:	Project Acronym:	Project Title:
H2020-740466	LETSCROWD	Law Enforcement agencies human factor methods and Toolkit for the Security and protection of CROWDs in mass gatherings

Contractual Delivery Date:	Actual Delivery Date:	Deliverable Type*-Security*:
M12 (Month Year)	M14 (Month Year)	R-PU

*Type: P: Prototype; R: Report; D: Demonstrator; O: Other.

**Security Class: PU: Public; PP: Restricted to other programme participants (including the Commission); RE: Restricted to a group defined by the consortium (including the Commission); CO: Confidential, only for members of the consortium (including the Commission).

Responsible:	Organisation:	Contributing WP:
Daniel Alvear	UC	WP6

Authors (organisation):
Arturo Cuesta (UC)

Abstract:
This deliverable presents demonstration planning and evaluation for defining the scope of the LETSCROWD practical demonstrations. The document is divided into two main parts: 1) a preliminary analysis of the practical demonstrations and 2) the definition of the scope of each practical demonstration. The deliverable also proposes a general guideline for the partners to deal with practical demonstrations and the updated ethical requirements.

Keywords:
Practical demonstrations, Use cases, Scenarios, Outcomes, LEAs, Technology providers, Testing and validation,

Revision History

Revision	Date	Description	Author (Organisation)
V0.1	16.03.2018	First draft	Arturo Cuesta (UC); Daniel Alvear (UC)
V0.2	23.03.2018	Complete version with Annexes	Arturo Cuesta (UC); Daniel Alvear (UC); Gemma Ortiz (UC); Paz de la Cuesta (UC)
V0.3	28.03.2018	Review from INTERNO	Marco Bolognesi (INTERNO)
V0.4	06.04.2018	Review from DBLUE	Alessia Golfetti (DBLUE);
V0.5	20.05.2018	Update of section 8.1.4	Gemma Ortiz (UC)
V1.0	22.05.2018	Including scope of each PD	Arturo Cuesta (UC)
V1.0	05.06.2018	Executive Summary included	Arturo Cuesta (UC)
V1.0	05.06.2018	Executive Summary revised by UC	Daniel Alvear (UC)
V1.1	08.06.2018	Inputs of the PMT	Manuel Serrano (ETRA)
V1.2	08.06.2018	Updated PD scope of the DRA	Carlo Dambra (PROPRS)

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement № 740466.

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Copyright Statement

Executive Summary

Not only does LETSCROWD aim to develop a set of tools for different stakeholders in order to improve security levels of mass gatherings, but also these tools need to be validated with a direct involvement of the LEAs (Law Enforcement Agencies). To achieve this, several Practical Demonstrations (PDs) will be conducted during the project.

The main goals of this deliverable are: 1) to define PDs based on previous developments (i.e. UCs) and actions performed in task T6.1 (survey methodology to the LEAs and Technology providers) and 2) to provide a detailed scope of each PD.

Preliminary analysis for Practical Demonstrations

Information of the LETSCROWD outcomes, real-life scenarios and Use Cases taken from previous Deliverables (D2.1 and D2.2) were analysed to provide a definition of Practical Demonstrations as follows:

"a proof-of-concept based on predefined use cases which involves a real exhibition/display of how a given LETSCROWD outcome (software, methodology/guideline and/or tool) works and provides the expected performances in a relevant environment. It involves at least, the use and testing of one outcome with the participation of both a LEA and a technology provider".

Once the concept of PD is defined, a workshop was conducted involving all partner. The objectives were to: 1) collect thoughts and ideas, 2) encourage dialogue between LEAs and technology providers and 3) stablish the first step for defining and the PDs. Questionnaires were asked to providers and LEAs. Based on questionnaires responses, the following preliminary conclusions were found:

- The CMP (Crowd Modelling and Planning tool) arises more interest for the LEAs (100%).
- All LEAs can share general information of the mass gathering event.
- All LEAs can provide personnel, if necessary.
- Some LEAs can involve other stakeholders for the PDs.
- In general LEAs can provide basic services and facilities to technology providers.
- Almost all technology providers want to test their outcomes in real-life events.
- All providers need LEAs personnel for testing the outcomes.
- The goals to achieve in PDs vary among providers. Meet requirements specifications (D2.1) and the user needs have more priority.
- The type of tests for evaluating the outcomes also vary among providers due to the nature of each outcome. Functional and qualitative verification are the most preferred options for testing.

Scope of Each Practical Demonstration

The method behind the definition of the scope of each PD was the following:

A) Creation of a scenario where the LETSCROWD outcomes can be defined according the three phases of the mass gathering event. The scenario tells a story (a narrative scenario) by providing information of the LEAs responsibilities/activities. The narrative was made by providers together with the LEAs because they know which practices they usually carry out to achieve a specific objective. That way UCs are like "episodes" of the narrative scenario.

B) Based on the narrative scenario, providers:

- Described on their own outcomes, inputs and outputs in a plain language.

- Completed a document describing the main aspects of their intended PD (i.e. users, what do LEAs do?, phases of the mass gathering event, examples for practical demonstration (s) and other key things to get out of PDs).

C) LEAs - according to their interests and availabilities - were "distributed" (by asking them) within the several episodes (use cases) of the practical demonstration for future actions.

The definition of the scope of PDs also followed a set of the following rules:

- All LETSCROWD outcomes will be tested through PDs.
- LETSCROWD outcomes will be used and tested with the direct involvement of LEAs personnel.
- LEAs will host PDs.
- LEAs should provide the information of the proposed events (real-life examples and/or other hypothetical scenarios).
- The design, preparation, execution and evaluation details of PDs should be defined by partners involved.
- The PDs will be conducted through two iterations. According to the proposal the first iteration from M15 to M18 and second iteration from M24 to M28.
- Any change in the defined PDs should be justified by the partners involved, addressing a realistic alternative.
- Ethical issues should be considered and addressed according to updated ethics from Annex B of this document.

Practical Demonstrations Guideline

Additionally, this document presents a guideline to conduct PDs. LEAs and technology providers may work together in accordance with this guidance to plan and conduct each PD. The guideline is based on a matrix which illustrates PD elements (Scenario, Objectives, Organization, Procedure, Participants, Data acquisition and Performance) and PD stages (Design, preparation, Execution and Evaluation). Although this is a high-level guidance which does not address details and specific factors it is considered as a useful support for partners to frame their approach. Furthermore, this guideline is also intended for those who may deal with similar actions in other contexts to ensure that PD process is as complete and comprehensive as possible.

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1 INTRODUCTION

1.1 PURPOSE OF THE DOCUMENT

Not only does LETSCROWD aim to develop a set of tools for different stakeholders in order to improve security levels of mass gatherings, but also these tools need to be validated with a direct involvement of the LEAs (Law Enforcement Agencies). To achieve this, several Practical Demonstrations (PDs) will be conducted during the project. The PDs will act as a proof-of-concept of the LETSCROWD outcomes (methodologies, guidelines, technical outputs and scientific concepts) developed in WP3, WP4, WP5 and WP8.

This deliverable (D6.1) defines the scope of PDs and, after that, presents a guideline which is expected to be used by PD leaders to determine all issues involved in each trial. Therefore, this document will be used as a basis for the design of PDs.

Since PDs has a strong connection with Use Cases (UCs), it is highly related with deliverables D2.1 and D2.2 where Requirements specifications and UCs were defined, respectively. Whereas PDs are based on UCs (D2.2), their evaluation will be conducted according to the acceptance criteria and priorities previously assigned to each LETSCROWD outcome (D2.1).

Note that Legal, Ethical and Policy (LEP) requirements are highly likely to be present in all PDs processes and, consequently, this is also incorporated in this deliverable.

The main goals of the document are: 1) to define PDs based on previous developments (i.e. UCs) and actions performed in task T6.1 (survey methodology to the LEAs and Technology providers) and 2) to provide a detailed scope of each PD.

1.2 SCOPE OF THE DOCUMENT

This deliverable is part of the planning actions defined in the proposal to assess project outcomes. It is intended for those involved in PDs and constitutes a starting point for the next tasks of the WP6. Although this document focuses on LETSCROWD outcomes and specific PDs, the editors have attempted to include additional information which may well enable other interested parties (LEAs, technology providers, researchers, authorities, etc.) to conduct similar actions (i.e. other projects).

All partners of the LETSCROWD consortium have participated in the definition of the scope for PDs. Hence, LEAs needs and proposed solutions by technology providers have been discussed towards the harmonization of the intended activities.

This document is the first step but also a reference point, a kind of roadmap, for the implementation (T6.2) and execution (T6.3) of demonstrators, and for social impact assessments and outcomes evaluation (T6.4).

1.3 STRUCTURE OF THE DOCUMENT

The document is divided into three main parts: Section 2 presents an analysis of PDs identified and defined from current project developments (e.g. UCs, scenarios and requirements) and a survey methodology conducted to partners asking for their preferences and capacities. Section 3 describes the scope of PDs based on a storyboard of a mass gathering event where the LETSCROWD outcomes can be applied. Section 4 presents a brief guideline with the required information for the PDs leaders to provide for an appropriate design, planning and execution. Section 5 presents conclusions. Additional information is included in Annexes including the questionnaires used in the methodology and an updated version of ethics requirements for these activities.

2 PRELIMINAR ANALYSIS FOR PRACTICAL DEMONSTRATIONS

2.1 PRACTICAL DEMONSTRATIONS DEFINITION

One of the specific objectives in LETSCROWD is performing PDs to assess the project outcomes. This objective implies as Key Performance Indicators (KPIs): 11 main demonstrations, 7 LEAs involved, 5 Policy-making institutions, 3 first responders involved and 6.000 European residents. The WP6 aims to achieve this specific objective through the following activities:

- Setting up a set of complementary PDs.
- Integration of the outcomes (in previous WPs) through demonstrations.
- LETSCROWD validation against requirements (D2.1).
- LETSCROWD assessment through testing and benchmarking of results.
- Analysis of strengths and weaknesses of the different demonstrators according to the results.

The first step to define the PDs consisted of paying attention to three key elements: 1) LETSCROWD outcomes, 2) scenarios and 3) use cases. The outcomes and expected TRL (Technology Readiness Level) are displayed in Table 1. Note that the DRA (Dynamic Risk Assessment), the PMT (Policy Making Toolkit) and the CMP (Crowd Modelling and Planning tool) have two potential uses. Note also that some additional outcomes, defined during the course of the project, will be tested trough PDs as well: the PSD (Pre-event Security Decision), the LTP (LEAs training Package) and the RTE (Real Time Evacuation tool).

LETSCROWD outcomes and description	WP	Responsible partner	TRL*
DRA: A risk assessment methodology that displays static risk assessment	WP3	PROPRS	TRL 6
DRA: A risk assessment methodology to deal with changing conditions	WP3	PROPRS	TRL 6
PMT: A toolkit for supporting approval (or not) the event	WP4	ETRA	TRL 5
PMT: A toolkit for reporting a past event	WP4	ETRA	TRL 5
CMP: A tool for predicting crowd behaviour	WP5	CROWD	TRL 6
CMP: A tool for predicting the impact of tactics on crowd	WP5	CROWD	TRL 6
HCV: A tool for tracking suspicious individual(s)	WP5	UNICA	TRL 5
SIE: A tool for knowing the risk of Cyber Attacks	WP5	PLUONE	TRL 6
SIE: A tool for analysing semantic info. from Social Media	WP5	ESI	TRL 6
ICP: A methodology for effective emergency communication strategies	WP5	DBLUE	TRL 6
PSD: A tool for reporting security strengths and vulnerabilities of the event	WP4	UC	TRL 6
LTP: A tool for supporting and improving training	WP7	RAILSEC	TRL 6
RTE: A tool for providing optimal evacuation routes	WP5	UC	TRL 6

* Technology Readiness Level: TRL5 = technology validates in relevant environment; TRL6 = technology demonstrated in relevant environment.

TABLE 1 – LETSCROWD outcomes performances and technical scopes.

The second element to be considered is the scenarios that determine, to some degree, the conditions in which PDs will take place. Table 2 displays the list of real life examples of mass gathering events taken from D2.2 likely to be taken into account as reference for the PDs. Note that the PDs can also be done at other events and new events can be found, categorised and used, if they are relevant enough.

Example ID	Real life examples
E01	Flower Party, annual, Madeira, April
E02	Comic Com Portugal 2017, Matosinhos, December
E03	Tomorrowland - Boom - Belgium
E04	Cyclocross - Malle
E05	Concentration of the students at the University
E06	San Isidro Patronal Feasts
E07	Munich, Oktoberfest, annual September/October
E08	Munich, Tollwood Festival, annual June and July + November and December
E09	New Year Eve celebration in Puerta del Sol
E10	Demonstration around Madrid Town Hall
E11	Mass demonstration in Bilbao in defence of the rights of the Basque prisoners
E12	MTV Europe music awards 2018 in Bilbao
E13	European Rugby Champions Cup Bilbao Finals 2018

TABLE 2 – List of real-life examples of mass gathering events.

The third element is the UCs. A Use Case is defined as a situation used as basis to test all the developments within the project. There are three elements involved in a UC: 1) actors (the type of users that interact with the system), 2) system (UCs capture functional requirements that specify the intended behaviour of the system) and 3) description/goals (UCs are typically initiated by a user to fulfil goals describing the activities and variants involved in attaining the goal). From Table 3, it is possible to see the defined UCs and their relationship with the event phase and the LETSCROWD outcomes involved.

Use Case ID	Name	Event phase	LETSCROWD Outcome
UC-001	Crowd assessment during event preparation	Preparation	DRA-CMP
UC-002	Policy Making Toolkit- Authorization of an event	Preparation	PMT
UC-003	Pre-event security decision for LEAs	Preparation	PSD
UC-004	Cyber-Attack	Execution	SIE
UC-005	Crowd modelling during event	Execution	CMP-DRA-HCV*
UC-006	Person re-identification and people search from surveillance videos	Execution	HCV
UC-007	Communication during event with native and non-native speakers	Execution	ICP
UC-008	Real-time evacuation tool	Execution	RTE
UC-009	Policy Making Toolkit- Lessons learned	Post-event	PMT
UC-010	Event monitoring from social media perspective	All	SIE
UC-011	Social media insights from previous events	Prep-Post-event	SIE
UC-012	Training package requirements	Execution	LTP
UC-013	Dynamic Risk Assessment	Execution	SIE-DRA-HCV-CMP*

TABLE 3 – LETSCROWD Use Cases.

Note that each UC could be potentially applied to each real-life example of mass gathering event. Furthermore, several UCs are likely to be applied to the same real-life example scenario. For instance, it is possible to consider the phase of the event (preparation, execution, post event) to integrate uses cases (e.g. preparation phase: UCs 001, 002, 003,010 and 011. In addition, it is possible to consider real-life examples that can be explored in the three phases of the event. Each phase could allow testing the LETSCROWD outcomes as mapped in Table 3.

Given the aforementioned information, a Practical Demonstration can be defined as:

"a proof-of-concept based on predefined use cases which involves a real exhibition/display of how a given LETSCROWD outcome (software, methodology/guideline and/or tool) works and provides the expected performances in a relevant environment. It involves at least, the use and testing of one outcome with the participation of both a LEA and a technology provider".

Once the concept of PD is defined, there is a need to describe the scope of each practical demonstration (e.g. the extent of the arrangements and actions to be performed, the demonstration site and partners involved). The next section presents the methodology used for that purpose.

2.2 WORKSHOP

A workshop was run on 30th January 2018 during the meeting in Valencia with the participation of all partners (see Figure 1). The objectives were to: 1) collect thoughts and ideas, 2) encourage dialogue between LEAs and technology providers and 3) stablish the first step for defining and the PDs.

FIGURE 1 – Workshop on practical demonstrations Valencia 01/30/2018.
Source: http://gidaigroup.blogspot.com.es/

The workshop was divided into three parts. In the first one, a presentation with an analysis of the current state of the project in relation with the PDs was given (15 min). In the second one, technology providers and LEAs were asked to fill two kinds of simple questionnaires (15 min). Partners were previously asked to participate and gave their verbal consent. The questionnaire for LEAs was intended to: 1) know the LETSCROWD outputs of interest, 2) the information they could provide in relation with mass gathering events and 3) the human resources and facilities/services they could arrange for the PDs. On the other hand, another questionnaire was given to technology providers to get 1) information of the PD details (scenario types, event

phase, place, actors involved) and 2) preliminary inputs for set-up the validation strategy (i.e. testing and validation procedures and type and number tests) they were willing to put in place. Both questionnaires are presented in Annex A. Closed-Ended questions with multiple choices were provided. Responders could select as many choices as they wanted to. The questions were as simple as possible and linked with the data of interest for defining the scope of the practical demonstrations. Questionnaire responses were collected and transcribed into spreadsheets for further analysis. Finally, in the third part, a dialogue/discussion took place among LEAs and technology providers using questionnaire responses as basis for the interventions (45 min).

2.2.1 Preliminary inputs from LEAs

Figure 2 shows the LETSCROWD outcomes the LEAs are willing to use and test through the PDs. The information collected was the first criterion used to match the LEAs with the technology providers. The CMP (Crowd Modelling and Planning tool) was the outcome that aroused more interest whereas the ICP (Innovative Communication Procedures) was the outcome with less interest to the LEAs.

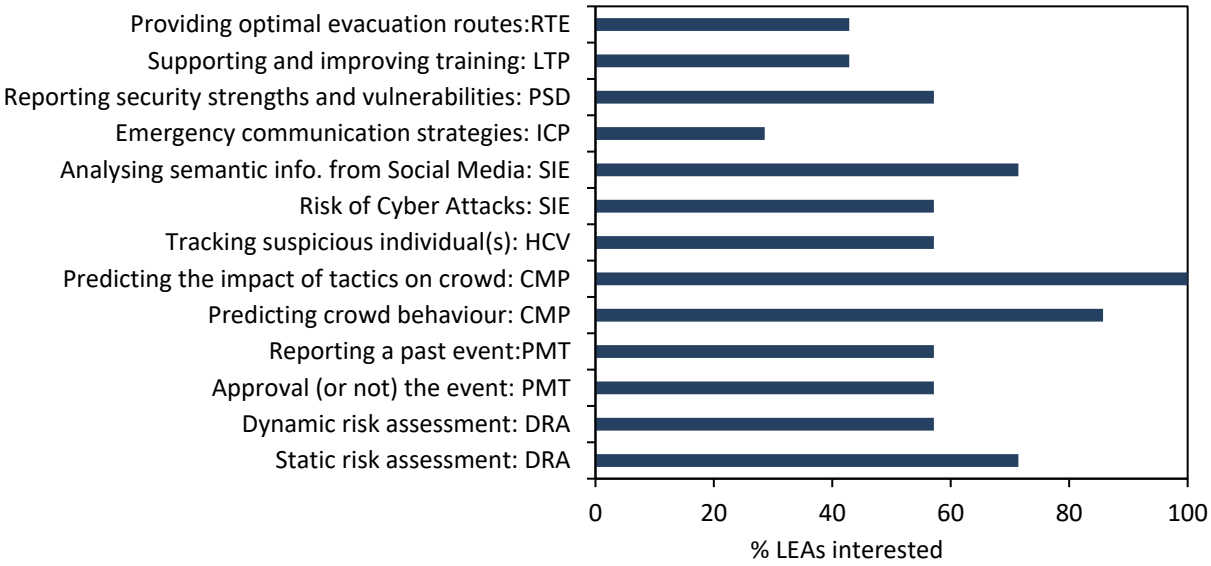

FIGURE 2 – LETSCROWD outcomes vs LEAs interest.

Next questions were about the PDs details. The first question asked whether the LEAs were able or wanted to use real-life and/or hypothetical events. A real-life event is defined as a mass gathering actually existing (past, current or future) with characteristics taken from reality (venue, crowd, security measures, etc.). Although it can have some characteristics taken from reality, a hypothetical event is defined as a supposed but not necessarily a real mass gathering. For instance, a possible event (never held) in a real venue. Real-life events and hypothetical scenarios were selected by 4 and 5 LEAs respectively. It should be noted that only 2 LEAs selected both scenario types. The second question was related to the timing. In other words, the event phase the LEAs considered to perform PDs. All LEAs responded “before” and “during” while 6 LEAs selected “after the event”.

Finally, the third question asked about the place for PD. Two options were available “in the field” or “remote”. “In the field” means that the PD is conducted at the same place as the event and “remote” that can be performed far from the location of the event. Almost everyone selected “in the field” (6 respondents) and all respondents selected “remote”. In conclusion, most LEAs were open to all available options. The exceptions were taken into account for defining the scope of PDs.

Next questions asked about what LEAs could provide for the PDs. LEAs were asked also about the information they could share with technology providers. As Figure 3 shows, all respondents were able to give information of the event, the venue and the crowd, 4 respondents could deliver information of security organization and operation/tactics and 3 respondents were able to inform about the operations/tactics and contingency planning. The provision of information as regards intelligence, contingency planning and monitored data was supported by 3 LEAs. One respondent answered that this depends on final political decisions and the corresponding authorizations (others). The results of this part of the questionnaire were used to match the required information for the LETSCROWD outputs with the LEAs.

Of particular concern for the PDs is human resources availability. LEAs own personnel are deemed to be use for testing the outcomes (as end users), participating as staff members and/or as volunteers playing different roles (perpetrator, victim and/or protectors), when necessary. As expected, all LEAs could provide personnel for testing the outcomes. Furthermore, 4 respondents were willing to provide volunteers. The information collected at this point is useful for the definition of the scope of those PDs where the outcomes require human participation (mainly volunteers) and to define the corresponding ethical requirements (i.e. risk and benefits analysis, recruitment procedures, information letter and consent form, security arrangements, data collection techniques and personal data processing and protection, etc.). It is important to note that some LEAs answered that they were able to involve additional personnel from other stakeholders: private security, first responders and authorities, as shown in Figure 4. This is a key point because of the KPIs (5 Policy-making institutions, 3 first responders involved).

In order to be able to link the LETSCROWD outcomes with the pilot sites, LEAs were also asked about the facilities and services that they could arrange to conduct the PDs. Figure 5 shows the LEAs contributions in relation with facilities/services. All LEAs could provide support to the technology providers in relation with the basic equipment, power supply and room for testing. Safety and security assurances and transport services could be provided by 5 LEAs and administrative/management support is likely to be supported by 4 LEAs.

FIGURE 3 – Information that LEAs can provide.

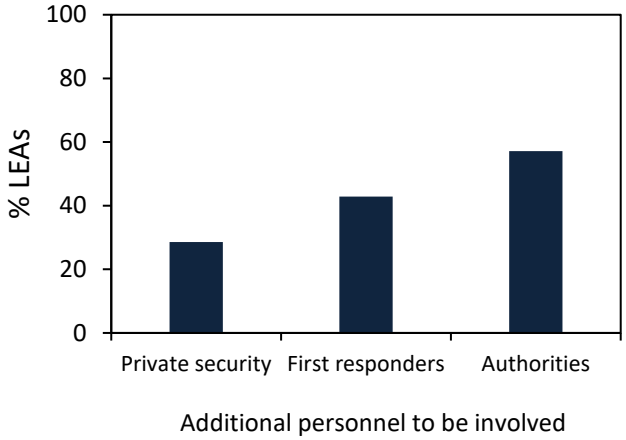

FIGURE 4 – Additional personnel that LEAs could involve.

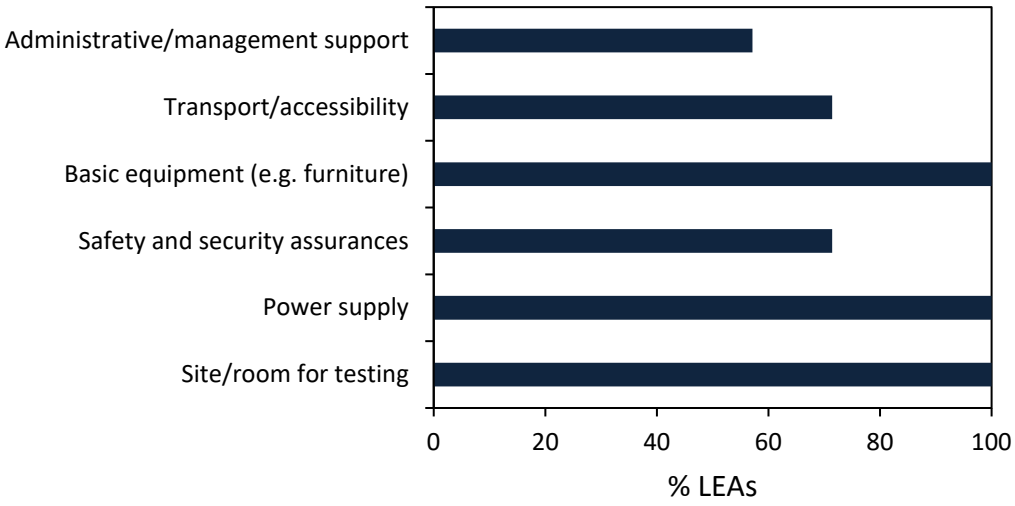

FIGURE 5 – Availability of facilities/services.

2.2.2 Preliminary inputs from providers

Another questionnaire was given to the 8 technology providers involved in the project. The questionnaire was divided into 3 boxes. The first one asked the technology providers to briefly describe their outcomes. The second box was intended to collect information of the expected PDs. Finally, the third box asked for testing and validation procedures to be used.

The first question asked the technology providers for a brief description of their outcomes and the relationships with other outcomes within the project. The responses are displayed in Table 4.

The second questions asked providers about the PD specifics. By 91% of providers wanted to test their developments in real-life events and 55% wanted to use hypothetical events. In relation to the time, by 82 % of the outcomes were available to be tested before the event, 73% during the event execution and 36% after the event. Note that this is highly dependent on each outcome performances. In relation to the place, by 45% of providers selected “in the field” and by 73% in a “remote” place.

LETSCROWD Outcome	Description
DRA	The DRA (Dynamic Risk Assessment) was defined as a methodology/guideline to dynamically asses the risk for crowd by processing weak signals and other time-varying events. No relation with other outcomes was considered.
PMT	The PMT (Policy Making Toolkit) was defined by developers as a tool to gather all info related to events in order to help in decision making about authorization and policies: 1) authorization of events, 2) subscription and publication of data and 3) policy "generation/making". This tool is deemed to be related with the rest of the LETSCROWD outcomes.
CMP	The CMP (Crowd Modelling and Planning tool) was defined as a software designed for LEAs with the ability to model crowds of mass gatherings to forecast crowd movement and test scenarios. Trained LEAs staff can operate tool to plan for crowds at events, test scenarios, tactics, evacuation strategies, and to use the tool in real-time during the events. This software was related with ICP (Innovative Communication procedures), HCV (Human Computer Vision), DRA (Dynamic Risk Assessment) and PMT (Policy Making Toolkit).
RTE	The RTE (Real-time Evacuation tool) was defined by providers as a real-time stochastic evacuation model based on Monte Carlo Methods to provide evacuation times and optimal evacuation routes taking into account the threats in the scenario (i.e. exits availability). This software had connections with CMP (Crowd Modelling and Planning tool), DRA (Dynamic Risk Assessment) and HCV (Human Computer Vision).
PSD	The PSD (Pre-event Security Decision) was described as a software designed for security planning of mass gathering events. The expected performance is supporting security director in decision making before the event. The software was directly related with PMT (Policy Making Toolkit).
ICP	The ICP (Innovative Communication Procedures) consisted of a methodology/guideline aimed at improving security operators and first responders' situational awareness, intercultural competences and commitment in the pre-event phase and during the execution of the event. Guidelines include communication objectives (what), communicators and audience (who and to whom) channels and messages (how), socio-cultural issues affecting the communications and recommendations to overcome socio-cultural misunderstandings. These aspects are explored with regards to different categories of events (e.g. sporting events, festivals, concerts, etc.). This outcome is expected to be used during the planning phase of the event to improve coordination among stakeholders on communication aspects and increase citizens and public awareness on the event and during the execution phase of the event to optimize the evacuation time. This outcome was possibly associated to CMP (Crowd Modelling and Planning tool).
SIE	The SIE (Semantic Intelligent Engine) was defined by developers as a software tool for the semantic analysis of social networks and the web. This outcome is also defined as the implementation and deployment of use cases UC-010 and UC-011 (see Table 3). Event monitoring from social media perspective. Focus is on prospect analysis on an upcoming event (to be defined). This outcome was related to DRA (Dynamic Risk Assessment).
HCV	The HCV (Human Computer Vision) was described by developers as a tool for retrieving images of individuals starting from one image as a query, using clothing appearance (re-id), or images of individuals that match a description of their clothing appearance (search). Images for the searched people are retrieved, supporting LEAs in the analysis for video footage. No relation with other outcomes was defined.
LTP	The LTP (LEAs Training Package) was defined as a methodology/guideline and a tool consisted of 3 sessions of training the LEAs on identifying suspicious signs in behaviour or body language. No relation with other outcomes was defined.

TABLE 4 – Description of the LETSCROWD outcomes by providers.

As mentioned, PDs are highly likely to use people (i.e. actors playing different roles). Figure 6 shows the percentage of providers that need various actors. As expected LEAs personnel were involved by 100% of providers. This was a *conditio sine qua non* because LETSCROWD is an end user driven project. On the other hand, by 55% of providers considered to involve first responders. It is important to note that only 18% of providers considered the use of participants/volunteers for testing their outcomes whilst the involvement of policy-makers and citizens was considered by 27% of providers.

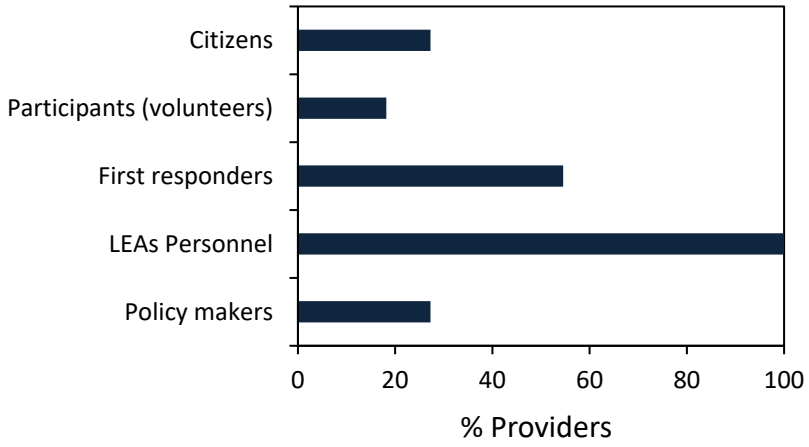

FIGURE 6 – Actors required by providers.

The last questions were about collecting preliminary information of the evaluation and validation processes. The first question asked the providers to define their goals according to pre – defined options as follows: 1) meet requirements specifications (D2.1), 2) provide outputs as expected, 3) fulfil the intended purpose, 4) meet the needs of users, 5) operate in different conditions.

Given that 100% of providers should meet requirements specifications in D2.1, the rest of goals varied depending on the type of outcome (see Figure 7). By 86 % of providers aimed to meet the needs of end users (i.e. the LEAs) and 71 % had as goals "provide outputs as expected" and "fulfil intended purpose" whereas 42 % had as goal for their outcome to operate in different conditions.

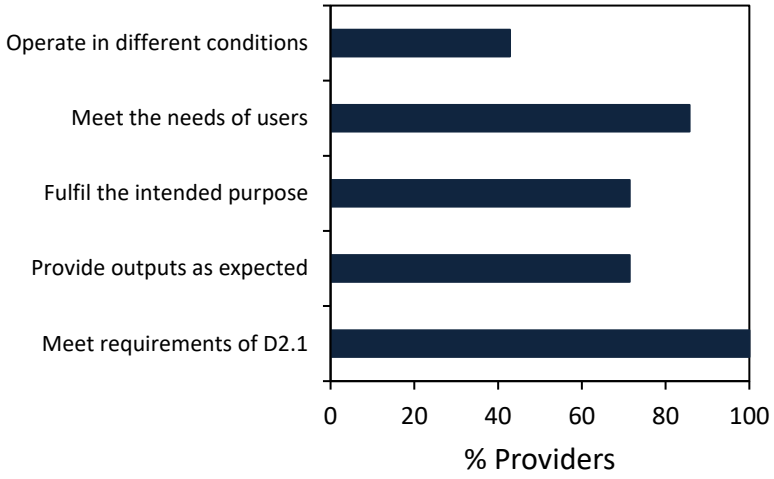

FIGURE 7 – Goals of providers for the practical demonstrations.

Figure 8 represents the selected types of test the providers were willing to conduct. The options were as follows: 1) component testing (i.e. checking that components perform as intended), 2) functional verification (i.e. checking that the range of capabilities perform as intended), 3) qualitative verification (i.e. the outcome is able to work and produce results as intended) and 4) quantitative verification (i.e. comparing the results with real data). It should be noted that component testing will not be used for methodologies/guidelines.

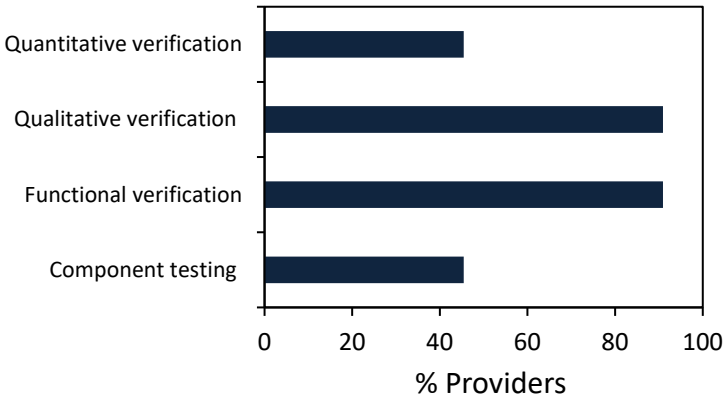

FIGURE 8 – Type of tests for the practical demonstrations.

Based on questionnaires responses, the following conclusions are highlighted:

- The CMP (Crowd Modelling and Planning tool) arises more interest for the LEAs (100%) whereas the ICP (Innovative Communication Procedures) is the outcome with less positive answers with 42% of LEAs showing interest.
- All LEAs can share general information (the event, the venue, the expected crowd) but some sensitive information can be unavailable (tactics, planning, monitoring data, etc.).
- All LEAs can provide personnel for using and testing the outcomes and some are willing to provide volunteers, if necessary.
- Some LEAs can involve other stakeholders for the PDs.
- In general LEAs can provide basic services and facilities to technology providers.
- Almost all technology providers want to test their outcomes in real-life events.
- All providers need LEAs personnel (for testing the outcomes) and some of them consider involving other actors (first responders, policy makers). Nevertheless, only one fifth want to use participants/volunteers.
- The goals to achieve in PDs vary among providers. Meet requirements specifications (D2.1) and the user needs have more priority.
- The type of tests for evaluating the outcomes also vary among providers due to the nature of each outcome. Functional and qualitative verification are the most preferred options for testing.

3 SCOPE OF EACH PRACTICAL DEMONSTRATION

3.1 GENERAL APPROACH

The method behind the definition of the scope of each PD is the following:

The first step was the creation of 1 or 2 scenarios where the LETSCROWD outcomes can be defined according the three phases of the event. For instance the selection of one festival/concerts and one sporting event (e.g. San Isidro, Tomorrowland, Rugby Final cup) according to the list of real life examples identified in D2.2.

The scenario tells a story (a narrative scenario) by providing:

1. a context of the event (Where),
2. the actors involved and their roles/ responsibilities (Who),

3. the timeline of the event (When),
4. the LETSCROWD tools and methodologies to be tested according to the phases of the event (What),
5. tasks and activities usually carried out by LEAs to achieve a certain purpose e.g. set up a communication strategy for the event, evaluate the potential hazards and threats of an event.

The narrative was made by providers together with the LEAs because they know which practices they usually carry out to achieve a specific objective. That way UCs are like "episodes" of the narrative scenario. A narrative including the contextual elements above (1-5) was often missing in UCs definition as they typically describe scopes, features or the workflows for the use of the tools. This allowed the partners to include use cases within a context. Table 5 shows the storyboard proposed.

The second step consisted of putting together the UCs concerning the same event phases as follows:

Example of the timeline of the event

PREPARATION PHASE – Early planning 1. [UC001] Crowd assessment during event preparation .- A mass event is being organised, and it needs a (static) risk assessment and other methods to plan for the event. 2. [UC002] Policy Making Toolkit- Authorization of an event .- A mass crowded event is planned. The event needs authorization to be done, and it needs to know which requirements are needed. 3. [UC003] Pre-event Security Decision for LEAs.- LEAs analyse the security of the event. 4. [UC00X] ICP – Communication strategies/plan set up that will be applied in the event execution (UC 007) 5. [UC010] Event monitoring from a social media perspective
EXECUTION PHASE – the crisis situation to be handled - occurring in the scenario - needs to be described (what happens? which type of terroristic attack occurs?) 1. [UC005] Crowd modelling during event – CMP, DRA HCV (crowd monitoring) 2. [UC010] Event monitoring from a social media perspective 3. [UC 006] Person re-identification and people search from surveillance videos – HCV Evacuation phase 1. [UC007] Communication during event with native and non-native speakers ICP 2. [UC008] Real-time evacuation tool providing evacuation routes in real time
POST PHASE 1. [UC009] Policy Making Toolkit- Lessons learned PMT. Lessons learned will benefit the database that helps the rest of the tools of the project adding precious information of the event. 2. [UC010] Event monitoring wrap-up SIE 3. [UC011] Social media insights from previous events SIE

Once the narrative is done and the story is clear, during the third steps LEAs and first responders - according to their interests and availabilities - were “distributed” (by asking them) within the several episodes (use cases) of the practical demonstration.

The definition of the scope of PDs also followed a set of the following rules:

- All LETSCROWD outcomes will be tested through PDs.
- LETSCROWD outcomes will be used and tested with the direct involvement of LEAs personnel.
- LEAs will host PDs.
- LEAs should provide the information of the proposed events (real-life examples and/or other hypothetical scenarios).
- The design, preparation, execution and evaluation details of PDs should be defined by partners involved.
- The PDs will be conducted through two iterations. According to the proposal the first iteration from M15 to M18 and second iteration from M24 to M28.
- Any change in the defined PDs should be justified by the partners involved, addressing a realistic alternative.
- Ethical issues should be considered and addressed according to updated ethics from Annex B of this document.

3.2 NARRATIVE OF THE SCENARIO

The narrative scenario displayed in Table 5 was provided to partners. Based on this, providers could describe their own outcomes and define the scope of each PD. Once the event is announced and the organiser has submitted to the corresponding authorities their interest in hosting a mass gathering event, legally competent LEAs, in coordination with other public agencies initiate different actions in order to guarantee the security and rights of the citizens, since they are dedicated to providing the community progressive, high security, emergency and preventive services. Firstly, the normal preplanning practice of LEA is the initiation of tasks in different departments which are in charged to gather information in an effort to give the first due officers an initial planning and operative advantage. This is highly likely to involve intelligence and social network monitoring services. As long as the event is closer, the pace of submission of those reports will be increased. The tool for analysing semantic info from Social Media is directly focused on it. As far as some different potential threats are concerned, some requirements shall be considered by organizer, i.e. private security, emergency planning, medical services, etc., because of the available regulations. All these issues might be addressed through the event authorization tool.

In addition, some of these events affect traffic patterns, close streets, impact pedestrian walkways and incorporate hazardous material storage in public areas. Therefore, LEA will stablish an internal planning to face these challenges. Crowd modelling tools are bound to be a useful tool to analyse the effects of those affectation and distinct security measures. Considering all the information available the Dynamic Risk Assessment tool enable LEA to set the different risks for the different threats. Using tools during real-time of an event is also an ambition for LETSCROWD. LEAs perform different actions to guarantee people security, such as detecting criminal actions, evacuating occupied areas and avoiding public disorders. Tools like, Dynamic Risk Assessment, Real-time Evacuation tool, Human Computer Vision, and Semantic Intelligent Engine will implement solutions to enhance the intervention operations.

Finally, after the event, lesson learned may well be collected to discover criminal patterns or just to improve the procedures. Moreover, training package is also expected to rise to that challenge.

Event Phase	Event Preparation		Event Execution	Event Aftermath
	Information/event authorization	Event preparation	Execution	Post-event
Event/LEAs activities	A City/town X is going to hold a mass gathering event (i.e. football match or another similar). Administrative actions are taking place (i.e. authorization)	LEAs perform actions to: • Analyze previous events • Detection of potential criminal actions • Define the risk level • Define resources, tactics and operations	The event involves different activities such as: • Fan-zones • Match • Celebration LEAs perform different actions to guarantee people security: • Detection of criminal actions • Evacuation of occupied areas • Intervention (i.e. public disorders)	After the event, LEAs will generate documentation (internal reports, judicial documentation) and operative actions review (event summary, measures put in place, gaps identification, lessons learned and future precautions)
UCs	UC-002	UC-001 UC-003 UC-010 UC-011	UC-004 UC-005 UC-006 UC-007 UC-008 UC-010 UC-013	UC-009 UC-011 UC-012

TABLE 5 – Storyboard of a mass gathering event to conduct Practical demonstrations.

3.3 USE CASES AND OUTCOMES DEFINITION ACCORDING TO THE NARRATIVE SCENARIO

The providers were asked to provide a description of their outcomes in relation to the narrative scenario in a plain language. The descriptions are displayed in Table 6.

UC ID	Outcome ID	Description of your OUTCOME (easy to understand)	Inputs	Outputs
001	DRA CMP	The software helps LEAs predict crowd movement or check 3rd party event plans in terms of crowd safety. This is done by the LEA doing crowd modelling (maybe via an operator) testing scenarios and possible tactics, and doing a risk assessment for the event.	• Layout of event (like cad file or image) • Number of people in different areas • Scenarios (e.g. move people from this area because of a bomb threat, use police dogs to stop crowd) • Risks (location of risk, details, mitigation)	▪ Details of crowd capacity (area X can have maximum N people) ▪ Visual movement of crowds in given scenario (predicted crowd behaviour) ▪ Time taken to achieve something (e.g. evacuation time, time to move crowds) ▪ Static Risk Assessment (show risks on map at different locations)
002	PMT	The tool uses the database of past events and contextual information of event to show risks and potential needed measures.	• Event data by Event Organizer • Event Database	▪ Mandatory measures in programmed event ▪ Threat level to consider in event ▪ Potential risks to consider in event ▪ Normative laws to apply to event ▪ Risk mitigation actions
003	PSD	The software helps LEAs to know the level of security hazard of the mass gathering (e.g. fan-zone, stadium, venue of the celebration) and recommends the general security instructions and precautions in place.	• Event (type of event, conflict history, event duration) • Venue (venue type, space for crowd, assets to protect) • Crowd (number of people, age, purpose, expected crowd behaviour, membership participation, membership identification) • Intelligence (expected infringements, terrorist alert level)	▪ Indicator of security hazard (value between 0 and 1): Low (0-0.25), Medium, (0.25-0.50), High (0.50-0.75) and Extreme (0.75-1.00) displayed on the screen ▪ Task force protocols based on indicator of security hazard: Protocol 1 (Low), Protocol 2 (Medium), Protocol 3 (High) and Protocol 4 (Extreme) displayed on the screen ▪ Summary report ▪ File of the event
004	CMP	Crowd modelling can be used during event execution to test scenarios that	• Scenario to test (blocked route, move part of a crowd etc.)	▪ Actual situation taken from the cameras

	DRA HCV	may not have arisen previously, assess the impacts of a particular action and link with Dynamic Risk Assessment. Linked to the camera sensor data, better estimates of crowd numbers can be obtained and crowd modelling can update to better predict the differences from pre-planned scenarios	• Operator input of crowd numbers in different areas (e.g. look at cctv, increase or decrease density in simulation to match) • Live data from cameras	▪ Impacts on the crowd for different scenarios (e.g. strategic decision to try and stop crowds moving from one location to another)

004,010, 011	SIE	The Semantic Intelligence Engine gathers text data from social media and the web in general that is related to a mass gathering, enrich it with semantic metadata regarding the text content, and provides tools to inspect and analyse the data from different perspectives (taxonomies and views) useful for assessing the security of an event via a faceted search engine and dashboards. Once an event is finalized a wrap-up can be executed so that the data collected and enriched can be use when preparing a similar event.
		The faceted search and the dashboard offer time-based filters and taxonomies to inspect the document collection
		The dashboard offers interactive widgets (tag-clouds, line, bar and pie charts, sunburst, time series) to drill-down and visualize pieces of data recognized in the text documents based on the number of documents they appear in
		The faceted search includes facets for the following pieces of data recognized in text documents: organizations (Criminal Org
			• Event General Metadata (Title, Description, dates)
			• Focused Crawler Setup (data source, date range)
			• Tool Choice:
			  • **Faceted search** for document finding and inspection
			  • **Dashboard** for analytics
			  • **Event Wrap-up** to close an event
				▪ Text documents gathered by the crawler enriched with semantic metadata about the content of documents including People, Organization, Places, Cybercriminal Slang register, Criminal Slang register, and military Slang register.
				▪ Each document is categorized in six taxonomies: Intelligence, CyberCrime, Crime, Terrorism, Emotions, Geography
				▪ The faceted search and the Intelligence dashboard can be used to browse and analyse the documents by leveraging the taxonomies in which they were categorized, and the semantic metadata added to each document.

		and Infrastructures), people, and slang (criminal, military and cybercriminal)		
005 **0013**	HCV	The crowd monitoring tool provides LEA operators an estimate of the number and the density of people in each area of the monitored by video surveillance cameras, and alerts them when anomalous events like overcrowding (with respect to a predefined density value, possibly chosen by the LEA operators) or a sudden change in crowd density (e.g., due to panic escape) are automatically detected.	• Region(s) of interest in each camera view. • Perspective map of each region of interest in each camera view. • Videos acquired by the cameras of the video surveillance system in the event venue.	• An estimate of the number of people in each camera view is shown on a screen to the LEA operator in real time. • An estimate of the crowd density is shown on a screen to the LEA operator as a heat map, either superimposed to each input video, or displayed on a map of the event venue, in real time. • Real-time alerts are shown on the screen when an anomalous event related to crowd density is detected.
006	HCV	The tool helps LEAs to search video footage acquired by a video surveillance system for an individual of interest, based on either an image of that individual seen by the operator on one of the videos, or a description of clothing appearance provided, e.g., by an eyewitness of an incident or crime.	• Videos acquired by the cameras of the video surveillance system in the event venue, and possibly by mobile cameras worn by LEA operators. • A "query" image of the individual of interest selected by a LEA operator from a video frame, or a description of that individual in terms an "attribute profile", i.e., clothing appearance attributes (e.g., colour and texture), carried items, and soft biometrics like gender.	• A set of images of individuals retrieved from the video footage, sorted by decreasing similarity either to the query image or to the input attribute profile, with related information: link to the video from which each image has been extracted, timestamp, and camera position in the event venue.
006	HCV	When LEA operators would like to search for a suspect individual in videos acquired by the video surveillance system, based on a description of his/her appearance	• Videos acquired by the cameras of the video surveillance system in the event venue, and possibly by	• A ranked list of images of individuals automatically extracted by the tool from the video surveillance footage, sorted by decreasing degree of

		provided, e.g., by a witness or a colleague in the field, the tool helps them to retrieve images of individuals matching the given description.	mobile cameras worn by LEA operators. • An attribute profile of the individual of interest, i.e., a description of his/her appearance in terms of a set of attributes related to clothing appearance (including carried items), and to soft biometrics like gender. • Optional: feedback by the LEA operator on the output of the tool (see next column).	matching with the attribute profile of the individual of interest.
007	ICP	The LETSCROWD communication guidelines improve LEAs and first responders' intercultural competences when communicating with crowd in the pre-event phase and during the execution of the event. ICP include several types of supporting tools according to the two phases of the event, i.e.: *Pre-event phase* • Specific template for identifying the specific target audience attending an event; • Specific template for supporting the mapping of the channels with the message to be delivered; • Specific template for constructing warning messages; • Triggering questions that can be used as check list by the ICP users when setting up their own communication strategy; *Pre-event and execution phases*	General information about the event: • Type of the event • Event organizer • Other stakeholders involved • Environmental layout • Ingress and egress conditions Type of crowd: • Size • Density • Motivation • Composition • Behaviours (i.e. i.e. spectator crowd; ambulatory c.) Crowds' socio-cultural characteristics (social identity and cultural background). Communication filters depending on the crowds' socio-cultural	General and specific communication recommendations and solutions addressing socio-cultural aspects of relevance to communicate with multi-cultural crowd.

		• General and specific communication recommendations and solutions addressing socio-cultural aspects of relevance to communicate with multi-cultural crowd (e.g. sporting events and festivals).	characteristics (i.e. language – verbal and non-verbal communication -; signs comprehension).	
008	ERT	The software allows to know the evacuation times of a mass gathering event (e.g. fan-zone, stadium, venue of the celebration) within a few seconds by taking into account changing conditions of the emergency (escape route availability, evacuation strategy applied).	• Number of people in the crowd • Number of escape routes • Width of escape routes • Distance from the crowd to the exits • Escape routes availability •	▪ 95th percentile of total evacuation times displayed on the screen ▪ Optimal distribution of people per escape route displayed on the screen ▪ File of the evacuation study
009	PMT	When finish an event, the user can create new policies or modify existing according to incidents and measures that have occurred during event.	• Incidents occurred • Measures to mitigate incidents	▪ Lessons learned from closed events ▪ New policies or adjust policies for new events.
010	SIE (Crawler)	The software allows to run Cyber Threat Intelligence (CTI) related with the event. CTI can be used to protect the digital assets at different levels related to the organization of an event, and to aid in the monitoring of the activity of potentially dangerous groups of individuals that can be potentially involved in disruptive or illegal activities associated to the mass gathering event.	• Event (type of event, conflict history, event duration) • Venue (venue type, space for crowd, assets to protect) • Digital assets related with the event (domain names & IP, website(s), social media pages, information regarding the web agency responsible for the event (including key people in the agency directly responsible for the specific event), accounts related with the event, specific software applications used in the event)	▪ Indicator of security hazard against Social Engineering based attacks. The indicator has a value between 0 and 1: Low (0-0.25), Medium, (0.25-0.50), High (0.50-0.75) and Extreme (0.75-1.00). ▪ Indicator of security hazard against standard “technical based” attacks. The indicator has a value between 0 and 1: Low (0-0.25), Medium, (0.25-0.50), High (0.50-0.75) and Extreme (0.75-1.00). **Note:** this output can be limited in scope to only certain types of vulnerability scans/checks and require legal authorization).

				▪ Summary report on the collected information about the digital asset. The report provides details about the type and "quantity" of discovered pieces of information. ▪ Indicators of social media activity of specific groups or individuals "of interest". **Note:** this output can be limited in scope to only certain social media platforms and require legal authorization).
011	SIE	The semantic Intelligence Engine allows instantiating the data collected and enriched for a previous event that can be used as reference when preparing a new related event The SIE will present an overview of the semantic metadata added to all the documents collected for the reference event and makes available the faceted search engine and the Intelligence dashboard to inspect and analyse the data.	• To search for the event to instantiate the user can use the following criteria (event name, date rage, letscrowd event category) • Launch event Instantiation to load the reference event	▪ A summary of the semantic metadata and taxonomies in which the documents were categorized is presented using widget containing different types of charts ▪ The faceted search and the Intelligence Dashboard are available to inspect and analyse the event data
012	LTP	The training module is aimed to enhance capabilities and skills of LEAs officers in detection of suspicious signs and abnormal behaviour of crowd that may be linked to potential intention of terror activity	Dissemination of training program to LEAs officers related to identification of suspicious signs in: • Appearance of persons • Behaviour of persons • Location of persons • Luggage of persons Body language interpretation	Reports of field LEAs officers on WS identified in relation with the suspicious signs and action items to be taken as a result.
013	DRA	Implementation of the DRA according to what has been described in Deliverable	Weak signals formatted according to the CAP format from the different	Display to the operator the Suspicious Events (SE) and the Suspicious Patterns

	(SIE, HCV, CMP)	D3.4. The idea is to process collected weak signals to **dynamically assess risks for the crowd** by • **Ranking** them according to the **Credibility** of the detector (usually a trained steward can be considered more credible than a teenager in detecting an abandoned object), the **Reliability** of the sensor and related processing (a CCTV-based vehicle detector can be misleaded by shadowing in the scene) and the **Time Distance** between the detection and the event itself (a truck in a forbidden area can be considered differently if it is happening 3 days before or during the event). • **Grouping** them into **Suspicious Patterns** to be considered as threat precursors according to space-based, time-based and experience-based rules allowing also the operator to group them dynamically. **Showing them to the operator** on a time-dependent GIS integrated with crowd modelling (CMP) tools to allow him to take risk-aware decisions and implement mitigation actions.	sources of information owned by LEAs, including those developed in LETSCROWD. In particular: • CCTV-based sensors (both LETSCROWD developments and those already available at LEAs premises). • Human as a sensor (participant, steward, policeman, etc.). • Physical sensors (metal detectors, explosive sniffers, etc.). • CTI (crawler + SIE) • … •	(SP) to allow him to take risk-informed decisions.

TABLE 6 – Use Cases and LETSCROWD outcomes according to the narrative of the event.

3.4 SCOPE PF PRACTICAL DEMONSTRATIONS

Providers were asked to complete a brief document describing the main aspects of their intended PD. The scope of each practical demonstration is included in this section.

3.4.1 Policy making Toolkit (PMT): Practical demonstrations

'User' is thought to be an operator who is part of the LEA.

New Policy

What does the LEA do?

- Build filter: User select conditions from set event fields possible. On this field selection, the user introduce values to filter
- Mandatory values: On events that meet the above conditions, the user can define values that the event should fulfil. The user will select fields and mandatory values.
- Potential risks: User set potential risk in this kind of event according to event characteristics
- Regulatory Laws: User set different laws to apply to event
- Mitigation actions: User set different actions to mitigate risks in event.

With these data sections filled in, the user build a new policy. When user create new event, the system will check all policies matching with them and it will suggest compliments, laws, risks and actions to manage the event.

Modify Policy

What does the LEA do?

When user close an event, he can select new detected risks and its mitigations to be added to selected policies in event. There are the lessons learned translated to policies.

Example for a practical demonstration

User create a new event, a concert in stadium for instance. The system suggest policies ("Concert in stadium") to apply. User accept this policies. When concert finish, the user close the event with incidents. The incident, for instance, was overcrowding at entry doors with some injuries. The mitigation actions were open extra checking entry doors (5 in total).
Lesson learned was when expected crowd event is larger than 10.000 people the entry doors must be 5. This lesson can add to policy related "Concert in stadium" to take it into consideration in new concert events.

3.4.2 Dynamic Risk Assessment (DRA): Practical demonstrations

'User' is thought to be an operator who is part of the LEA, in charge of dynamically assess the risk to the crowd. The description that follows is based on the methodology described in Deliverable D3.4 and all defined variables and terms.

Event Preparation

What does the LEA do?

- User set the different risks for the different threats at T0 on the basis of the Static Risk Assessment (SRA).
- During the Pre-Event Phase the user
    - Observes all the received Weak Signals (WS) and, supported by the DRA tools,

- Classifies the received WS, according to its significance.
- Evaluates if the received WS can be transformed into a Suspicious Event (SE) Evaluates if the received WS can be attributed to specific group of Suspicious Pattern (SP) together with other received WSs.
- Evaluates if the existing (and new) SEs and/or SPs can become Critical when triggered by the received WS and increase the level of alert
- Updates the different risk levels according to the new situational awareness.

▪ Decides to act on the basis of the new situational awareness and according to existing protocols of alert levels. Actions can range from low to high in accordance with the protocols.

Example for a practical demonstration

Performed hypothetically on a real event like a festival in public spaces and represents a purely an example of what could happen during an event. The strategies of grouping WS into SEs or SPs, on how to change the status of an SE or SP into Critical or on how to change the different levels of risks and consequent levels of alert, are based on the experience of the writers and need to be verified by LEAs involved in DRA demonstrations.

The demonstration can be implemented using some actors playing the roles described and some vehicles.
Some notes:

- It is a dynamic reaction to a sequence of received weak signals.
- The sequence is relatively short for the sake of presenting the approach and needs to be further detailed.
- The Significance is not yet introduced into the storyboard to avoid confusion in the reader.
- To make the scenario more realistic simulating real life (and to show the potentialities of the DRA approach in improving situational awareness) the sequence introduces
  - weak signals that are not leading to suspicious patterns;
  - weak signals that are leading to the creation of suspicious patterns that after a check are considered as nuisance;
  - weak that are leading to the creation of suspicious patterns that are security threats contributing to the modification of the level of alert.
- The proposed sequence is based on the assumption that existing CCTV-based Video Analytics (VA) can perform the described detection. In case it is not available, Human Sensor can replace it in the demonstration.
- T[nn] represents a time instant (the bigger the number the closer the event).
- The reader should imagine the proposed sequence confused within a large number of other non-significant weak signals thus making impossible for the user to monitor the situation
- This scenario has been validated with Ertzaintza and will be continuously refined with them

DRA sequence

4 weeks before the event

T01 - DRA receives WS01 based on a citizen's phone call registered in the ZUTABE emergencies' database: "A black van with French number plate is parked since a week on Sabino Arana Etorbidea" (Sabino Arana Etorbidea, being part of the Red Zone perimeter around San Mamés stadium, receives a special attention by ERT)

T02 - ERT commander decides to ask the nearby bank, the video recording of the last week to detect if something strange happened in the area.
T03 - DRA receives WS02 from VA applied on the video recorded by the bank: “Two individuals are entering and leaving the van twice in the same day placing 2 bags in the van each time”.
T04 - DRA receives WS03 based on a call from the same citizen, 2 days after: “The same black van remains parked”.
T05 - Using the existing rules, SP01 “Suspicious car” is created by DRA grouping WS01, WS02 and WS03.
T06 - The ERT operator is alerted by the DRA tool and decides to send a policeman to check the car.
T07 - The policeman goes to Sabino Arana Etorbidea and verifies the suspicious vehicle and by checking the number plate discovers that it is a car used to store goods by some citizens living in the neighbourhood. The policeman therefore sends a message to the User to discard SP01 being a nuisance alarm.
2 weeks before the event
T08 - DRA receives an Intelligence Alert IA01: “Risk of potential terrorist attack” that raises the alert level from 1 to 3
T09 - DRA receives WS04 from VA: “A red truck is entering an area close to the Red Zone of the event” (in this case it remains a pure weak signal without follow-up, but if the same truck appears again many times it could become a suspicious pattern according to protocols).
T10 - DRA receives an Intelligence Alert IA02: “Car rental in Madrid has noted a non-returned yellow van with 6 wheels and plate number [2018 LET]”
T11 - DRA receives WS05 from VA: “Plate number [2018 LET] has been detected by the radar control on motorway AP08 nearby Bilbao”. The car was speeding but the delay between the detection and the processing has not allowed to stop the car.
T12 - Using existing rules, DRA creates a new Suspicious Pattern SP02 “Suspicious car” grouping IA02 and WS05

1 week before the event

T13 - DRA receives an Intelligence Alert IA03: “Terrorists present in the Bilbao area”
T14 - ERT decides to

a. Define, around the San Mames stadium, the most internal perimeter in which vehicles are not allowed from the day before the event (Red Zone) and the buffer zone (Orange zone) in which only certain categories of vehicles are allowed from the day before the event (e.g. residents’ cars, couriers’ vans, etc.).
b. Set-up specific hidden CCTV-cameras equipped with VA.
c. After being activated by the Intelligence Alert IA03 (and authorised by a judge), a vehicle with automated OCR for registration plate number recognition of the Bilbao’s Municipal Police (BMP) is patrolling the area around San Mamés stadium and collecting all plate numbers to detect suspicious behaviours.

T15 - DRA receives WS06 from VA: “A brown truck is entering an area close to the Red Zone of the event”
T16 - DRA receives WS07 from VA: “A red van is entering an area close to the Red Zone of the event”
T17 - DRA receives WS08 from the OCR on-board the BMP vehicle “Plate [2018 CRO] present in the Orange zone” (the systems is obviously receiving all the plate numbers of all cars in the area).
T18 - DRA receives WS09 from VA: “A blue car is entering an area close to the Red Zone of the event”
T19 - DRA receives WS10 from the OCR on-board the BMP vehicle “Plate [2018 CRO] present in the Orange zone”
T20 - DRA receives WS11 from a steward of the stadium “A non-authorised person tried to enter the stadium with false credentials”
T21 - DRA receives WS12 from the OCR on-board the BMP vehicle “Plate [2018 CRO] present in the Orange zone”

T22 - Using existing rules, DRA creates the SP03 "Suspicious vehicle with plate [2018 CRO]" (simultaneous group SGSP), grouping WS08, WS10 and WS012 (the same car passing 3 times on the same place in a short period - it could be a vehicle exploring the place).
T23 - The operator alerts the commander that authorises patrols to stop the vehicle with plate [2018 CRO] for a security check. The car is stopped, and the passengers are found with a camera with pictures of all the security installations of the San Mamés stadium.
T24 - DRA receives WS13 from a steward of the stadium "A non-authorised person carrying big back bag tried to enter the stadium hiding himself in a group of organiser's workers"
T25 - DRA creates SP04 "Probing security" grouping (ASP) WS11 and WS13. The operator is alerted, the commander recognises the increased terrorist risk and escalates the level of alert from 3 to 4.

The day of the event, with crowd outside the stadium queuing to enter

T26 - DRA receives WS14 from VA counting people above a given threshold: "The crowd is becoming quite dense"
T27 - DRA receives WS15 from VA: "A yellow van with 6 wheels is violating the Red Zone of the event"
T28 - Using the existing rules, SP05 "Ramming vehicle" is created by DRA grouping SP2 and WS15
T29 - The user is alerted by the DRA tool and decides, for example, to

a. Alert the policemen in the area close to where the yellow van has been detected
b. Run the Real Time Evacuation (RTE) tool or a pre-computed simulation from the Crowd Modelling and Planning (CMP) tool to evaluate if the existing crowd (measured by WS14) can quickly evacuate the place and gets a negative answer.
c. Alert the policemen to stop the yellow van with any possible mean since the crowd cannot be evacuated.
d. Escalate the level of alert from 4 to 5

Other key things to get out of practical demonstrations

- Gathering data would be excellent using actors.
- Technological sensors can be easily replaced by Human Sensors in both the first and second round of practical demonstration without infringing the proposed methodology.
- The event planning can be done hypothetically with the LEAs, but for a real event that they are very knowledgeable on. i.e. do the practical demonstration in LEAs offices using data from a real event.
- Using the tool during real-time of an event is an ambition for the second round of practical demonstrations. It would not be used to make decisions, but we would have a set up at the side of the event to recreate a control room situation and test the tool during the event.
- LEA feedback on the software tool is obviously important. Either during practical demonstrations, we would wish a number of LEA staff to have very brief training in the tool, and to then use it, imagining situations they might encounter and to provide feedback on whether the tool is suitable, if they trust it, did it work during real-time etc.

3.4.3 Crowd Modelling and Planning Tool (CMP): Practical demonstrations

'User' is thought to be an operator who is part of the LEA, that has been trained to use the software. For practical demonstrations round 1, this would likely be Crowd Dynamics

Event Preparation

What does the LEA do?

- User inputs the basic event information like a plan of the event, where crowds are allowed to be or are not allowed to go, where police may be located etc.
- User assesses possible scenarios for crowds
  - Capacity of different areas
  - How the crowd might move
  - What happens during evacuation
  - Test threats like bomb threat in a particular location
- User adds risks to particular locations or can use the crowd modelling to assess risks

Example for a practical demonstration

Performed hypothetically on a real event like a festival in public spaces.

- User inputs the festival boundary, areas where crowd are allowed, where barriers will be on the streets, timing of the event and any other information
- User assesses the capacity of the different areas, and has information on what the density of crowd looks like in each (used to train and brief the officers involved with the event)
- User tests a bomb threat scenario in one street and sees the crowd move away from the bomb, but the density is too high on one street
- User tests what happens in the same scenario when police officers move crowds down a different street
- Information used to form a management strategy for that scenario
- Risk is input at the exact location where crowd density was seen in the scenario and details and mitigation strategy is logged
- Other risks are input around the streets where they are identified

Event Operation

What does the LEA do?

- Update of crowd densities from camera counts
- User updates crowd densities in one area after communication from an officer located in that area
- Commander in control room requests a scenario to be tested
- User tests that scenario using updated crowd numbers
- User reports back to commander

Example for a practical demonstration

Performed in reality using volunteers (e.g. Bavarian students on the campus):

- Crowd Dynamics staff will have pre-set up the area the students will do the exercise in
- User inputs the estimated number of students (or taken from camera data)
- LETSCROWD staff member carries a bag near the students looking suspicious
- Commander asks user to test movement away from a bomb in that location in case the suspect is carrying a bomb
- User tests scenario and records the movement

- LETSCROWD staff member drops the bag and runs away
- Students move away from bag (which hopefully matches the prediction in the simulation)

Other key things to get out of practical demonstrations

- Gathering data would be excellent using volunteers. For example with the Bavarian students, if the scenario input into the CMP can be tested with the volunteers, the real movements can be captured and analysed. The predictions made by the CMP can then be compared to the data for validation. Data gathered during this exercise can then be used to improve the simulation.
- The event planning can be done hypothetically with the LEAs, but for a real event that they are very knowledgeable on. i.e. do the practical demonstration in LEAs offices using data from a real event.
- Using the tool during real-time of an event is an ambition for the second round of practical demonstrations. It would not be used to make decisions, but we would have a set up at the side of the event to recreate a control room situation and test the tool during the event.
- LEA feedback on the software tool is obviously important. Either during practical demonstrations, we would wish a number of LEA staff to have very brief training in the tool, and to then use it, imagining situations they might encounter and to provide feedback on whether the tool is suitable, if they trust it, did it work during real-time etc.

3.4.4 Human-centred Computer Vision Tool (HCV): Practical demonstrations

'In the first round of practical demonstrations three functionalities will be tested: image-based person re-identification and attribute-based people search, in the post-event phase; and crowd monitoring during event execution; the latter will include crowd density estimation, and detection of anomalous patterns of crowd density (overcrowding, or sudden changes in crowd density in a given area).

'User' is intended to be a LEA operator in a control room, or a forensic investigator, who has been trained to use the software tool. For the first round of practical demonstrations the 'user' can be from UNICA. The human-centred computer vision (HCV) tool is assumed to receive real-time videos (during event execution) or recorded videos (in the post event phase) from the video surveillance system in the event venue.

Event Preparation

What does the LEA do?

- For each camera view which will be used for crowd monitoring, the user defines the "region of interest" (the portion of the image where people can be) and the corresponding "perspective map" needed to correct the perspective distortion for crowd density estimation (a quadrilateral in the camera view corresponding to a rectangle on the ground).
- For each region of interest in the camera views which will be used for crowd monitoring, the user defines the maximum number of people ("overcrowding threshold") beyond which an overcrowding alert will be automatically provided by the tool.

Example for a practical demonstration

Performed hypothetically in the venue of a real event by LEA operators, and possibly by technical staff of the body/authority responsible of the video surveillance system. It will be performed in reality by LEA personnel and UNICA staff.

- LEA personnel or other technical staff set up the video cameras.
- The user chooses which cameras will be used by the HCV tool for crowd monitoring (preferably far, near-top views) and which ones for person re-identification and people search (preferably close, near-horizontal views)
- The user defines the regions of interest, the perspective maps and the overcrowding thresholds on the camera views to be used for crowd monitoring.

Event execution

In the first round of practical demonstrations this phase will involve the crowd monitoring tool.

What does the LEA do?

- The user in the control room watches the videos coming from the video surveillance system, and the information provided in real time by the crowd monitoring tool: the estimated people count in each region of interest, and the alerts about detected anomalies in crowd density (if any).
- Whenever needed (e.g., upon request or according to operational procedures), the user communicates the estimated people count in a given area of the event venue to the commander or to officers in the field.
- When an alert occurs, the user checks the corresponding video to validate the alert (to avoid false alarms), and takes a suitable action, e.g., informing the commander or the officers in the field.

Example for a practical demonstration

Performed hypothetically on a real event, and in reality using volunteers.

- LEA and UNICA personnel define a set of simulations in the area where the practical demonstration will be held. This includes how many volunteers are involved and how they will move in that area. Some anomalous behaviours that the crowd monitoring tool is presumed to detect are also planned, e.g., overcrowding, and panic escape leading to a sudden decrease of crowd density.
- The volunteers perform the simulations, while the user watches them in real time on the monitors of the control room, together with the information provided by the crowd monitoring tool.
- LEA and UNICA personnel compare the estimates of crowd density provided by the tool with the known, predefined number of people, to assess accuracy.
- LEA and UNICA personnel check if there are false alarms in the alerts provided by the tool, and if there are missed alerts (anomalous behaviours performed by the volunteers but not detected by the tool).

Post-event phase

In the first round of practical demonstrations this phase will involve the person re-identification and people search tools. In a hypothetical real event it is assumed that the videos recorded during event execution by the video surveillance system, and possibly by cameras worn by LEA officers, are available for forensic investigations.

What does the LEA do?

- Person re-identification tool:

- During a forensic investigation (e.g., related to some incident or crime occurred during the event) the user analyses the recorded videos, and sees an individual of interest in one of them.
- The user wants to find other videos (if any) where the same individual appears, either from different cameras or from the same camera but in a different time, e.g., to reconstruct and analyse the movements of that individual, the actions done, the people he/she may have met, etc.
- The user stops the video where the individual of interest appears, selects from the still video frame a "bounding box" (a rectangle tightly enclosing the body of that individual), and runs the person re-identification tool using the chosen bounding box as a "query" image.
- The user scans and checks the sequence of images (bounding boxes) retrieved by the tool from all the recorded videos, hopefully showing in the top positions individuals with a similar clothing appearance as the query image, and including the individual of interest, if present in such videos.
- If the user finds one or more images of the individual of interest among the ones retrieved by the tool, he/she can access the corresponding contextual information (time stamp, camera, position in the event venue) and can play the corresponding videos for further analysis.

- People search tool:
  - During a forensic investigation the user is given a description of a suspect individual (e.g., by a witness of an incident or crime occurred during event execution, or by a LEA officer), and wants to check if that individual appears in the available, recorded videos.
  - The user inputs the description of the individual of interest in the people search tool, in terms of an "attribute profile", i.e., a set of predefined attributes related to clothing appearance (e.g., colours and textures of upper and lower body clothing), to carried items (e.g., carrying bag), and to soft biometrics (e.g., gender).
  - The user scans and checks the sequence of images retrieved by the tool from all the recorded videos, hopefully showing in the top positions individuals with an attribute profile similar to the input one, and including the individual of interest if present in such videos – the identity of that individual has to be confirmed by the eyewitness.
  - If the user finds one or more images of the individual of interest, using the tool he/she can access the corresponding contextual information (time stamp, camera, position in the event venue) and play the corresponding videos for further analysis.

Example for a practical demonstration

Performed hypothetically on a real event, and in reality using volunteers:

- LEA and UNICA personnel define a set of simulations in the area where the practical demonstration will be held. This includes how many volunteers are involved, how they will move in that area, and among them one or more volunteers acting as the "individuals of interest."
- The volunteers perform the simulations, which are recorded by the cameras.
- Using the recorded videos, the user runs the person re-identification and people search tools (see the above description for the details) for each individual of interest, suitably choosing the query images or the input attribute profiles for testing the tools under different conditions (e.g., relatively large query images with good illumination and no occlusions, vs small query images with poor illumination and some occlusions).
- LEA and UNICA personnel assess the quality of the outputs provided by the tools, including the following aspects: (i) are the top-ranked retrieved images actually similar to the query image or input attribute profile? (ii) how many images of the the individuals of interest

actually been found by the tool? (iii) if so, are such images among the top-ranked ones provided by the tools?

Other key things to get out of practical demonstrations

- LEA feedback on the HCV tool will be fundamental. It will involve aspects including usability, potential usefulness in their operations (e.g., to improve situational awareness in the control room, to speed up forensic investigations, etc.), expected level of accuracy, suggestions of additional features of interest, etc. Such a feedback would be very useful from LEA operators that actually used the tool during practical demonstrations, after a brief training in it.
- From the first round of demonstrations, guidelines are expected to emerge on the fixed/PTZ camera setting (position in the event venue, view, number of cameras, etc.).
- If possible, videos recorded during the first round of practical demonstrations (using volunteers) will be used by UNICA to improve the HCV tool, as they will be likely more representative of scenarios of interest to LETSCROWD than publicly available data sets.
- For the second round of practical demonstrations additional functionalities of the crowd monitoring tool will be implemented and available for testing. The planned ones include the detection of patterns and of anomalies in crowd movement.
- For the HCV tool, one limitation of the practical demonstrations sketched above could be the relatively low number of volunteers involved, which could be not representative of very crowded events. It would be very useful, if possible, to use also video footage recorded during real events, if it is available to LEAs: in the context of practical demonstrations such videos could be stored and processed only on computer facilities owned and controlled by LEAs.
- As already envisaged for other tools, also using the HCV tool during a real event is an ambition for the second round of practical demonstrations: it would not be used to make decisions, but we would have a set up at the side of the event to recreate a control room situation, or a post-event forensic investigation scenario, and test the tool during and after the event.

3.4.5 Intelligent Communication Procedures (ICP): Practical demonstrations

Users: ICP communication guidelines are thought to be used by stakeholders in charge of the communication with the crowd during a mass-gathering event, i.e.: event organizer, Law Enforcement Agencies (LEAs) personnel/ security operators/ first responders to enhance a people-centred communication approach and improve their intercultural competences when communicating with crowd in the pre-event phase and during the execution of the event. ICP include several types of supporting tools according to the two phases of the event: preparation and execution.
Type of practical demonstration: ICP can be tested through tasks simulation activities, such as a prior coordination meeting among the stakeholders usually involved in the communication strategy creation (i.e. event organizer, municipality representatives; LEAs/ first responders - i.e. firemen, medical emergency service -; media partners).

In the case of ICP, the first round of PDs will concern the event preparation phase.

Event Preparation

What do the LEA and the other stakeholders involved are supposed to do?

- Users read the general communication recommendations concerning the pre-event phase to set up a people-centred communication approach and be aware of the socio – cultural aspects to be taken into account when communicating with a multicultural crowd;
- In case of festival or sporting event, users read also the specific recommendations concerning these types of events;
- Users identify the target audience attending the mass gathering event filling the TOOL #01 (Template for identifying the target audience). It can be used to list all the sub-groups of the audience attending a mass gathering event and to write key points and characteristics to be considered for delivering effective messages;
- Users map the most suitable channels to communicate with the identified target audience, filling the communication channel template - TOOL #02. It aims to mapping out the communication channels suitable to communicate with the audience expected to attend the event or to distinct groups of people that can be directly or indirectly involved in the event, taking into account both the channel characteristics and the audience's needs and specificities;
- Users work out warning messages for the identified target audience (see template TOOL #03), according to likely security scenarios based on the analysis carried out in the static risk assessment;
- Users read the triggering questions in order to check if all relevant tasks when setting up a communication strategy have been carried out and to verify if other important issues need to be discussed.

Example for a practical demonstration
PD: focus group simulating a prior coordination meeting with stakeholders involved in the communication management.

PD will be based on a hypothetical real event like a festival or sporting event. In the case of a festival, an event organizer - currently missing in the consortium - needs to be involved because of its crucial role in the communication management.

Phase 1 – BRIEFING: Deep Blue team will present the ICP communication guidelines and their components (i.e. general and specific communication recommendations, triggering questions and TOOLS #01 – 02 -03).
Phase 2 - FOCUS GROUP EXECUTION. The task simulation will be carried out through structured activities. Users will be asked to use ICP guidelines (and components) in order to sketch a communication strategy by taking into account their experience and everyday practices.

Some inputs need to be collected before preforming the simulation (e.g. general information about the event; type of crowd; number of foreign participants, etc.).

Below an example of activity flow to be followed by the task simulation participants:

- Users read the general communication recommendations;
- Users fill in the three communication tools for supporting the identification of the target audience, the mapping between channels and messages and the construction of the warning messages);
- Users can use the triggering questions as check list for building up the communication strategy;
- Users sketch the communication plan for the event.

Phase 3 - DEBRIEFING. Collecting feedback from users on the simulation carried out, the ICP effectiveness and suggestions for further guidelines improvement.

Event Execution

ICP practical demonstration concerning the event execution will be carried out in the second iteration. PD could be performed by including some communication solutions within the CMP – crowd-modelling tool in order to verify, for example, the effectiveness of some channels on crowd behaviour.

Other key things to get out of practical demonstrations

- ICP should be considered as guidelines and recommendations to be used by people in charge of the communication with the public for building up the communication strategy.
- Therefore, ICP communication guidelines can be evaluated and validated through focus groups sessions with LEAs personnel and communication experts in order to collect useful feedback to refine and improve the guidelines effectiveness.
- LEAs feedback on the communication guidelines is really important to refine the contents for the second round of practical demonstrations. Main inputs to be collected concern: usability, perceived usefulness and effectiveness, suggestions for improvements.

3.4.6 Semantic Intelligent Engine (SIE): Practical demonstrations

'User' is thought to be an operator who is part of the LEA, that has been trained to use the software. For practical demonstrations round 1, this would likely be Expert System and Pluribus One. Note that we use the term "document" to refer to any text piece extracted by the web crawler. That is, web pages content, news, messages in social media or forums.

- Regardless of the Event phase to start using the Text Analysis Engine the user needs to provide basic metadata about the event such as name, description, location and dates. Additional information regarding the event (e.g. type of event, conflict history, event duration) and information regarding digital assets related to it (domain names & IP, website(s), social media pages, information regarding the web agency responsible for the event (including key people in the agency directly responsible for the specific event), accounts related with the event, specific software applications used in the event) should be also provided whenever available.

Events in preparation or execution Phase

For events in Preparation or Execution phase the user needs to gather data from the web which is the main input asset of the Text Intelligence Engine. Therefore, the first activity is to identify the relevant web sites (news/social network/forum/wiki) from which the system can collect text messages that later are transformed into structured data for its analysis.

Once these data sources are identified the user needs to configure the web crawler that is the module in charge of retrieving the information from the data sources:

- For each web site/social network/forum/wiki to use as source of data
  - Configure the corresponding crawler plugging. For example, for a news site the user needs to specify the URL of the section, the dates that he wants to monitor the website, etc. If the source requires authentication to be crawled, valid user credentials should be provided.
- User runs the crawler configured plugins to start gathering data for analysis

After the crawler has started retrieving data the user has available the tools to analyse this data: The Intelligence Dashboard that provides a high-level view of the data identified by the text intelligence engine, and the Semantic Search Engine that can be used to inspect in detail the document collection.

Example for a practical demonstration
Performed hypothetically on a real event like a festival in public spaces during the preparation or execution phases.

- User configures and run the crawler in the following way:
  - Retrieve news from local newspaper electronic editions where the event is mentioned
  - Retrieve public tweets the event or its hashtag is mentioned.
  - User runs the crawler to retrieve data
- User uses the Intelligence Dashboard to monitor the information flow that the crawler is producing
  - Check regularly the summary report on the collected information about the digital assets associated with the event;
  - Check regularly if retrieved documents are being placed in security related-taxonomies of interest (e.g., Crime, CyberCrime or Terrorism).
    - If any document fits in these taxonomies check it in detail within the intelligence dashboard or use the search engine to visualize it. If required and available, the document author information, as in the case of social media, could be used for getting more information.
    - The activity of specific groups of individuals may be monitored. This activity may be limited in scope to some social media platforms and may require specific authorization to overcome legal barriers.
  - Check regularly the use of slang (Military, Cybercriminal, Criminal) in this document as an indicator of possible threats.
    - Authors, when the information is publicly available, that frequently used this kind of slang could be subject for a in deep analysis.
  - Check regularly the emotions expressed in the documents, especially the ones related to bad emotions such as hate, sadness, anxiety.
    - These documents should be inspected to see if there is an indicator of possible threat for the mass gathering.
  - Check regularly indicators of security hazards:
    - Against social engineering attacks;
    - Against technical targeting the IT infrastructure of the event;

Post event Phase

The text intelligence Engine could be used to analyse all the data that was collected for an event so that the decision-making process during the preparation or execution phase could be analysed. Thus, it is required that the web crawler was set up and run in the preparation or execution phases.

Example for a practical demonstration:
There was a security issue in the mass gathering that affected an important number of people. Now that the LEA in charge of the event knows how the facts happened (e.g., people responsible, timeline, etc.) it wants to find if any evidence is left in social media profiles and web pages of interests that could have been used to detect the threat in an early stage.

3.4.7 Real-time evacuation tool (RTE): Practical demonstrations

'User' is thought to be an operator who is part of the LEA, who has been trained to use the software. For practical demonstrations round 1, this would likely be UC staff.

Event Preparation

What does the LEA do?

- User inputs the basic mass gathering event information like the expected number of people, number of exits available, exit widths, distances from the crowd to the exits.
- User assesses possible evacuation exiting scenarios
  - Capacity of exits
  - Pre-evacuation time distributions
  - Distribution of people per each exit (i.e. familiarity)
  - Test threats likely to reduce the available escape routes i.e. making exits unavailable due to bomb threats, shooting attacks, etc.
  - Explore different evacuation exiting strategies

Example for a practical demonstration

Performed hypothetically on a real event like a festival in public spaces.

- User inputs the number of expected patrons, travel distances toward the exits (in m), the available entrances/exits and their capacity in (per/s m) and people behavioural parameters: pre-evacuation time (s) and walking speeds (m/s).
- User tests a base scenario with all entrances/exits available and obtain information of the required escape/exit time with an optimal distribution of people in each (% of total population).
- User tests "what if" scenarios in case of different exits unavailable due to an emergency (i.e. bomb threat, shooting attack, etc.), identifies worse case scenarios and compares optimal vs realistic number of people assigned to each entrance/exit

The tool can be very useful when designing accesses, and other restrictions and conductions of the public. For example, when designing security perimeter strips and know their impact and impact to the evacuation according to self-protection plans. The safety criteria serve as limits to the security restrictions.

Event Execution

What does the LEA do?

- Update of number of patrons
- User updates the available exits and their capacity (if it changes)
- User updates the distribution of people per exit (if required)
- Commander in control room requests a scenario to be tested (there is a need to now the required exit/escape time and the optimal strategy under current situation and/or hypothetical changing conditions)
- User tests that scenario using updated information (number of patrons, exits availability and capacity and distribution of people per each exit)
- User reports back to commander

Example for a practical demonstration

Performed in a real event (e.g. non-emergency exiting from the San Mamés Stadium)

- User introduces inputs to the model (number of people, number of exits, exits width and capacity, distance to the exits and behavioural characteristics)
- The commander makes a preventive security decision that limits the number of available exits and/or their capacity when the match ends (i.e. a security perimeter, anti-terrorist barriers, etc.)
- The commander asks user to run both the base model with all exits available and the preventive security scenario with limited exits capacity to compare the impact of the preventive security decision on exiting process

Performed in reality using volunteers (e.g. Ertzantza security exercises and/or Bavarian students on the campus):

- An area with participants (i.e. > 100) and several exits (more than one) is considered
- User introduces inputs to the model (number of participants, number of exits, exits width, distance to the exits and behavioural characteristics)
- A hypothetical threat (i.e. a suspicious package) is located in a given place (i.e. near to an exit)
- Evacuation is triggered
- Commander asks user to test evacuation of the current situation
- User tests scenario and records the required evacuation time
- Participants leave the zone
- Simulation predictions are compared to the real evacuation

Other key things to get out of practical demonstrations

- Gathering data would be excellent using various exercises by changing the exiting conditions. For example, if the scenario input into the RTE tool can be tested with the volunteers, the evacuation times as well as the number of people per exit can be captured and analysed. The predictions made by the RTE tool can then be compared to the data for validation. Data gathered during exercises can then be used to improve the simulation.
- The event planning can be done hypothetically with the LEAs, but for a real event that they are very knowledgeable on i.e. do the practical demonstration in LEAs offices using data from a real event.
- Using the tool during real-time of an event is an ambition for the first and second rounds of practical demonstrations. It would be used to make decisions (when required), therefore it would be appropriate to have a set up at the side of the event to recreate a control room situation and test the tool during the event.
- Using and comparing the RTE tool and the CMP is also desirable during the Practical Demonstrations. This will help us to detect synergies, harmonize and/or combine their potential uses.
- LEA feedback on the software tool is obviously important. Either during practical demonstrations, we would wish a number of LEA staff to have very brief training in the tool, and to then use it, imagining situations they might encounter and to provide feedback on whether the tool is suitable, if they trust it, did it work during real-time, etc. and also suggestions to improve the tool.
- It is necessary to consider that the actions of the LEAs, with regard to the evacuation, can have a positive or negative feedback.
- Any action that has a negative feedback has to be introduced as a risk variable in the DRA, to be evaluated.

3.4.8 Pre-event Security decision support for LEAs (PSD): Practical demonstrations

'Users' are thought to be operators who are part of the LEA, which has been trained to use the software. For practical demonstrations round 1 and 2, this would likely be both LEAs and/or UC personnel.

Event Preparation

What does the LEA do?

- User inputs the mass gathering event information (event details, venue, crowd characteristics and intelligence information)
- User assesses possible security measures based on the tool outputs (i.e. indicator of security hazard and the corresponding task force protocols)
- User updates the inputs (when necessary) according to updated/new information

Example for a practical demonstration

First stage.- Performed hypothetically on real events

- Several real or hypothetical events are selected for the analysis
- Several users (4) apply the tool in parallel for assessing the events
- Outputs (tool reports) are put together, compared and discussed

Second stage.- Performed hypothetically on a real event(s), like a festival in public spaces.

- During the pre-event security meeting, user receives festival information from different security areas involved (intelligence, intervention, antiterrorist, etc.).
- User inputs the festival characteristics: Event (type of event, conflict history, event duration), Venue (venue type, space for crowd, assets to protect), Crowd (number of people, age, purpose, expected crowd behaviour, membership participation, membership identification), Intelligence (expected infringements, terrorist alert level).
- LEAs conduct the current techniques (e.g. heuristic, risk assessment) in parallel and define the security level and the required task forces (security measures, operations, etc.)
- LEAs personnel check and compare the PSD outputs with current techniques results
- The security director requires a new analysis of the event due to changes (new intelligent information, updated estimation of the number of patrons, changes in the terrorist alert, etc.)
- User updates the inputs of the event
- LEAs conduct the current techniques in parallel again
- LEAs personnel check and compare the PSD outputs with current techniques results

Other key things to get out of practical demonstrations

- Feedback from several users will help use to improve the tool (i.e. from round 1 to round 2).
- The practical demonstration is a good opportunity to define the rating scores assigned to each input and the content of protocols, as they will be tailored to each LEA needs.
- Several performance factors of the PSD tool will be analysed: (Knowledge improvements, decision support, provision of additional information, uncertainty treatment, effectiveness, latency, flexibility, usability and perceived usefulness). Also, discrepancies between the PSD tool and the current techniques on per-event security decision will be addressed.
- Information of a database (past events) and intelligence is very useful when using the PSD tool. Therefore, the application of the tool to real events is desirable.
- It would be appropriate to have a set up at the side of the event to recreate a control room situation and test the tool during the pre-event meeting.

- LEA feedback on the software tool is obviously important. During practical demonstrations, we would also wish a number of LEA staff to have a very brief training in the tool, and then use it, imagining situations they might encounter and to provide feedback on whether the tool is suitable, they trust it, it works during real-time, etc. and also suggestions to improve the tool.

3.4.9 LEAs Training Package on Human factors (LTP): Practical demonstrations

'User' is thought to be an operator who is part of the LEA, front line police officers, trained to identify suspicious signs in behaviour and appearance (SS) which may link a person to terrorist activity.

Event Preparation

What does the LEA do?

- After undergone through training program in identification of suspicious signs, user is expected to have the capabilities and skills, while on duty, to be the "human sensor" protecting mass gathering events.
- During the Pre-Event Phase the user
  - Observes all the received Suspicious Sings in behaviour and appearance of the crowd approaching the venue
  - Classifies the received SS, according to its severity.
  - Evaluates if more received SS in a person can be transformed into escalation the level of risk
  - Evaluates if the existing (and new) SSs in more than one person can become Critical when triggered by the received and increase the level of alert
- Decides to act on the basis of existing protocols of alert levels.

Example for a practical demonstration

Performed hypothetically on a real event like a festival in public spaces.

- User takes positions to secure the event at the entrances to the facility.
- The practical demonstration will simulate one or two scenarios: for example a suicide bomber, person carries concealed IED.
- The demonstration can be implemented using some actors playing the roles of the terrorists. User should identify them according to the SS learnt in the training program

Event Execution

What does the LEA do?

- screen the crowd looking for abnormal activity.
- If such activity is identified - update commanders.
- Act according to procedures to negate or verify the SS.
- Report findings to commanders and act according to procedures and instructions.
- If imminent danger is assessed act to isolate area and evacuate crowd.

Example for a practical demonstration

Performed in reality using volunteers (e.g. Bavarian students on the campus):

- User officers will take responsibility of securing/protecting an event (participant volunteers).
- One of the volunteers (herein: Actor) will be dressed up with heavy coat and display nervous behaviour.

- Once approach to the entrance of the venue the Actor will behave in anti-social way and will push other people.
- The police officers are expected to identify the SS and act according to predefined procedures
- Level of alert is increased actions according to protocols
- Isolate the person with SS in the scene and evacuate the area.
- In case of real suicide bomber – cancellation of event

Other key things to get out of practical demonstrations

- LEA feedback on the effectiveness of the training is vital.
- Technological sensors can be easily replaced by Human Sensors

4 PRACTICAL DEMONSTRATIONS GUIDELINE

4.1 INTRODUCTION

This guideline is intended to be used to design PDs. LEAs and technology providers may work together in accordance with this guidance to plan and conduct PD. Table 6 is a matrix presented to provide an overview to the LETSCROWD partners. The proposed matrix is based on (1). This highlights the issues of the PD (i.e. elements to address) and the stages during which the process passes. The elements of PDs are characterized in terms of: Scenario/UC [Sce], Objectives [Obj], Organization [Org], Procedure [Pro], Participants [Par], Data acquisition [Dat] and Performance [Per]. These elements can be defined as follows:

- **Scenario/UC [Sce]**.- The mass gathering event (real or hypothetical) that determines the conditions of the PD and the situation used as basis to test the LETSCROWD outcome.
- **Objectives[Obj].-** Set of predefined achievements to meet through the PD.
- **Organization [Org]**.- Administrative and logistic activities needed.
- **Procedure [Pro]**.- The established method and/or actions to be followed/conducted in a certain order during the PD.
- **Participants [Par]**.- People who take part in or become involved.
- **Data acquisition [Dat]**.- The process, means and manner in which the data and information is obtained.
- **Performance [Per]**.- The way a LETSCROWD outcome does its job. This term can be extended to the tasks, operations and capabilities accomplished measured against predefined requirements and functionalities.

The timeline is categorized as: Design [Des], Preparation [Pre], Execution [Exe] and Evaluation [Eva]. These stages can be defined as follows:

1. **Design [De]**.- The way in which all of the PD are planned.
2. **Preparation [Pre]**.- The process of getting all elements ready or making arrangements for the PD.
3. **Execution [Exe]**.- The carrying out of all the elements during a PD activities in which the LETSCROWD outcomes will be tested
4. **Evaluation [Eva]**.- The assessment of the results collected through the PD

The intersection between elements and stages determines the specific guidance provided. Each cell of the matrix constitutes a key reminder of the PD in question that should be documented.

The nature of this guideline changes according to the stage of the timeline moving from questions during the early stages to a checklist and supervision on the activities. The relevance of the information may differ according to the nature of the PD being conducted. In fact, partners may not need to address all the elements

to the same degree of detail during each of the stages. Indeed, some parts of the guidance may not be relevant in some PDs (i.e. if the practical demonstration does not need participants/volunteers to be recruited and used). However, it is important that partners can be aware of every element and stage.

The roles required during the PD are displayed in Table 7. Although not exhaustive these roles represent the basic members of the practical demonstration team. Note that the roles are not mutually exclusive. In reality an individual may well adopt several of these roles simultaneously.

Team member	Role
Manager (M)	Responsible for overseeing and planning the practical demonstration
Host (H)	Member of staff in host LEA that has access/influence to the implementation of the procedure and is sufficiently senior to liaise with those with overall responsibility for the event
Assistant (A)	Responsible for performing tasks identified by the Manager (M)- collecting material/dissemination information/retrieving equipment, etc. and also responsible for installing equipment and ensuring that they are appropriately configured.
Active Staff (AS)	Those actively involved in the implementation of the procedure. They can be staff from the host LEA or from the technology provider
Data Processor (DP) or Processor	Responsible for processing the data/information on behalf of the Controller
Data Controller (DC) or Controller	Responsible for determining the purposes and means of the processing of personal data; where the purposes and means of such processing are determined by Union or Member State law (GDPR art4.7) (2). The DC is selected from the LEA(s) or the technology provider(s) taking part whenever necessary and exclusively for the PD(s) purposes.

TABLE 7 – Roles required during the practical demonstrations.

PD elements / PD stages	**Scenario/ Use case [Sc]**	**Objectives [Obj]**	**Organization [Org]**	**Procedure [Pro]**	**Participants [Par]**	**Data acq. [Dat]**	**Performance [Per]**
	The Scenario and Use Case(s) involved	The objectives of the practical demonstration	The organizational administrative issues related to the demonstration	Procedure employed to test the outcome(s)	The Stakeholders/ people involved	Data acquisition resources employed	The performance of the LETSCROWD outcome(s)
1. Design [Des]	What type of Scenario and Use Case(s) are of interest? Confirm pertinent Scenario/Use Case details	Describe the LETSCROWD outcome (tool, methodology, guideline, etc.) What do you want out of this demonstration?	What administrative actions might the demonstration require? Process paperwork and complete documentation	What procedure? Examine procedural issues	Determine stakeholders/ people roles and actions	Given the other design factors, what resources do you need? Get resources and confirm acquisition plan	How might the LETSCROWD outcome(s) respond? Establish performance factors
2. Preparation [Pre]	Determine status of Scenario/Use Case(s)	Ensure that objectives are met by procedure	Ensure organization and practical demonstration is integrated	Actions to ensure procedure is executed	Recruitment Confirm that stakeholders/ people act as expected	Install/implement acquisition tools/methods	Enable comparison between actual/expected performance
3. Execution [Ex]	Monitor Scenario/ Use Case(s)	Ensure demonstration meets objectives	Liaise with organization personnel/ authorities	Apply the procedure of interest	Observe stakeholders/ people actions	Acquire data	Monitor/manage performance
4. Evaluation [Eva]	Analyse whether the background conditions of the practical demonstration were as expected. Report main findings and deviations					Analyse and process data	Compare with requirements (D2.1)/ V&V process

TABLE 8 – Matrix with the elements that need to be addressed in practical demonstrations.

Although this is a high-level guidance which does not address details and specific factors it is considered as a useful support for partners to frame their approach. Furthermore, this guideline is also intended for those who may deal with similar actions in other contexts to ensure that PD process is as complete and comprehensive as possible. The following describes basic questions and information based on the intersections between the predefined categories of stages and elements.

4.2 DESING

Des - Sce] What type of Scenario and UC are of interest? Confirm pertinent Scenario/UC details

- What type of mass gathering event is of interest?
- What are the venue details?
- What is the expected crowd?
- What actors (stakeholders) could be involved?
- What is the expected performance of the outcome?

[Des - Obj] Describe the LETSCROWD outcome. What do you want out of this practical demonstration?

- What is the LETSCROWD outcome(s)?
- What do you want out of this PD?
- What parties will be interested in it?

[Des - Org] What administrative actions might the demonstration require? Paperwork and complete documentation

- Does the LEA introduce limitations into the PD?
- What are the potential benefits of the PD to the LEA?
- What are the administrative issues that need to be addressed?
- Previous contacts between partners (LEA(s) and Technology provider(s).
- Site visit
- Prepare details (date, security, access, staff, equipment, expected activities, etc.)
- Procedure (e.g. actions of the team members and desired response of the outcome and/or the target population)

[Des - Pro] What procedure? Examine procedural issues

- What procedure leads to the performances/behaviours of interest?
- What technological resources (apart from the outcome) does the procedure require to be implemented?
- Are there limitations regarding the PD for certain procedures?
- Nature of the procedure/type-scope-objectives
- Type and number of tests to be performed (verification, validation, others?)
- Roles and responsibilities/LEAs personnel-active staff-providers-other stakeholders
- Active staff/number-location-training
- Security procedures and measures

[Des - Par] Determine stakeholders/people roles and actions

- Who are the participants?
- What is the target population? (if required)
- Recruitment of volunteers (if required)

[Des - Dat] Given the other design factors, what resources do you need? Get resources and confirm acquisition plan Main questions

- What data collection methods/tools/means are needed?
- What is the appropriate data format?
- What method of storage will be available?
- How will the data be extracted from this storage?
- Who are M, A, AS, DP and DC?
- Produce acquisition documentation
- Devise general plan
- Select/configure command point

[Des - Per] How might the LETSCROWD outcome(s) respond? Establish performance factors

- Does the outcome need to be configured in advance?
- Are there any training/tutorials necessary to use the outcome?
- Who will use the outcome?
- What input data is required?
- What outputs does the outcome produce?
- Which performance factors will be tested? (requirements specifications in D2.1)
- What are the acceptance criteria? (requirements specifications in D2.1)

4.3 PREPARATION

[Pre - Sce] Determine the status of the Scenario/UC

- Confirm the scenario
- Collect and analyse information of the scenario
- Check that the scenario is appropriate
- Ensure that the UC case is applicable
- Inform (M) of any serious discrepancies

[Pre - Obj] Ensure that objectives are met

- Does the current situation allow the original PD to be conducted?
- Ensure that current conditions, and any recent changes to the procedure, activities, resources are able to meet the objectives set previously
- Report back to M any significant discrepancies from the proposed activities
- If there are any changes, ensure that they do not affect safety & security levels

[Pre - Org] Ensure organization and practical demonstration is integrated

- Liaise with pilot site leader (H) to ensure that the event will proceed as planned
- Confirm that paperwork is completed
- Confirm that no-high level decisions have been made that will influence the PD
- Inform team members (if appropriate) of decisions to proceed and/or any changes to the procedure

[Pre - Pro] Actions to ensure procedure is executed

- Organize, pre-event organization meeting, if planned
- Ensure that team members and other stakeholders have the necessary resources
- Familiarize self with the procedure
- Check for discrepancies/changes in the procedure. May require contact with (H) and (AS) to clearly establish this

- Establish whether other procedures currently employed (not directly related to the event) may influence the outcome

[Pre - Par] Recruitment. Confirm that stakeholders/people act as expected

- Confirm participants roles and activities
- Conduct recruitment of volunteers, if needed
- Prepare and deliver documents (information letter, informed consent form, registration, etc.)
- Inform (M) of any serious discrepancies
- Ensure that changes do not introduce new safety and security concerns

[Pre - Dat] Install/implement acquisition tools/methods

- Confirm data acquisition plan and ensure it is distributed and that everyone is familiar with it
- Ensure that room/space and manual equipment is available
- Distribute and confirm communication devices
- Ensure that the practice/procedure does not compromise the safety and security
- For (DC) determine the purposes for which and the manner in which any personal data are, or are to be processed, kept and destroyed.

[Pre - Per] Enable comparison between actual/expected performance

- Install and configure the outcome in the demonstration site, if needed
- Verify that the outcome works as expected (i.e. conduct a preliminary hypothetical test)
- Confirm the end user(s) of the outcome
- Confirm that each end user has received training/tutorials and know how to use the outcome
- Ensure that the required input data is available
- Familiarize self with the tests/procedures in place
- Prepare the outcome for the PD

4.1 EXECUTION

[Exe- Sce] Monitor Scenario/UC(s)

- Record the status of the scenario/use case during the PD
- Monitor changes of the scenario/use case
- Report serious discrepancies to responsible, especially those that impact outcome performances and/or safety of security.
- Modify the procedure plan if serious discrepancies occur

[Exe- Obj] Ensure demonstration meets the objectives

- Determine whether the demonstration should be modified to cope for any discrepancies
- The discrepancy could be reported back to (M), if there is the possibility of correcting it

[Exe- Org] Liaise with organization personnel/authorities

- Remain in contact with (H)
- Provide feedback to personnel (A), (AS), (DP) and (DC), if needed be.
- Ensure that contact is maintained between team members to allow the demonstration to proceed smoothly.

[Exe- Pro] apply procedure of interest

- Ensure that the execution of the procedure
- Review current conditions

- Implement procedure plan
- Engage in PD activities
- Remain in contact with participating staff to receive report on progress
- Report significant issues especially those that impact outcome behaviour and/or performance

[Exe- Par] Observe stakeholders/people actions

- Modify procedure plan should serious discrepancies occur between the expected and the actual participants
- Monitor situation. Report back to personnel, if needed be
- Record the status of the participants during the PD
- Report significant discrepancies to (M) especially those that impact behaviour and actions of participants

[Exe- Dat] Acquire data

- Implement data collection activities according to the procedure
- Modify data collection activities if necessary
- Acquire data as per the acquisition plan
- Receive reports on data acquisition activities
- Storage and kept data following ethical standards
- Report technical issues

[Exe- Per] Monitor/manage performance

- Run/apply the outcome as planned
- Monitor the status of the outcome
- Record performance factors
- If any tests fail, repeat if possible
- Report significant discrepancies to (M) especially those that impact performance factors and results produced by the outcome

4.2 EVALUATION

[Eva - Sce, Obj, Org, Pro, Par] Analyse whether the background conditions of the practical demonstration were as expected. Report main findings and deviations

- Have a clear script/timeline of the PD conducted
- Determine whether program activities have been implemented as intended
- Monitor progress and compare the actual conditions with expectations
- Provide a plan for future actions i.e. second iteration of PD

[Eva - Dat] Analyse and process data

- (DP) should be mindful of other components of data acquisition
- Extract data/information and take samples (data/information) from (DP)
- Provide data-set/information that can be analysed in a manner consistent with the objectives
- Analyse data
- (DC) provide and apply personal data protection mechanisms and procedures

[Eva - Per] Compare with requirements (D2.1)/Verification and Validation

- Check results of different tests conducted:
- Determine whether the outcome:
- Conduct an outcome performance assessment

5 CONCLUSIONS

This document has established practical demonstrations (PDs) for the LETSCROWD project. A survey methodology has been used to know interests, wishes and expectations of the LEAs and technology providers. The methodology was divided into the following phases:

1) Analysis of Use Cases, requirements and real-life scenarios proposed in previous phases of the project (Deliverables 2.1 and 2.2),
2) Workshop during the meeting in Valencia (30 January 2018) to collect thoughts and ideas, encourage dialogue between partners (technology providers and LEAs),
3) Survey about the description of the LETSCROWD outcomes and the scope of each practical demonstration based on the creation of a narrative scenario (context of the mass gathering event, actors involved, timeline of the event, the tools and methodologies to be tested and the activities usually carried out by LEAs). The information collected were distributed to the LEAs (by asking them) while taking into account their interests and availabilities to easily conduct the following tasks.

This document has also has provided a general guideline for supporting partners to conduct PDs. Ethics should be present in all PDs processes. An updated version of ethics has been also provided in this document (Annex B).

6 REFERENCES AND ACRONYMS

6.1 REFERENCES

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2. **European Parliament.** Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data. [Online] 2016. u/es/publication-detail/-/publication/3e485e15-11bd-11e6-ba9a-01aa75ed71a1/language-en.

3. *Understanding and planning for different spectator crwods.* **Berlonghi, A.** s.l. : Safety Science, 1995, Vols. 18, 239-247.

6.2 ACRONYMS

Acronyms List	
LEA	Law Enforcement Agency
LEP	Legal, Ethical and Policy
KPI	Key Performance Indicator
WP	Work Package
TRL	Technology Readiness Level
DRA	Dynamic Risk Assessment
PMT	Policy Making Toolkit
CMP	Crowd Modelling and Planning tool
HCV	Human Computer Vision
SIE	Semantic Intelligence Engine
ICP	Innovative Communication Procedures
PSD	Pre-event Security Decision
LTP	LEAs Training Package
RTE	Real Time Evacuation
UC	Use Case
ETRA	ETRA Invesigación y Desarrollo S.A.
AMD	Ayuntamiento de Madrid – Madrid municipal pólice
Bayfhvr	Hochschule fur den Offeltlichen Dienst in Bayern
ERT	Gobierno Vasco – Departamento de Seguridad - Ertzaintza
CROWD	Crowd Dynamics Ltd
DBLUE	Deepblue Srl
EENA	European Emergency Number Association
ESI	Expert System Iberia S.L.
LPV	Politiezone Brecht-Malle-Shilde-Zoersel
INTERNO	Ministerio dell'Interno
PROPRS	PROPRS Ltd
PSP	Ministerio da Administraçao Interna
RAILSEC	RAILSEC Ltd
MAI	Ministerul Afarecilor Interne
UC	Universidad de Cantabria
UNICA	Universita Degli Studi Di Cagliari
PD	Practical Demonstration
Sce	Scenario/Use case
Obj	Objectives
Org	Organization
Pro	Procedure
Par	Participants
Dat	Data acquisition
Per	Performance
De	Design
Pre	Preparation
Exe	Execution
Eva	Evaluation

Acronyms List	
M	Manager (team personnel)
H	Host (team personnel)
A	Assistant (team personnel)
AS	Active Staff (team personnel)
DP	Data Processor (team personnel)
DC	Data Controller (team personnel)

TABLE 9 – Acronyms.

7 ANNEX A

7.1 QUESTIONNAIRE FOR LEAS

Law Enforcement agencies human factor methods and Toolkit
for the Security and protection of CROWDs in mass gatherings

1 Scope of Practical Demonstrations

This is a survey to know your expectations and scope for your practical demonstration(s)
(fill in one for each practical demonstration)

1.1 PERSONAL DATA

Name:	**Surname:**
Organization:	

1.2 WHAT ARE YOU WILLING TO USE/TEST?

DRA: A risk assessment methodology that displays static risk assessment	
DRA: A Risk assessment methodology to deal with changing conditions	
PMT: A toolkit for supporting approval (or not) the event	
PMT: A toolkit for reporting a past event	
PSD: A tool for reporting security strengths and vulnerabilities of the event	
CMP: A tool for predicting crowd behaviour	
CMP: A tool for predicting the impact of tactics on crowd	
RTE: A tool for providing optimal evacuation routes	
HCV: A tool for tracking suspicious individual(s)	
SIE: A tool for knowing the risk of Cyber Attacks	
SIE: A tool for analysing semantic info. from Social Media	
ICP: A methodology for effective emergency communication strategies	
LTP: A tool for supporting and improving training	

1.3 PRACTICAL DEMONSTRATION DETAILS

			Comments?
Scenario type (x):	Real-life event		
	Hypothetical event		
Time (x):	Before the event		
	During the event		
	After the event		
Place (x):	In the field		
	Remote		

Executive report-policies 1 / 2

Law Enforcement agencies human factor methods and Toolkit
for the Security and protection of CROWDs in mass gatherings

1.4 WHICH INFORMATION COULD BE AVAILABLE?

Event details		Security info/intelligence	
Venue details		Contingency planning	
Crowd details		Operations/tactics	
Security organization		Monitoring data (i.e. videos)	
Other (specify):			

1.5 WHAT HUMAN RESOURCES COULD BE AVAILABLE?

Own personnel		**Comments?**
For testing the LETSCROWD outcomes		
As volunteers (e.g. perpetrators, victims, etc.)		
Other people/personnel to involve		**Comments?**
Private security		
First responders		
Authorities		

1.6 WHAT FACILITIES/SERVICES COULD BE AVAILABLE?

Site/room for testing		Basic equipment (e.g. furniture)	
Power supply		Transport/accessibility	
Safety and security assurances		Administrative/management support	
Other (specify)			

7.2 QUESTIONAIRE FOR TECNOLOGY PROVIDERS

Law Enforcement agencies human factor methods and Toolkit
for the Security and protection of CROWDs in mass gatherings

1 Scope of Practical Demonstrations

This is a survey to know your expectations and scope for your practical demonstration(s)
(fill in one for each practical demonstration)

1.1 PERSONAL DATA

Name:	**Surname:**
Organization:	

1.2 PARTNER(S) INVOLVED

Main responsible:
Contribution partners:

1.3 LETSCROWD OUTCOME

Name of the outcome(s):			
Select the type (x):	Software		
	Methodology/guideline		
	Tool		
Brief description:			
Expected performance:			
Other related LETRSCROWD outcomes?			

Practical Demonstrations – Survey – Tech. Providers 1 / 2

Law Enforcement agencies human factor methods and Toolkit
for the Security and protection of CROWDs in mass gatherings

1.4 PRACTICAL DEMONSTRATION DETAILS

			Comments?
Scenario type (x):	Real-life event		
	Hypothetical event		
Time (x):	Before the event		
	During the event		
	After the event		
Place (x):	In the field		
	Remote		

Actors involved (x):		**Role as:**
Policy makers		
LEAs personnel		
First responders		
Participants (volunteers)		
Citizens		
Others (specify actors and role):		

1.5 TESTING AND VALIDATION

			Comments?
Goals (x):	Meet requirements (D2.1)		
	Provide outputs as expected		
	Fulfil the intended purpose		
	Meet the needs of users		
	Operate in different conditions		

Type of tests (x):	Component testing (components perform as intended)	
	Functional verification (range of capabilities perform as intended)	
	Qualitative verification (able to work and produce outputs as intended)	
	Quantitative verification (comparing with reliable data)	

Number of tests (#):	Component testing (components perform as intended)	
	Functional verification (range of capabilities perform as intended)	
	Qualitative verification (able to work and produce outputs as intended)	
	Quantitative verification (comparing with reliable data)	

8 ANNEX B

8.1 ETHICS

Engagement with end-users and stakeholders will be a key component of the LETSCROWD project. End-user engagement will mostly take place in WP2 about requirements and use cases and WP6 where integration and practical demonstrations (PD) activities will be developed, also in WP7 where the communications activities will be performed.

Due to the voluntary participation of research subjects needed in LETSCROWD, a complete ethics self-assessment has been carried out in order to ensure that the proposal is compliant with applicable international, EU and national law. Four areas of concern for ethical issues have been identified: “Humans”, “Personal data”, “Third Countries” and “Environmental protection and safety”. Starting from these considerations, a set of procedures will be adopted to protect the privacy of the involved end-users. Information managed by the project consortium during its activities may be of a private or confidential nature, thus access to sensitive information will be carefully controlled with restriction policies where appropriate.

Furthermore, an ad-hoc role of the project management structure, namely the LEPPI officer is already established to monitor and deal with ethical issues during the whole duration of the project.

This section defines how research will be executed in the LETSCROWD project regarding the work with humans and the collection and processing of personal data. In particular, it is described:

1. The procedures to inform and engage users and guarantee their rights.
2. How data is collected, processed and protected
3. The procedures and instruments the partners agreed on to ensure privacy.
4. Procedures to nominate and declare both an External Ethics Adviser and the Legal, Ethical, Privacy and Policy Issues Officer (LEPPI), an ad-hoc role of the project management structure that will monitor and deal with ethical issues during the whole duration of the project.

The ethics requirements of the project will be addressed in deliverables D8.1, D8.2, D8.3 and D8.4.

8.1.1 Recruitment and informend consent procedures

The project focuses on human factors at the centre of the research. The Practical Demonstrations (PD) will include the simulation of attacks to different crowds and environments. Some PDs can be part of routine emergency exercises (e.g. evacuation drills). Other PDs will require participants’ recruitment involving the following activities:

Identifying participants. There are three main categories of participants playing as perpetrator, protector and victim. LEAs personnel are expected to play the roles of perpetrators and protectors as they normally do when conducting drills. Emergency personnel are expected to do their job. In addition, some PD will require volunteers playing as victims and/or citizens to protect. The number of victims will vary per PD. The number of perpetrator and protector participants will be defined by the LETSCROWD consortia. It is expected to recruit not less than 50 and 100 victim participants for PD with Small/Med crowd sizes respectively and more than 100 victim participants for PD with large crowd size.

Recruiting an adequate sample based on study goals and design. A deliberate effort will be made to make the sample representative of the target population (i.e. using demographic information as a reference).

PD design will include an analysis of people participating in a concrete crowded event (depending on the use case), so as to define an adequate sample of PD participants (in terms of sex, age or other parameters). For example, if PD is about emulating a summer festival in South Europe, a study will be carried out to determine the adequate sample of participants based on available information of this kind of events. Participants are likely to be chosen as volunteers from partners, such as workforce interested in these study areas or University students.

Nevertheless, in order to avoid undesirable consequences and due to the nature of the HLUCs, anyone who may suffer pain, injuries, disabilities and/or may endanger other people will be excluded. This includes but not limited to the following people:

- Underaged.
- Pregnant women.
- Temporary or permanent physical, cognitive or sensorial disability.
- Overweight problems (morbid obesity).
- Heart problems, anxiety, stress, etc.
- Any other characteristics and / or affectation that may endanger the safety of the participant or other persons.

Recruitment approaches. Perpetrator and protector participants, as workers, will be recruited by LEAs and Emergency services involved whereas victim participants will be recruited by each manager (M). Due to security reasons, victim participants will be contacted individually preferably by email, phone call and/or face to face interviews. The preselected participants will be invited to an informative meeting beforehand the PD.

The participants that took part in PD may be recruited in a three-step process, implemented by each manager (M), of which:

- The first step was initiated at least one month before the experiment when, due to security reasons, victim participants will be contacted individually preferably by email, phone call and/or face to face interviews. Explicit information about the true purpose of the experiment should not be included at this stage of the recruitment process. It will, however, include information about the objectives and activities of the project.
- In the second step, at least two weeks early to the experiment, participants will apply to the test by providing information about themselves and by filling out a so-called Participant Suitability (PS) questionnaire. The questionnaire will be used to rule out for example sensitive individuals who shows signs of anxiety and/or depression limitations indicated previously. Based on the submitted applications, selected participants will be…
- … In the third and final step, previous week to the experiment, they will be invited to take part in the PD. At this point, they will be asked to sign the informed consent form as a mandatory requirement to participate in the experiments and they will receive additional information about the PD, such as the background and purpose of the study, practical details about the execution, associated risks, handling of collected data, where the results of the study would be published, insurance, possible compensation for participation, etc.

During the whole process and by the moment of experiments all volunteers will have the right to opt out of their application. Besides, those applicants who are not finally selected will be informed and their applications will be destroyed following confidentiality standards.

Adequately explain the study to the potential participants. Information will be given before the PD is initiated since it is not possible to decide to take part if information is only given afterwards. During the meeting, participants will be informed about the LETS-CROWD project and the PD characteristics (expected behaviour of participants, data collection methods, environmental conditions, procedures, etc.). They will be also given safety instructions.

Obtaining informed consent. Informed consent requires that participants have received and understood information about the study, including possible dangers, use of personal data for research purposes so that they can make an enlightened decision to take part If they decide not to sign the Informed Consent Form (ICF), they are opting out of his/her participation in the PD, and therefore all the information related to the candidate gathered up to the moment will be destroyed. A draft Ethical consent protocol is provided at the end of this Section 7.1.1.

LETSCROWD procedures for participants recruitment pays particular attention to the principle of proportionality, the right to privacy, the right to the protection of personal data, the right to the physical and mental integrity of a person, the right to non-discrimination and the need to ensure high levels of human health protection. In relation to the protection of personal data, the principles of lawfulness, fairness and transparency; purpose limitation, data minimization, accuracy, storage limitation and integrity and confidentiality will be respected. For its development, several national and EU legislation is considered, including:

- The compliance with the Article 34 "Ethics and research integrity" of the Grant Agreement.
- Charter of fundamental rights of the European Union (2012/C 326/02)
- European Convention on Human Rights and its Supplementary Protocols
- Horizon 2020 - the Framework Programme for Research and Innovation - Regulation (EU) no 1291/2013 of the European Parliament and of the Council. Article 19 "Ethical Principles.
- The Nuremberg Code
- The European Code of Conduct for Research Integrity

During the lifetime of this project, Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 will be force. The applicants will take this into account to ensure compliance. Summing up:

- Ethical standards and guidelines compatible with, and equivalent to, those of H2020 will be rigorously applied, regardless of the country in which the research is carried out.
- All participants will receive introductory descriptions about the LETS-CROWD project and the purpose of the studies - the purpose and procedure of the research will be introduced in an understandable way.
- It will be emphasized that is the potential participants' choice about whether to be in the study.
- All participants will be informed of their right to privacy and the extent to which participation in this research may impact on their lives – and the mechanisms the researchers have put in place to protect participant privacy through processes of anonymization, pseudonimisation and data storage and security.
- Participants will be informed about duration and effort to participate in any research. The automated processing of data will require in any case human intervention and explicit consent of the interested party except cases covered by a legitimate interest according to article 6.1.F GDPR.
- In any survey/interview people will be informed what kinds of questions we plan to ask, and we will make it clear that people can choose not to answer questions.
- Participants will be made aware of their 'withdrawal rights': that they can withdraw from the research at any time and that, if they wish, any personal data, recordings or images can be destroyed.
- Contact information to the project´s stakeholders will be provided.
- Risks and benefits will be explained ("We do not anticipate any risks to study participants and there will be no financial incentives for people participating in this study").
- If applicable arrangements for insurance coverage for participation will be described.
- Participants will be made aware of the complaints procedure, both to the LEPPI and to the external independent ethics advisor (as part of the international cooperation board).
- Information about incidental findings policy will be included in the ethical consent form

Below a template for the LETS-CROWD information letter and consent form for trials participants is provided, once it has been reviewed by the LEPPI. It includes the minimum contents required, but it will be customized to fit each Practical Demonstration , and a final version will be delivered as part of D8.2. As well a modifiable downloadable version of the ICF can be found in the LETSCROWD repository.

Template of the ICF

Law Enforcement agencies human factor methods and Toolkit
for the Security and protection of CROWDs in mass gatherings

PRACTICAL DEMONSTRATION XX [PDX]
Informed Consent Form (ICF)

This Informed Consent Form is for the development of the PRACTICAL DEMONSTRATION XX [PD X] Drill as a part of the Research and Innovation Project LETS-CROWD "Law Enforcement agencies, human factor methods and Toolkit for the Security and protection of CROWDs in mass gatherings."

Organization: Grupo ETRA I+D
Funded by: European Comission
Project: LETS-CROWD Grant Agreement Number 740466

This Informed Consent Form has two parts:

- Information Sheet (to share information about the study with you)
- Certificate of Consent (for signatures if you choose to participate)

You will be given a copy of the full Informed Consent Form

Part I: Information Sheet

Introduction

LETS-CROWD is a Research and Innovation Project that aims to find new methods for the protection of crowds during mass gatherings. I am going to give you information and invite you to be a part of this research by participating in the Experiment PRACTICAL DEMONSTRATION XX [PD X]. Before you decide, you can talk to anyone you feel comfortable with about the research.

This consent form may contain words that you do not understand If you have questions you can ask them of me or of another researcher. At the end of this document you can find the contact details in case you want to ask questions later.

Type of Research Intervention

This research will involve your participation in the PRACTICAL DEMONSTRATION XX [PD X], consisting in [...] that will take about X hours, and an anonymous questionnaire to be answered at the end.

Participant Selection

You are being invited to take part in this research because you are an adult and fit in the group of people subject to attend to the kind of event that we are trying to simulate in this drill.

PD X - Letter of Information and Consent Form 1 / 4

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Voluntary Participation

Your participation in this research is entirely voluntary. It is your choice whether to participate or not. You may change your mind later and stop participating even if you agreed earlier.

Procedures

We are asking you to help us learn more about human behaviour in mass gatherings and we are inviting you to take part in this PRACTICAL DEMONSTRATION XX [PD X]. If you accept you will be asked to [...].

Risks

Explanation and description of any risks that are possible. The risks depend upon the nature and type of qualitative intervention, and should be, as usual, tailored to the specific issue and situation.]

Benefits

There will be no direct benefit to you, but your participation is likely to help us find out more about how to prevent and protect people during mass gatherings.

Reimbursements

You will not be provided any incentive to take part in the research. However, we will give you [provide a figure, if money is involved] for your time, and travel expense (if applicable).

Confidentiality

We will not be sharing information about you to anyone outside of the research team. The information (personal data, images, video recordings and questionnaires) will not be released namely.

Besides we have a specific procedure to collect, storage, protect, retain and destruct all the information collected today and a responsible (the Data Controller whose contact details you can find at the end of this ICF) to assure the accomplishment of regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data.(GDPR). In addition, this form was reviewed by our Legal, Ethical, Privacy and Policy Issues Officer LEPPI.

In any case, the personal data obtained today will not be transferred to other entities outside LETSCROWD consortium or other states. However, the images and recordings, if you gives us your consent, may be transferred to other EU states and even to third countries, always with the guarantees and research purposes that states this ICF.

Image Release

It is possible that the experiment will be recorded, if you sign this consent you give us the release to use the images with scientific purposes, so it might appear in the dissemination of the project results including papers, conferences, etc. Anonymization will be paramount whenever is technologicaly feasible.

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Incidental findings policy

An incidental finding is defined as a finding that has potential importance, unknown to the participant, which is discovered unexpectedly in the course of conducting research, but it is unrelated to the purpose and beyond the aims of the study.

If an incidental finding related to your person is discovered during this PD X and you want to be informed, please let us now by checking the corresponding box in the Part II Consent Form.

Who to Contact

If you have any questions, you can ask them now or later. If you wish to ask questions later, you may contact the PDX Data Controller (DC) who will answer you within a time period not exceeding one month. You can also contact the DC to withdraw your consent at any time before the PDX execution, or to request access, rectification or restriction of processing, notwithstanding the right to lodge a complaint with a supervisory authority.

Data Controller
Contact Data

If you prefer the Project Coordinator Contact Data are also available below:

Santiago Cáceres Elvira
ETRA I+D
C/ Tres Forques, 147
46014 Valencia (Spain)
Ph.: +34 96 313 40 82
Email: scaceres.etraid@grupoetra.com

This proposal has been reviewed and approved by Paz de la Cuesta Aguado, LETS-CROWD Legal, Ethical, Privacy and Policy Issues Officer, which is the person responsible to make sure that this PDX is in line with the ethical principles within the EU. If you wish to find more, contact

Paz de la Cuesta Aguado
UNIVERSIDAD DE CANTABRIA
Avda. Los Castros s/n
39005 Santander (Spain)
Ph.: +34 942 20 09 34
Email: cuestapm@unican.es

You can ask me any more questions about any part of the research study, if you wish to. Do you have any questions?

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Part II: Certificate of Consent

I have been invited to participate in the PRACTICAL DEMONSTRATION XX [PD X].

I have read and understood the foregoing information. I have had the opportunity to ask questions about it and any questions I have been asked have been answered to my satisfaction. I consent voluntarily :

☐ To be a participant in this PD X and with the processing of you personal data in line with the GDPR.
☐ To give my consent to use my images and videos recorded today for scientific purposes
☐ and that I want to be informed about any incidental finding related to my person.

Participant	Researcher/Person taking the consent
Name:	Name:
Signature ID number	Signature
Date (Day/month/year)	Date (Day/month/year)

* A copy of this ICF has been provided to the participant.

8.1.2 Incidental findings policy

An incidental finding is defined as a finding that has potential importance, unknown to the participant, which is discovered unexpectedly in the course of conducting research but is unrelated to the purpose and beyond the aims of the study.

As LETSCROWD may collect images from participants in PD, the studies may uncover incidental findings. The procedure related to incidental findings is described here.

Informed consent forms, to be signed by participants prior to the demonstrations or any other activity related to the project, will contain statements about the possibility of incidental findings. In all cases, the participant will state his/her preference in the informed consent form to know or not know about incidental findings, and it will be respected. So LETSCROWD will inform participants that if, in the course of research, incidental findings are discovered, they will be informed of the finding if:

- The participant consents (he/she has accepted in the informed consent form); and
- The incidental finding disclosure is deemed advisable by the LEPPI Officer.

In the case any of the LETSCROWD researchers discovered an incidental finding during project activities, he/she will immediately contact the LEPPI Officer to report discovery of the finding. This will be followed by submission of an incidental finding report to the LEPPI Officer and project coordinator within 72 hours (3 days) of learning of the finding. The incidental finding report will be an electronic document (doc or pdf) containing the following minimum information:

- Researchers involved
- General details on the discovery of the finding (location, time and date)
- General details related to the incidental finding: was finding unexpected? did participant indicate willingness to be informed? Will disclosure of the finding have significant welfare implications for the participant? Could disclosure of the finding cause worry/concern for the participant? Is this type of finding likely to be uncovered again?
- Detailed description of the finding and of the action(s) taken (if any).

Finally, the LEPPI Officer, project coordinator and involved researchers will work together to identify the best course of action.

8.1.3 Collection and processing of personnel data

During project execution, there are different stages where privacy and protection of personal data will become relevant.

Procedure for the designation of Data Controller and Processor: Every Practical Demonstration will designate a Controller and one or several Processors that will assume the functions foreseen in the GDPR. Such designation will be communicated in writing to the Project Coordinator. “Controller” will be the person who determines the purposes and means of the processing of persona data. Processor will be the person who process personal data on behalf of the controller.

‘Personal data’ means any information relating to an identified or identifiable natural person (‘data subject’); an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person (ART. 4 (1) GDPR) whatever source these data come from, whether they are collected through informed consent, either open public access data, guaranteeing in any case the legitimacy of their use.

Consent forms: Recording name, last name and signatures, are necessary to give its consent as volunteers in each practical demonstration. These consents will be safeguarded by each pilot site leader and kept in secure location until they are destructed or required by the EC/REA.

Image recording: the project will ask participants for permission to make any images or recording. The authorization for the use and diffusion of the images will be voluntary and will have a retrieval possibility by contacting the Data Controller or the pilot leader.

In order to gain a better understanding of citizens' acceptance of policies and actions, LETS-CROWD will carry out **research surveys, face-to-face and phone interviews, semi-automated analyses of social-network and media**. The recorded data will not include any personal identification; hence, it will not be possible to identify the subjects afterwards.

The project is aware of the importance to kept privacy and the protection of personal data, so the following **standards** are stablished in relation to personal data

- will not be handled out to third parties outside LETS-CROWD
- will not be exploited or commercialized
- will be kept for no longer than necessary
- will not be accessible for use or diffusion outside the project framework
- will be subject to retrieval in case it is requested
- will be destroyed as the relevant scientific purpose is fulfilled

To assure the participants privacy, all data will be anonymized, have undergone pseudonymization, encrypted and stored on a server to which only the relevant staff have access. More specifically the server onto which the data will be stored will have server side encryption. That means that the server's administration personnel will be able to generate public keys for specific personnel who will have access to the data but will not be able to access the data themselves (since the private keys required for this access will be generated on the machine of the person with access to the data). That means that only the required personnel will have access to the data and even in the remote case of a possible data leak or server hack the data stolen will be fully encrypted and thus fully non accessible. A list of participant identities and pseudonyms will be kept on a separate secure server solely in order to ensure that if participants choose to withdraw from the study their data can be located and destroyed if required

Finally, and after a retention period of twelve months, a secure deletion software will be used to destroy data, i.e. using Gutman algorithm that allows erase and overwrite archives more than 35 times.

In case it is necessary a full format can be used in conjunction with overwriting, to provide further assurance that data cannot be recovered, guaranteeing the destruction of the project personal data.

The new General Data Protection Regulation (EU) 2016/6791 (GDPR) which will be applicable as of 25 May 2018 and National legislations applicable to the project will also be traced and follow when applicable, including those mentioned on section 2.2.4.3. Private Data Management in the Description of Action.

In compliance with GDPR, a data controller (DC) and data processor (DP) will be appointed for each one of the Practical Demonstrations (PD). They will have full support from LEPPI Officer regarding legal and ethical questions. Data Controller with the advice of LEPPI officer will confirm that all data collection and processing will be carried out according to EU and national legislation. Furthermore, and in application of the GDPR, on every occasion is necessary, opinion and/or confirmation of competent National Data Protection Authority will be requested.

Summing up, The LETSCROWD practical demonstrations will follow these procedures:

- The collected data will remain the property of each pilot site leader:
- The collected data will be kept securely at all times.
- The collected data will be kept on secure servers under the control of the research team at each pilot site.
- Anonymisation and pseudonymisation techniques will be applied to protect data confidentiality.
- The raw data will not be shared but the results will be shared to facilitate cooperative research amongst the project partners.

- Unless specifically requested and agreed any collected data will be destroyed within 12 months of the completion of the project to allow for end of project dissemination and follow-up.

The project will ask participants for permission to make any images or recording that the project will own and use in public ways – in workshops, conferences, presentations and journal or book articles. The project will explain to the participants how the images and recordings will be used after their participation in the study and the measures that will be adopted to protect privacy and the right to own image. In any case, the images of people will be treated so that they are not identifiable (anonymization). The release will consist of:

- The researcher(s) name and affiliation.
- A title for the research that is sufficiently descriptive to identify the study.
- A description of the material to be released.
- A list of ways how the project want to use the material and how it will be securely stored.
- A statement that signing the release is voluntary.
- The subject's agreement in writing
- Outline of complaints procedure to the external independent Ethics Adviser. Subjects may cancel this consent, at any time.

Data Controller confirms that all data collection, storage, protection, retention and destruction will comply with national and EU legislation.

8.1.4 Third countries

Personal data will not travel between states, in addition none of the Practical Demonstrations will be performed outside the EU.

In relation with RAILSEC, the consortium member from Israel, under no circumstances will be a transfer of data collected during the project.

8.1.5 Data safety procedures

Risks of disclosure of identifiable information

"Every Controller must make a risk assessment according to art. 35 GDPR. In case the result of the evaluation is positive, it should adopt the appropriate measures to minimize the risks detected. In the case of a personal data breach, the Controller must notify it to the Supervisory Authority and to the Project Coordinator, not later than 72 hours after having become aware of it. (art. 33 GDPR)".

- The project will not identify subjects in our reports. Any inadvertent disclosure of private identifiable information will be avoided. If any collected information is accidentally identifiable it will be neither sensitive nor potentially damaging.
- All data will be anonymised and in any report participants will be given pseudonyms. A list of participant identities and pseudonyms will be kept on a separate secure server solely in order to ensure that if participants choose to withdraw from the study their data can be located and destroyed if required.
- No direct identifiers, such as names or email addresses, and no information that would allow someone to deduce our participants' identities will be used in reports.
- If the collected information might be identifiable in a situation in which it is not possible to offer confidentiality, such as group discussions, every effort will be made to protect participant's identity in any kind of publication.

In the event that consent cannot be obtained, anonymisation will be paramount. Personal data or data that will allow to identify the people, will never be published in the dissemination, unless express and specific consent

8.1.6 Health and safety

One of the project priorities will be preserving health and safety of all humans' participants in LETSCROWD,

as volunteers, researchers, staff, etc.

All of them will follow where relevant all health and safety procedures conforming to relevant local and national guidelines and / or legislation.

As regards of the protection of staff, the project will follow Directive 2006/25/EC on the minimum health and safety requirements regarding the exposure of workers to risks, and any applicable EU, and national law, as well as follow the Guidelines of the SRA's Code of Practice for the Safety of Social Researchers.

For the PD, it will be necessary to carry out research "in the field", where health and safety procedures will be stablished, such us:

- keeping careful notes of all research engagements
- ensuring PD are adequately staffed
- using mobile phones to keep in touch with the research base
- conducting full risk assessments of fieldwork sites
- formally notifying authorities of research being conducted in an area
- carrying authorised identification
- researcher preparation & training covering techniques for handling conflict, threats, abuse or compromising situations
- debriefing after field research with an assessment of fieldwork safety and
- reporting any health & safety incidents.

8.1.7 Management issues

An independent Ethics Adviser is appointed to oversee the ethical concerns of the project. This includes overseeing the development and use of ethical consent forms and forwarding these as a deliverable to the Commission and ensuring that those Handling sensitive data are aware of their obligations with regard to confidentiality (ISO/IEC 27001 :2005). The external independent Ethics Adviser will also oversee the 'unforeseen usage' implications of the project; ensure compliance with the GDPR on data protection and privacy and contribute to the periodic reports to the European Commission.

The Data Controller will provide the LEPPI Officer with all the necessary information in order to supervise that all activities respect the EU legal fundamental rights and they are carried out following ethical principles.