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Abstract:
This deliverable presents results of task T.4.1 that analyses best practices in policy making creation in relation with security of mass gathering events, with special considerations of those involving the citizens in the process. The deliverable provides a set of derived policy indicators and measures for the Policy Making Toolkit.

Keywords:
Policy Making Toolkit, mass gatherings, policy issues, best practices, policy indicators and measures, regulation, guidelines

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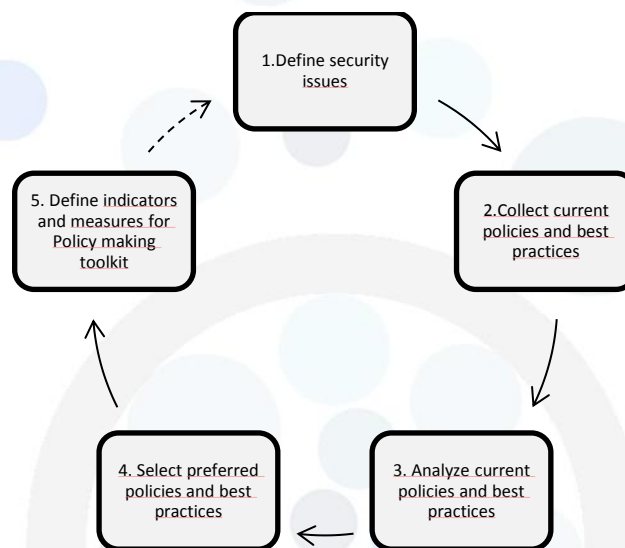
Executive Summary

One of the main outcomes of LETSCROWD is the Policy Making Toolkit (PMT) to support policymakers in the creation, in the creation, enhancement and implementation of security policies for mass gathering events. The task T4.1 is the first step in the development of the PMT involving the collection and analysis of security policies and best practices and the definition of indicators and measures that will be used in the tool.

The purpose of this document is to review and analyse existing and innovative policy actions around the world to propose a set of policy indicators and measures for their use in the PMT.

Methodology

A policy analysis methodology was used to define security policy indicators and measures for mass gathering events. The following figure illustrates the main five steps of the proposed methodology.



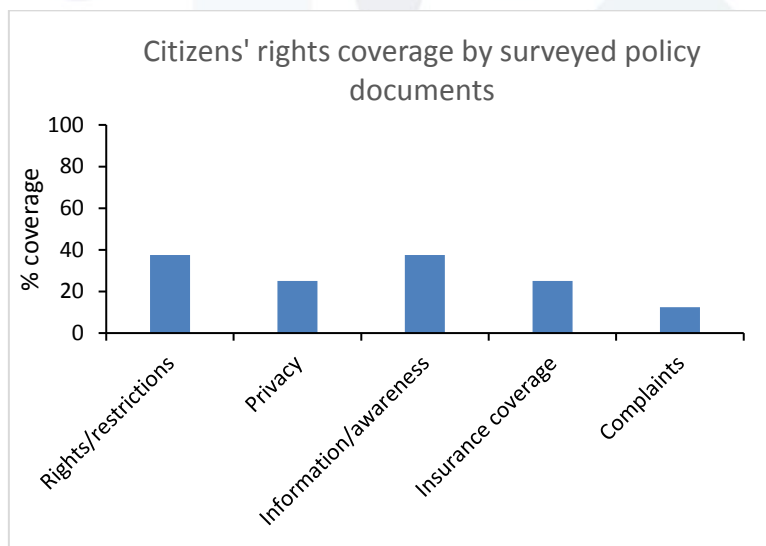
1. Define security issues. This step mainly consists of the preliminary definition of the security issues as a matter of public concern divided into three main categories: 1) Events considered, 2) Legal issues and 3) Security issues.

2. Collect current policies and best practices. This step comprises the collection of the available reference documents: 1) Regulation documents, 2) Standards and 3) Guidelines. The documents can also have different scopes: at national, regional or local levels according to the authority or authorship. The main collected documents were policies in state members (Spain, Italy, UK, Belgium and Germany) that LEAs in the consortium normally use or they considered relevant. In addition, documents from other countries, mainly guidelines, (i.e. USA, Australia, Canada, etc.) were also revised in order to fill the potential gaps, identifying other policies and derived indicators.

3. Analyse current policies and best practices. This step consists of filling a policy survey by the LEAs of the project in relation to policy documents they normally use, and/or they consider of importance in their respective countries/regions. Policy documents were freely chosen by respondents according to their own criteria. In total 16 documents were reviewed showing a picture of the current policies used by LEAs. The three main policy issues previously defined were considered in the survey: 1) Events considered, 2) Legal issues and 3) Security issues. The first policy issue is related to the events and the places where events will happen. The second policy issue involves legality focused on the approval of the event, the definition of roles and responsibilities of the agents involved in a mass gathering event, the possible infringements and sanctions and the rights of citizens. The third main policy issue focuses on the protection of people during mass gatherings against criminal and/or terrorist actions. The survey questions comprise organization, planning and security measures.

From survey results it is apparent that only two policy documents address the three policy and security issues to some extent (i.e. organizational security aspects, planning and police and security measures while other documents only partially deal with a limited number of aspects). However, survey results have shown a clear effort by the public administrations across different state members to regulate and guide decisions in relation with mass gatherings activities. Policy documents mainly address all types of mass gathering events and venues. This is related to the overall purpose of the policies. Legal aspects such as the definition of roles and responsibilities of agents involved (public authorities, organizers, LEAs and stakeholders) and those aspects related with the authorization of events have a good coverage while infractions/sanctions and citizens' rights are less covered in the surveyed policy documents. A lack of coverage is also observed regarding policy and security measures among the policy documents.

Of particular concern in the LETSCROWD project and specially in task T4.1 are those policies involving citizens. The policy coverage in the surveyed documents of different aspects related to citizens' rights is below 40 %. Both the definition of citizens' rights/restrictions and the rights of information and awareness have a coverage of 37.5 %. Lower policy coverage has found in relation to the right of privacy and insurance coverage aspects (25 %). Complaining aspects are only covered by policy documents S2 and S3 (coverage of 12.5 %) which focus on the regulation of public spectacles and recreational activities.



4. Select preferred policies and best practices. The main objective was to define essential policy indicators and their measures for the PMT but also to propose new ones for future policy-making creation. This step involves the choice of the policies and best practices to be considered for the definition of indicators and measures. In total 25 documents were reviewed. The documents were collected following three principles: 1) they are available to the general public. 2) they are written in English and 3) they address mass gathering events safety and/or security issues. The source documents were described according to the following structure:

- International. – international bodies, Australia, Canada, India and USA
- Europe. – European dimension, Czech Republic, Ireland, Sweden and UK

5.-Define indicators and measures for PMT. This step proposes security policy indicators and their measures. Results of steps 3 and 4 allowed the preferred policies and best practices to be divided into the following categories: 1) Event information, 2) the crowd, 3) legal issues, 4) public information, 5) security organization, 6) intelligence, 7) planning, 8) security measures and operations and 9) post-event actions. The indicators were also classified into three types:

- D.- Descriptive indicators specify the state of a system without specific policy interpretations.
- P.-Performance indicators compare values against a standard or target value.

- C.- Composite indicators focus attention on policy issues, offer more rounded assessment of performance and present the big picture in a manner accessible to a range of audiences. A composite indicator is formed when individual indicators are compiled into a single index on the basis of an underlying model.

The measures for each indicator are defined by the type of potential variables (binary, categorical, continuous, discrete and ordinal) and the proposed values likely to be used by the PMT.

Indicators and measures

The main indicators and measures are displayed in the following tables. The complete lists are provided in Section 3 of the present document.

1. Event information

Indicators		Measure	
Description	Type	Type of variable	Proposed values
1.1. Event details	D-P	Binary	Completed/failed to complete
1.2. Type of event	D-P	Binary	Completed/failed to complete
1.3. Venue details	D-P	Categorical	Completed/partially completed/failed to complete
1.4. Capacity of the venue	C-P	Categorical	Complied/partially complied/not complied
1.5. Accessibility	C-P	Binary	Complied/not complied

Indicators [1.1-1.3] are categorized as D-P (descriptive-performance) because they can state the conditions of the event and venue, but they are also likely to be used as policy requirements. Indicators [1.4] and [1.5] are categorized as C-P as they depend on other indicators and are deemed to be used as policy requirements.

2. The Crowd

Indicators		Measure	
Description	Type	Type of variable	Proposed values
2.1. Admission type	D-P	Binary	Free/restricted (sold tickets)
2.2. Size	D	Ordinal	Small (<1.000)/medium (1.000-10.000)/large (>20.000)
2.3. Maximum expected people density	D-P	Ordinal	<i>Rating (1):</i> Low (<0.7 per/m ²)/Medium (0.7-1.2 per/m ²)/High (1.2-2 per/m ²)/Very high (>2 per/m ²) <i>Level of Service of Fruin (2):</i> A (<0.08 per/m ²)/B (0.08-0.27 per/m ²)/C (0.27-0.45 per/m ²)/D (0.45-0.69 per/m ²)/E (0.69-1.66 per/m ²)/F (>1.66 per/m ²)
2.4. Duration	D	Ordinal	Short (few hours)/medium (several hours)/Long (a day)/very long (more than a day)
2.5. Population	D	Categorical	Completed/partially completed/not completed
2.6. Expected behaviour	D	Categorical	Completed/partially completed/not completed
2.7. Characterization	D	Categorical	Completed/partially completed/not completed

Whereas some indicators for the crowd are descriptive (D) other indicators can be also related with expected values and/or standardized references (D-P). For instance, indicator [2.3] offers proposed values to determine the maximum expected people density which may have implications for life safety. Similarly, the expected size of the crowd provided by indicator [2.2] should be taken into account by policy makers, LEAs and other stakeholders. As mentioned, other indicators are purely descriptive (D) such as population [2.5], expected crowd behaviour [2.6] and crowd characterization [2.7]. Although these indicators are subjective estimations that cannot be compared against a standard or target number, they can however facilitate valuable information for security policy actions,

3. Legal Issues

Indicators		Measure	
Description	Type	Type of variable	Proposed values
3.1. key contacts	D-P	Binary	Completed/failed to complete
3.2. Roles and responsibilities	D-P	Binary	Completed/failed to complete
3.3. Authorization of the event	C	Binary	Complied/not complied
3.4. Criteria for cancelation	P	Binary	Complied/not complied
3.5. Infringements	P	Binary	Complied/not complied
3.7. Sanctions	P	Binary	Complied/not complied

Indicators provided in this table are highly related with policy-making and mostly covered by the policy documents. Key contacts [indicator 3.1] and roles and responsibilities [indicator 3.2] are well defined indicators in the current policies as they constitute the basis for legality. In addition, one of the main legal issues for policy-makers is the authorization of the event [indicator 3.3] defined as a composite indicator (C) that depends on many other performance indicators (P). Criteria for cancelation of mass gathering events are also proposed through the indicator [3.4]. Infringements and sanctions are also defined as part of legal issues through indicators [3.5] and [3.6] respectively.

4. Public information

Indicators		Measure	
Description	Type	Type of variable	Proposed values
4.1. key contacts	D-P	Categorical	Completed/partially completed/not completed
4.2. Public opinion gathering	D-P	Categorical	Completed/partially completed/not completed

The proposed main indicators involve a public information plan [indicator 4.1] to deliver relevant information to attendees and citizens and public opinion gathering [indicator 4.2] which is one of the most important aspects proposed for the PMT including methods to explore how the citizens perceive security policies and how it affects their feeling of insecurity.

5. Security organization

Indicators		Measure	
Description	Type	Type of variable	Proposed values
5.1. Leadership	P	Binary	Completed/failed to complete
5.2. Structure	D	Categorical	Completed/partially completed/not completed
5.3. Command and Control	D	Binary	Completed/failed to complete

One of the key issues in security policy making is the security organization. With this regard, three main indicators were suggested to be included in the PMT: leadership [indicator 5.1], structure [indicator 5.2] and command and control [indicator 5.3]. These indicators are considered as relevant in policy making as they reveal how the security is going to be managed for a given mass gathering event.

6. Intelligence

Indicators		Measure	
Description	Type	Type of variable	Proposed values
7.1. Historical data of past events	D-P	Categorical	Completed/partially completed/not completed
7.2. Information gathering of the event	D-P	Categorical	Completed/partially completed/not completed
7.3. Intelligence process	D-P	Categorical	Completed/partially completed/not completed

Intelligence functions are critical for event security. The first indicator [7.1] is descriptive but also could be a performance indicator (D-P). This indicator determines whether the analysis of past events have been conducted or not. The next proposed indicator [7.2] concerns the sources of information (open sources, external sources and/or internal sources). Finally, indicator [7.3] delivers information to PMT users of the intelligence process before, during and after the event.

7. Security planning

Indicators		Measure	
Description	Type	Type of variable	Proposed values
7.1. Risk Assessment	P	Binary	Complied/not complied
7.2. Emergency Plan	P	Binary	Complied/not complied
7.3. Pre-event meetings	P	Categorical	Completed/partially completed/failed to complete
7.4. Training	P	Categorical	Completed/partially completed/failed to complete

Risk assessment and contingency plans are actions often required by authorities. These main indicators are assumed as performance indicators (P). The first indicator [7.1] covers general features when conducting a risk assessment for allowing policy-makers (PMT users) to have evidences of the approach used. Similarly, information of the emergency plan (already conducted or to be conducted) is represented by indicator [7.2] to assess the preventive and response planning actions. Although, there are different approaches, this indicator proposes a wide range of key aspects to be considered and evaluated by the policy makers. The organization of pre-event meetings [indicator 7.3] and training [indicator 7.4] are also considered as necessary activities likely to be included in the PMT.

8. Security measures/operations

Indicators		Measure	
Description	Type	Type of variable	Proposed values
8.1. Workforce	P-C	Categorical	Complied/partially complied/not complied
8.2. Access control/credentialing	P-C	Binary	Complied/not complied
8.3. Deterrence methods	P-C	Categorical	Complied/partially complied/not complied
8.4. Monitoring	P-C	Categorical	Complied/partially complied/not complied

Although security measures and operational aspects are mostly related with LEAs duties and actions, the proposed indicators and measures are intended to provide general but useful information in a standardized way for policymakers and PMT users. Indicators provided here are considered as performance and composite (P-C) as they have policy references and depend on other indicators. Indicator [8.1] determines the security staff and units deployed in a given mass gathering event. Indicator [8.2] is highly related with one of the most important security policy issues which consists of the selective restriction of access for people, vehicles and dangerous objects. Indicator [8.3] is also important for security policies as it mainly focus on deterrence methods against intentional attacks or malicious actions. Indicator [8.4] is related with measures put in place to maintain constant surveillance over the mass event.

9. post-event actions

Indicators		Measure	
Description	Type	Type of variable	Proposed values
9.1. Post-event meetings	P	Binary	Completed/failed to complete
9.2. Event summary	P	Binary	Completed/failed to complete
9.3. Data collected	P	Binary	Completed/failed to complete
9.4. Data analysis	P	Binary	Completed/failed to complete
9.5. Incidents identification	P	Binary	Completed/failed to complete
9.6. Measures put in place for the incident	D-P	Binary	Completed/failed to complete
9.7. Gaps identification and definition	D-P	Binary	Completed/failed to complete
9.8. Post event report	D-P	Binary	Completed/failed to complete

Post event actions involve indicators and measures deemed to be included in the PMT because learning from the past could benefit future policy actions. The main indicators and measures are intended to help policymakers and PMT users to take this into account. There are a number of main indicators related with the organization of post-event meetings [indicator 9.1], summary of the event [indicator 9.2], data collected [indicator 9.3] and data analysis [indicator 9.4], incidents identification [9.5], measures for the occurred incidents [indicator 9.6], the identification of security gaps (faults) [indicator 9.7] and post-event report [9.8]. All these indicators and their measures are presented orderly to facilitate the suggested policy actions proposed by the PMT.

Conclusions

Results presented here can constitute the basis for the next tasks of WP4 (T4.2, T4.3 and T4.4) aimed to build a comprehensive and pragmatic knowledge base that will support security policy making. From the current analysis it is possible to conclude that policymakers, using the PMT with the proposed indicators and measures, will be able to make key decisions (e.g. authorize the mass gathering event, ensuring an appropriate protection of participants and respect the citizen rights) but also to design, implement and evaluate new security policies in the near future.

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1 INTRODUCTION

1.1 PURPOSE OF THE DOCUMENT

LETSCROWD will overcome challenges preventing the effective implementation of the European Security Model (ESM) (3), (4), (5) with regards to mass gatherings. One of the main outcomes is the Policy Making Toolkit (PMT) to support policymakers in the creation, enhancement and implementation of security policies. This toolkit is defined as a knowledge-driven decision-support system integrated by:

- Database of past events and evidences, current policies and legal background.
- Tailored risk assessment methods.
- Intelligent engine (algorithms) for processing and deliver the required information.
- Techniques and tools for civil servants and others involved in policy making (from EU dimension to local authorities) such as behavioural insights (experiments, crowdsourcing), social media analysis techniques and collaboration tools (interchange of information among experts).
- A user friendly Human Machine Interface.

The task T4.1 is the first step in the development of the PMT involving the collection and analysis of security policies and best practices and the definition of indicators and measures that will be used in the tool based on the following principles:

- The indicators will be balanced (i.e. taking everything into account such as legal and security aspects and giving all policies equal attention).
- The indicators will provide information for T4.2 to deliver analytics models based on data, where policy makers can navigate and investigate which are the effects of measures put in place.
- The indicators will be also taken from a fair review of security polices activities within the member states.
- The indicators will provide information to understand development, performance and position of security policy actions.

The identification and definition of indicators and measures needs a review and a systematic analysis of current policies and best practices. Therefore, the purpose of this document is to review and analyse existing innovative policy actions around the world and to propose a set of policy indicators and measures for their use in the PMT.

1.2 SCOPE OF THE DOCUMENT

The document is a contribution to the design and implementation of different applications that will form PMT for policy makers. This deliverable D4.5 is based on D4.1, a progress report that presented the overall methodology used and the preliminary results obtained during the first 7 months of the project.

This document includes a review of regulations in Europe (Belgium, Germany, Italy and Spain) and best practices around the world (Australia, Canada, UK, Ireland, Sweden, USA, India, Czech Republic) with the aim at bringing to the interested security policy makers some existing documents with information and practical guidance for protecting mass gathering events. Although the review is quite comprehensive, it is limited to publicly available documents written in English.

A set of policy indicators and measures are then defined for the PMT to the extent necessary for an understanding of the development, performance and position of the security policy actions.

1.3 STRUCTURE OF THE DOCUMENT

The document is structured around three main sections, apart from this introduction. Section 2 presents the general methodology and a review and analysis of the policies in state members and best practices and innovative policy actions around the world. Section 3 includes the definition of the indicators and measures for the PMT.

2 POLICIES AND BEST PRACTICES

2.1 METHODOLOGY

A policy analysis methodology was used to define security policy indicators and measures for mass gathering events. Figure 1 illustrates the main five steps of the proposed methodology.

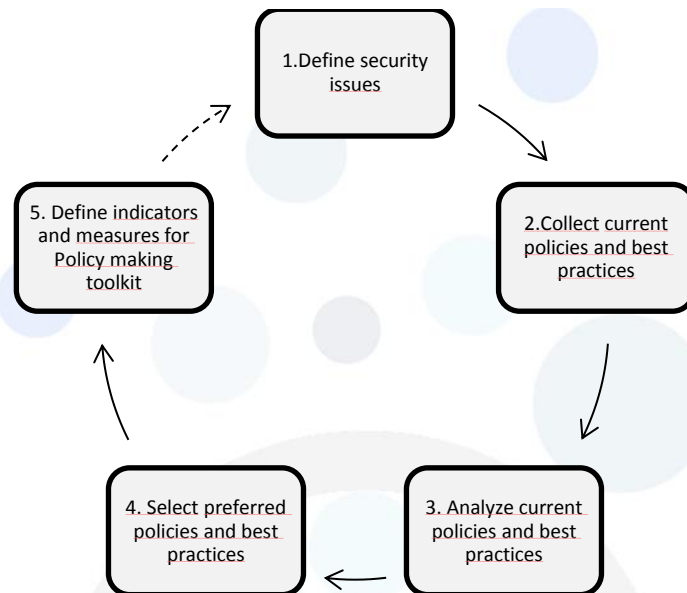


FIGURE 1 – Overall methodology

1. Define security issues. This step mainly consists of the preliminary definition of the security issues as a matter of public concern divided into three main categories:

- Events considered. This involves the scope of the documents. In other words, this issue defines the type of events and the characteristics of the venue considered.
- Legal issues. This relates to the roles and responsibilities (authority, LEAs and stakeholders), the process of authorizing the event, the definition of infractions and sanctions and those aspects involving the citizen rights.
- Security issues. This includes the security organization of the event, the prevention and planning activities and the police and security measures put in place.

2. Collect current policies and best practices. This step comprises the collection of the available reference documents:

- Regulation documents are defined as those documents containing specific requirements adopted and enforced by legal government entities.
- Standards are defined as documents containing mandatory language, usually produced by a technical entity such as an association or society. These documents by themselves have no legal standing, except where they have been adopted by, or on behalf of, a government agency by legislative action or other legal empowerment or authority.
- Guidelines are defined as documents providing recommended policies and practices in the security and/or protection for mass gatherings. These documents are typically prepared by technical associations as well as by certain governmental agencies.

The documents can also have different scopes: at national, regional or local levels according to the authority or authorship.

The main collected documents were policies in state members (Spain, Italy, UK, Belgium and Germany) that LEAs in the consortium normally use or they considered relevant. In addition, documents from other countries, mainly guidelines, (i.e. USA, Australia, Canada, etc.) were also revised in order to fill the potential gaps, identifying other policies and derived indicators.

3. Analyse current policies and best practices. This step consists of filling a policy survey by the LEAs of the project in relation to policy documents they normally use, and/or they consider of importance in their respective countries/regions. The survey consists of questions about the predefined security issues for the analysis (events considered, legal issues and security issues). The analysis is also complemented with a review of best practices, mainly guidelines public available around the world. Information collected is processed to identify indicators and measures that can produce innovative policy actions. Note that the policies and best practices may differ among documents but also, they can complement each other.

4. Select preferred policies and best practices. This step involves the choice of the policies and best practices to be considered for the definition of indicators and measures. The information processed also helps to define the formulation of future policy actions.

5.-Define indicators and measures for PMT. This is the main step of the methodology. The proposed indicators are divided into the following categories: 1) Event information, 2) the crowd, 3) legal issues, 4) public information, 5) security organization, 6) intelligence, 7) planning, 8) security measures and operations and 9) post-event actions. The indicators are defined in a cumulative way (i.e. defining as many indicators as possible) from the policy documents and best practices analysed. The indicators are also classified into three types: descriptive, performance and composite. Descriptive indicators specify the state of a system without specific policy interpretations (e.g. type of mass gathering event). Performance indicators compare values/activities against a standardized target reference (e.g. maximum number of attendees permitted). Composite indicators are formed by several individual indicators to measure multidimensional concepts which cannot be captured by a single indicator (e.g. authorization of the event).

The measures for each indicator are defined by the type of potential variables (binary, categorical, continuous, discrete and ordinal) and the proposed amounts, ranges, values and/or units likely to be used by the PMT.

2.2 POLICY ISSUES

The first set of policy issues are related to the **events** considered in current policies. There is a need to define the mass gatherings and therefore the scope of policy making. Here we use the definition of the LETSCROWD Lexicon:

Mass gathering is defined as an event attended by a sufficient number of people (>1.000) in a specific location, for a specific purpose and for a defined period of time that requires planning, multi-agency coordination and response resources of the host community (state/region/province/city/town/village) where it is being held.

There can be as many classifications of the types of events as policy/guidelines documents. Therefore, a general classification may be considered to cover a wide variety of potential events in consideration based on: 1) sporting, 2) religious, 3) political, 4) cultural and 5) special events. Note that this classification is opened to other types of events (conventions, races, etc.).

The second policy issue refers to the **place where the event happens** (i.e. the venue). Similarly, this issue was intended to be as wide as possible considering: 1) indoor, 2) outdoor, 3) contained venue, 4) uncontained venue and 5) other potential venues. Additional information of the venue can include whether the site is normally used for large crowds or not or whether the site is permanent or temporary.

There may be other policy issues in relation to the **attendees** (e.g. age composition of the audience) and the expected **type of crowd** (ambulatory, cohesive, aggressive or hostile, etc.) and characteristics.

The second set of policy issues are **legal issues** which are directly related with the **approval of the event**, the **definition of roles and responsibilities** of the agents involved in a mass gathering event, the **possible infringements and sanctions** and the **rights of citizens** among others.

Authorization of an event is a key legal issue that can have a strong correlation with security indicators and measures. In fact, one of the main functions of the PMT is providing the authorizers criteria (ranging from knowledge-provision to administrative control) for approving a given mass gathering event. In this case indicators may be also related to those requirements and conditions that organizers/owners must comply with (technical and legal conditions) such as the respecting the fundamental citizens' rights or insurance coverage. Legal issues also involve the defined obligations for the stakeholders (organizers, citizens, LEAs, etc.). It should be noted that legal issues may differ among countries. In this sense, a general framework will be created in the interest of harmonizing the different approaches in the definition of indicators and measures for policy making.

The third policy issues are **security issues** focused on the protection of people during a mass gathering against criminal and terrorist actions. They cover different stages such as organization, planning and security measures.

Organizational issues may involve the definition of leadership authority and management structure (e.g. ensuring a robust command and control following a logical strategy to oversee and coordinate all activities), the communication protocols, emergency procedures and the responsibilities of all relevant parties involved (also including emergency and fire services, stewards and organizers).

Planning issues may comprise risk assessment and/or emergency planning and procedures, inspections calendar, training, meetings and information gathering (i.e. intelligence).

Policy and security measures encompass issues associated with prevention actions or putting precautions in place. For instance, the provision of access control and credentialing, crowd management (access routes, entrances and exits, fences, barriers, etc.), warning/alarm, monitoring and surveillance system, security personnel (number and location), assets deployment, cybersecurity, etc.

It is worth to say that there may be mass gatherings that may not require all security measures and other events that may require additional security measures depending on the nature of the event and associated threats (e.g. explosive detection canines and handlers, cybersecurity, etc.). There may be more security issues not mentioned in this section likely to be included as the documents review evolves.

2.3 POLICY SURVEY OF STATE MEMBERS

This section presents the survey undertaken with LEAs of the project about the policy documents they normally use as reference in relation to security in mass gathering events in their respective countries. Policy documents were freely chosen by respondents according to their own criteria. It should be noted that LEAs also use internal documents with restricted information not included in the present analysis.

The analysed documents are presented in Table 1. In total 16 documents were reviewed (7 in Belgium; 3 in Germany; 3 in Italy; 3 in Spain) showing a picture of the current policies used by LEAs. Policy documents B1-2, B4-5, G1, G2, I1, I2, I3, S2 and S3 are devoted to mass gathering events, policy documents B6 and B7 are related to private security in mass gathering events, policy documents B3 and S1 are general security regulations and the policy document G3 focuses on construction requirements of mass gathering buildings.

Despite the sample of documents and countries is limited, this survey allowed a preliminary analysis to find those aspects in the current security policy implementation that are addressed but also not addressed issues. The proposed survey methodology was also used to obtain information for the definition of the set of policy indicators that should be included in the PMT. Furthermore, this survey methodology is public available and expected to be applied by policy makers and interested parties for further analyses.

Country	Ref*/Name (in English)/date	Type*			Scope^		
		Reg.	St.	Guid.	Nat.	Reg.	Loc.
Belgium	B1.-Circular letter CP4 on the negotiated management of the public space for the integrated police, structured on 2 levels/2011 (6)	x			x		
	B2.-Ministerial circular OOP 41 concerning the operationalization of the CP4 frame of reference on the negotiated management of the public space in connection with events that concern public order/2014 (7)	x			x		
	B3.-Law on the Police Function/1992 (8)	x			x		
	B4.-Law on safety at football matches/1998 (9)	x			x		
	B5.-Circular letter OOP 42ter concerning the broadcasting of football matches on a big screen on the Belgian territory and the organization of events related to football/2018 (10)	x			x		
	B6.- Law regulating private and special security (11)	x			x		
	B7.- Ministerial circular SPV07 – private surveillance at events and festivals (12)	x			x		
Germany	G1.-Regulation and requirements for mass-gatherings and demonstration/2015 (13)	x				x	
	G2.- Guideline for the organization of events published by the City of Munich (other local Guidelines are available – but although this local guideline is used in whole Bavaria)/2015 (14)	x				x	
	G3.- Construction requirements for mass gathering buildings/2013 (15)	x			x		
Italy	I1.-Guide to Organize outdoor events in the Municipality of Rome/2015 (16)			x			x
	I2.-Guidelines for temporary events in the Province of Verona/not specified (17)			x		x	
	I3.-Circolare Gabrielli: Regulation issued by Police Chief on the basis of the feedback from Turin and Manchester events/2017 (1)	x			x		
Spain	S1.-Law 15/2012, June 28, on the Regulation of the Public Security System of Euskadi/2012 (18)	x				x	
	S2.-Law 10/2015, December 23, of Public Spectacles and Recreational Activities in Euskadi/2015 (19)	x				x	
	S3.-Law 3/2017, 5 April of Public Spectacles and Recreational Activities in Cantabria/2017 (20)	x				x	
<p>+ Reference assigned to each policy document in this deliverable</p> <p>* Reg. Regulation.- A document containing specific mandatory requirements adopted and enforced by a legal government entity;</p> <p>St. Standard.- A document containing mandatory language, usually produced by a technical entity such as an association or society. These documents by themselves have no legal standing, except where they have been adopted by or on behalf of a government agency by legislative action or other legal empowerment or authority;</p> <p>Guid. Guideline.- A document providing recommended policies and practices in the security and/or protection for mass gatherings. These documents are typically prepared by technical associations as well as by certain governmental agencies.</p> <p>^Nat. National; Reg. Regional; Loc. Local.</p>							

TABLE 1 – Policy documents from state members analysed

2.3.1 Survey

The survey was conducted by UC to gather information of the three predefined policy issues (this survey allowed a preliminary analysis to be conducted to find those issues in the current security policy implementation that are addressed but also not addressed issues.) considered in policy documents. Closed-ended questions with multiple options were provided (see Annex 1). The respondents were first asked for selecting whether the documents include or not the information displayed in Table 2.

Responders could select one or more options. For instance, if the revised policy document only includes the responsibilities of organizers, the respondent selects the option 2.2.2 according to Table 2. Then, the respondents were asked to briefly describe the contents provided by of the policy documents in relation with the selected information.

<p>1. Events considered</p> <p>1.1. Type. - The type of mass gathering events considered in the policy document:</p> <ul style="list-style-type: none"> 1.1.1. Sporting 1.1.2. Religious 1.1.3. Cultural 1.1.4. Political 1.1.5. Special/major events 1.1.6. Other? <p>1.2. Venue. - The venues considered in the policy document:</p> <ul style="list-style-type: none"> 1.2.1. Indoor 1.2.2. Outdoor 1.2.3. Contained 1.2.4. Uncontained 1.2.5. Other?
<p>2. Legal issues</p> <p>2.1. Roles. - Whether the policy document specifies the roles of:</p> <ul style="list-style-type: none"> 2.1.1. Public authorities 2.1.2. Organizer 2.1.3. LEAs 2.1.4. Stakeholders 2.1.5. Other actors <p>2.2. Responsibilities. - Whether the policy document specifies the responsibilities of:</p> <ul style="list-style-type: none"> 2.2.1. Public authorities 2.2.2. Organizer 2.2.3. LEAs 2.2.4. Stakeholders 2.2.5. Other actors <p>2.3. Authorization. - Whether the policy document defines the authorization process of a mass gathering event:</p> <ul style="list-style-type: none"> 2.3.1. Authority 2.3.2. Events/activities not permitted 2.3.3. Administrative process 2.3.4. Organizer duties 2.3.5. Requirements and conditions <p>2.4. Infraction of the law/sanctions. - Whether the policy document describes the potential infringements "by" and sanctions "to":</p> <ul style="list-style-type: none"> 2.4.1. Organizer 2.4.2. Attendees/citizens 2.4.3. Stakeholders 2.4.4. LEAs 2.4.5. Other actors <p>2.5. Citizens' rights. - Whether the policy document considers the following aspects regarding citizens:</p> <ul style="list-style-type: none"> 2.5.1. Rights/restrictions 2.5.2. Privacy 2.5.3. Information/awareness

2.5.4. Insurance coverage
2.5.5. Complaints
2.5.6. Other related information
3. Security issues
3.1. Organization. - Whether the policy document refers to security organizational aspects: <ul style="list-style-type: none"> 3.1.1. Leadership/structure 3.1.2. LEAs involved 3.1.3. Other agents involved 3.1.4. Communications 3.1.5. Procedures 3.1.6. Any other related aspects
3.2. Planning. - This includes whether the policy document specifies the following aspects in relation to the planning of mass gathering events: <ul style="list-style-type: none"> 3.2.1. Risk assessment 3.2.2. Emergency plan 3.2.3. Meetings/briefings 3.2.4. Inspections 3.2.5. Information gathering 3.2.6. Any other related aspects
3.3. Police and security measures. - Whether the policy document includes specific security policies and/or measures in relation to: <ul style="list-style-type: none"> 3.3.1. Access control 3.3.2. Crowd management 3.3.3. Cybersecurity 3.3.4. Alarm/warning 3.3.5. Surveillance 3.3.6. Security personnel 3.3.7. Asset deployment 3.3.8. Any other related information

TABLE 2 – Survey questions about policy documents

As Table 2 shows, three main policy issues were considered in the survey. The first policy issue is related to the events considered in current policies. There is a need to define the mass gatherings and therefore the scope of policy making. Here we use the definition of the LETSCROWD Lexicon: *Mass gathering is defined as an event attended by a sufficient number of people (>1.000) in a specific location, for a specific purpose and for a defined period of time that requires planning, multi-agency coordination and response resources of the host community (state/region/province/city/town/village) where it is being held.* There can be as many classifications of events as policy/guidelines documents. Therefore, a general classification was considered to cover a wide variety of potential events based on: 1) sporting, 2) religious, 3) political, 4) cultural and 5) special events. Note that this classification is opened to other types of events (conventions, races, etc.). The place where the event happens (i.e. the venue) is deemed to be also important. Similarly, this question was intended to be as wide as possible considering: 1) indoor, 2) outdoor, 3) contained venue, 4) uncontained venue and 5) other potential venues. Additional information of the venue can include whether the site is normally used for large crowds or not or whether the site is permanent or temporary. The second policy issue involves legality focused on the approval of the event, the definition of roles and responsibilities of the agents involved in a mass gathering event, the possible infringements and sanctions and the rights of citizens. Authorization of an event is a key legal issue that is likely to have a strong correlation with security indicators and measures. In fact, one of the main functions of the PMT is providing the authorizers criteria (ranging from knowledge-provision to administrative control) for approving a given mass gathering event. Indicators may be also related to those requirements and conditions that organizers/owners must comply with (technical and legal conditions) such as the respecting the fundamental citizens' rights or insurance coverage.

Legal issues also involve obligations for the stakeholders (organizers, citizens, LEAs, etc.). It should be noted that legal issues may differ among countries. In this sense, a general framework was created in the survey questions with the aim at harmonizing the different approaches in the definition of indicators and measures.

The third main policy issue focuses on the protection of people during mass gatherings against criminal and/or terrorist actions. The survey questions comprise organization, planning and security measures. Organizational questions comprise the definition of leadership authority and management structure (e.g. ensuring a robust command and control structure following a logical strategy to oversee and coordinate all activities) (21), the communication protocols, emergency procedures and the responsibilities of all relevant parties involved (also including emergency and fire services, stewards and organizers). Planning questions focus on whether the policy documents request to conduct risk assessment and/or emergency planning and other activities such as briefings and meetings, inspections and information gathering before the event. Finally, policy and security questions encompass requirements associated with prevention actions or precautions in place. For instance, the provision of access control and credentialing, crowd management (access routes, entrances and exits, fences, barriers, etc.), cybersecurity, warning/alarm, monitoring and surveillance systems, security personnel (number and location) and assets deployment.

2.3.2 Survey results

Tables 3-5 show the coverage of the surveyed security policy issues in the policy documents. In general, these results denote a clear effort by the public administrations across different state members to regulate and guide decisions in relation with mass gatherings activities. A general trend can be seen from Tables 3-5 where policy documents mainly address all types of mass gathering events and venues. This is related to the overall purpose of the policies. Legal aspects such as the definition of roles and responsibilities of agents involved (public authorities, organizers, LEAs and stakeholders) and those aspects related with the authorization of events have a good coverage while infractions/sanctions and citizens' rights are less covered in the surveyed policy documents. A lack of coverage is also observed regarding policy and security measures among the policy documents. From the results it is apparent that only policy documents G2 and I3 address the three policy and security issues to some extent (i.e. organizational security aspects, planning and police and security measures while) other documents only partially deal with a limited number of aspects.

Country	Belgium				Germany			Italy			Spain		
Policy documents reference	B1-2	B3	B4-5	B6-7	G1	G2	G3	I1	I2	I3	S1	S2	S3
1. Events considered													
1.1. Type													
1.1.1. Sporting													
1.1.2. Religious													
1.1.3. Cultural													
1.1.4. Political													
1.1.5. Special/major events													
1.2. Venue													
1.2.1. Indoor													
1.2.2. Outdoor													
1.2.3. Contained													
1.2.4. Uncontained													
	Considered		Not considered										

TABLE 3 – Mass gathering events considered in the surveyed policy documents

Country	Belgium				Germany			Italy			Spain		
Policy documents reference	B1-2	B3	B4-5	B6-7	G1	G2	G3	I1	I2	I3	S1	S2	S3
2. Legal issues													
2.1. Roles													
2.1.1. Public authorities													
2.1.2. Organizer													
2.1.3. LEAs													
2.1.4. Stakeholders													
2.2. Responsibilities													
2.2.1. Public authorities													
2.2.2. Organizer													
2.2.3. LEAs													
2.2.4. Stakeholders													
2.3. Authorization													
2.3.1. Authority													
2.3.2. Events not permitted													
2.3.3. Administrative process													
2.3.4. Organizer duties													
2.3.5. Requirements/conditions													
2.4. Infractions/sanctions													
2.4.1. Organizer													
2.4.2. Attendees/citizens													
2.4.3. Stakeholders													
2.4.4. LEAs													
2.4.5. Other actors													
2.5. Citizens' rights													
2.5.1. Rights/restrictions													
2.5.2. Privacy													
2.5.3. Information/awareness													
2.5.4. Insurance coverage													
2.5.5. Complaints													
	Considered		Not considered										

TABLE 4 – Legal issues considered in the surveyed policy documents

Country	Belgium				Germany			Italy			Spain		
Policy documents reference	B1-2	B3	B4-5	B6-7	G1	G2	G3	I1	I2	I3	S1	S2	S3
3. Policy and security issues													
3.1. Organization													
3.1.1. Leadership/structure													
3.1.2. LEAs involved													
3.1.3. Other agents involved													
3.1.4. Communications													
3.1.5. Procedures													
3.2. Planning													
3.2.1. Risk assessment													
3.2.2. Emergency plan													
3.2.3. Meetings/briefings													
3.2.4. Inspections													
3.2.5. Information gathering													
3.3. Police and security measures													
3.3.1. Access control													
3.3.2. Crowd management													
3.3.3. Cybersecurity													
3.3.4. Alarm/warning													
3.3.5. Surveillance													
3.3.6. Security personnel													
3.3.7. Asset deployment													
	Considered		Not considered										

TABLE 5 – Policy and security issues considered in the surveyed policy documents

A more detailed analysis was conducted by considering those policy documents devoted to mass gathering events (B1-2, B4-5, G1, G2, I1, I2, I3, S2 and S3). Figure 2 shows the events covered in the policy documents. Note that reference documents B4-5 specifically address football matches and therefore they are excluded from this comparison. Sporting, cultural and special events are fully covered while religious events are omitted in policy document S2 and political events in documents S2 and S3 being partially covered (coverage of 89% and 78% respectively). Figure 3 shows a full coverage of indoor and outdoor venues in the policy documents. Although these results are rather indicative than definitive, it is possible to confirm a dedicated effort in the surveyed policy documents for addressing a wide range of mass gathering events. Results are quite different when looking at legal issues. As Figure 4 shows, roles and responsibilities of different agents involved have a fairly good coverage. However, infractions/sanctions are little dealt aspects by the policy documents. Similarly, based on the results presented in Figure 5, policy and security issues have a lack of coverage. Most covered aspects are those related with access control and the development of emergency plans (both with a coverage of 73 %) followed by security personnel and asset deployment aspects (both with a coverage of 55 %). By contrast, meetings, information gathering and surveillance (all with a coverage of 18 %) and cybersecurity and security procedures (9 %) have been found to have less coverage in the policy documents. Surprisingly, neither communications nor the involvement of other agents in the organizational security process are considered in the policy documents.

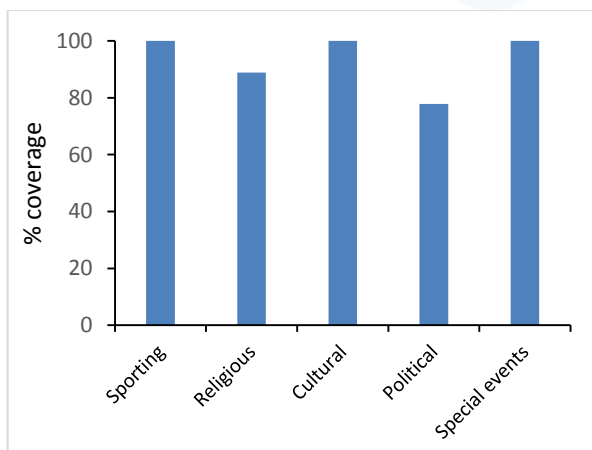


FIGURE 2 – Event coverage by the surveyed policy documents devoted to mass gatherings

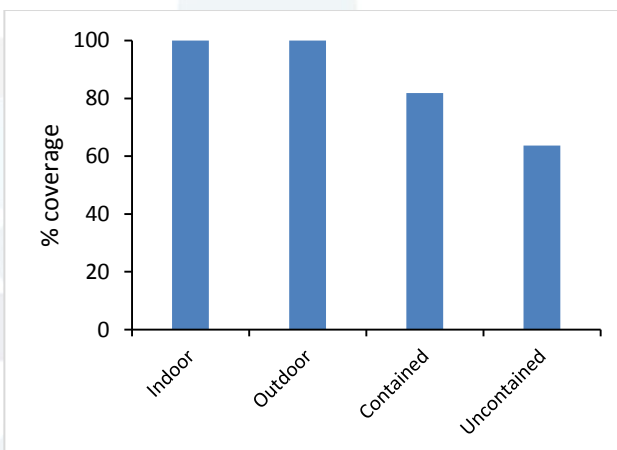


FIGURE 3 – Venue coverage by the surveyed policy documents devoted to mass gatherings)

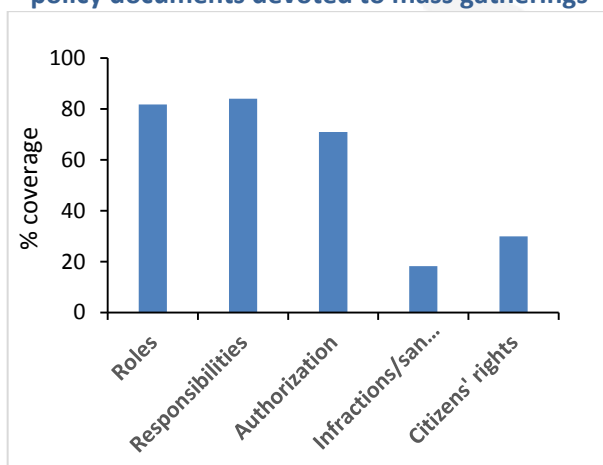


FIGURE 4 – Legal issues coverage by policy documents devoted to mass gatherings

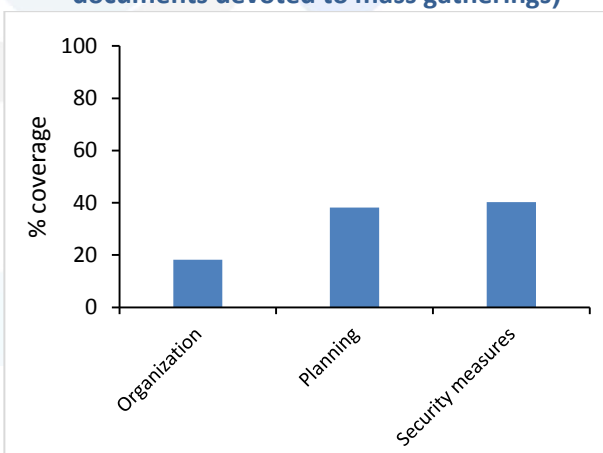


FIGURE 5 – Policy and security issues coverage by policy documents devoted to mass gatherings

2.3.3 Citizens in the reviewed policy documents

Of particular concern in the LETSCROWD project and specially in task T4.1 are those policies involving citizens. As Figure 6 shows, the policy coverage in the surveyed documents of different aspects related to citizens' rights is below 40 %. Both the definition of citizens' rights/restrictions and the rights of information and awareness have a coverage of 37.5 %. Lower policy coverage has found in relation to the right of privacy and insurance coverage aspects (25 %). Complaining aspects are only covered by policy documents S2 and S3 (coverage of 12.5 %) which focus on the regulation of public spectacles and recreational activities.

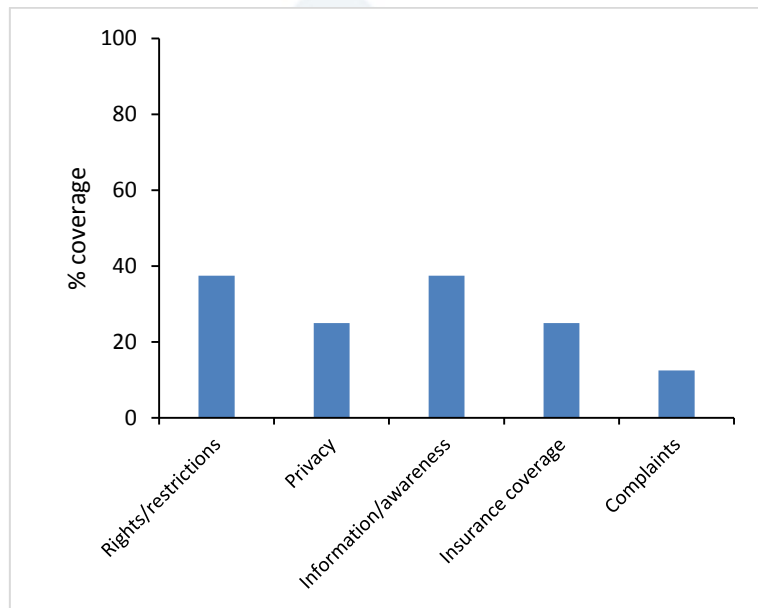


FIGURE 6 – Citizens' rights coverage by all surveyed policy documents

This preliminary analysis on policy making for mass gathering events reveals that 31 % of all policy documents reviewed address citizens' infractions/sanctions. The policy documents B1-2 include the right of peaceful assembly and freedom of expression and freedom of association as one of the most important foundations of the rule of law and protected by the Constitution. However, this document also states that public expressions or activities can pose a threat to public order and to the rights and freedoms of others which should be also protected by the Constitution. Therefore, such activities require special and material (policy) measures to ensure the compatibility of the freedom of some with the freedom of others. The government is guided by the balanced consideration between the protection of the right to meet on the one hand and the necessities public order on the other. Hence, the refusal must be motivated, subsidiary and proportional. The contents of the policy document G1 is in the same line indicating that the freedom of assembly can only be restricted if there are massive concerns about danger for the public order. The policy documents B3, G2 and G3 are more specific in relation with citizens' rights and restrictions. According to the document B3, every person has to be informed of: 1) the deprivation of liberty, 2) the reasons of the deprivation of liberty, 3) the maximum duration of this deprivation of liberty, 4) the substantive procedure of detention and 5) the possibility of taking coercive measures. The document also specifies the person access to: 1) medical assistance, 2) sufficient drinking water, 3) the use of adapted sanitary facilities and the right to a meal. The documents S2 and S3 include the refund of the amount in case of cancelation of the event and specify admittance (but no discrimination) requirements such as avoiding potentially violent people, capacity issues, timing and age as well as the terms for the protection of children and adolescents in relation with admittance to certain events and alcohol and tobacco selling and consumption.

Privacy of citizens is also included in four of the reviewed policy documents (B3, B4, B5 and G1) considering a variety of aspects. The policy document B3 establishes that police officers are not allowed to expose people deprived of their freedom to public curiosity, out of necessity. They may not, without their consent, subject these persons to questions or recordings made by journalists or third parties who are foreign to their cause. Apart from notifying their relatives, they are not allowed to disclose the identity of the persons concerned without having obtained the consent of the competent judicial authority.

The policy document B3 also covers the use of cameras by the administrative police for the collection of information only allowed in cases provided by the law. The use of cameras and the registration system is also considered in policy documents B4-5 during the game and also when the stadium is accessible to spectators. The use of cameras is mandatory in football divisions 1A and 1B. The policy document G1 establishes that the use of video and audio surveillance is only allowed when open and clearly marked.

The right to be informed is treated in the following policy documents B3, B4-5, G1, S2 and S3 in different ways. For example, the document B3 focus on administrative arrests claiming that any person who is subject of an administrative arrest may request that a person whom he/she has confidence be informed of this. The policy documents B4-5 focus on the provision of clear and permanent information to spectators about the rules of internal order whereas the document G1 focus on ensuring that attendants know where any kind of surveillance is. The documents S2 and S3 include the right for citizens to be informed of the event, including admittance requirements.

One of the interest aspects for citizens when attending to mass gathering events is the provision of insurance coverage by organizers and/or public authorities. The policy documents B3, S2 and S3 include this aspect. The document B3 assigns to public authorities the liability for any damages caused by the employees on duty. According to the documents S2 and S3 owners or organizers must have an insurance coverage.

As mentioned the right to complaint is only included in the policy documents G2 and G3 through the provision of claim sheets by the owners.

2.3.4 Survey conclusions

The analysis presented here allowed identifying essential indicators i.e. those indicators that are often present in current policies. Some documents cover certain issues/aspects while others do not. Furthermore, the covered policy aspects differ among policy documents and countries due to their scope and purpose but also to cultural diversity and/or authorship. However, the combination of all the issues/aspects addressed by the policy documents provides valuable information to define as many indicators as possible for the PMT.

The survey proposed here is expected to be used by interested parties in the future for the analysis of more reference documents to increase our knowledge of policy making in mass gathering events.

In addition to the presented quantitative analysis, a qualitative analysis of the descriptive contents provided by the respondents was conducted helping us to:

- Understand the variety of policy approaches among countries
- Know the key aspects on current policy implementation
- Identify gaps in current policies

The main objective of this task was to define essential policy indicators and their measures for the PMT but also to propose new ones for future policy-making creation. To this end, best practices and innovative policy actions around the world were also examined. Next section provides an overview of the main reference documents analysed.

2.4 BEST PRACTICES OVERVIEW

2.4.1 Sources of information

The following sections contain the guidance documents available from various information sources regarding mass gathering events safety and security. The documents were collected following three principles:

- They are available to the general public
- They are written in English
- They address mass gathering events safety and/or security issues

Table 6 displays the identified sources from several countries and international bodies. Note that there are more references on best practices in mass gathering events¹.

International references				
	Title (reference)	Year	Scope	Keywords*
International bodies	The IPO Security Planning Model (22)	2007	Major vents	Security, major events, plans, design, communication, protection, area, manage, model, response
Australia	Crowd Control at Venues and Events (23)	2007	Venues and events	Control, crowd, risk, event, venue, employers, safety, incidents, host, agency
	Guidelines for concerts, events and organized gatherings (24)	2009	Mass events	Mass event, risk, guidelines, crowd, requirements, approval, managers, plans, patrons, control
	Crowded Places Self-Assessment Tool (25)	2017	Crowded places	Location, crowd, people, security, assess, attack, numbers, offenders, terrorist, access
	Crowded Places Security Audit (26)	2017	Crowded places	Security, site, staff, plans, vehicle, information, crowd, CCTV, access, areas
	Hostile vehicle guidelines for crowded places (27)	2017	Crowded places	Vehicle, barrier, security, hostile, design, impact, space, requirements, crowd, pedestrians
Canada	Emergency Preparedness Guidelines For Mass, Crowd-Intensive Events (28)	1995	Mass events	Mass event, spectators, areas, crowd, site, emergency, access, medical, security, public
	Major Planned Events Guidelines (29)	2014	Major events	Major event, Local authorities, special, organization, management, communications, risk, emergencies, security, requirements
	Toronto Host City: Mass Gatherings Risks and Perception (30)	2012	Mass gatherings	Events, local authorities, plans, organization, management, communications, risks, emergencies, security, requirements
India	Managing Crowd at Events and Venues of Mass Gathering (31)	2014	Mass gatherings	Management, crowd disasters, plans, venue, control, response, information, policies, system, communications
USA	Special Events Contingency Planning (32)	2005	Special events	Special events, plans, incidents, emergency, contingencies, public, area, command, management, response
	Planning and Managing Security for Major Special Events (21)	2007	Major special events	Special event, security, plan, agencies, enforcement, communications, management, training, threats, command

¹ Towards enriching the list in Table 6, the authors would be grateful to receive any additional information of missing or newly-produced documents on the subject matter.

	The Event Safety Guide (33)	2013	Events	Event, safety, fire, requirements, plan, management, site, emergency, incident, protection,
Europe				
	Title (reference)	Year	Scope	Keywords*
European dimension	Handbook for police and security authorities concerning cooperation at major events with an international dimension (34)	2007	Major events	State members, major events, organization, information, police, international, security, authority, contact point, cooperation
	Security of the spectacle: The EU's guidelines for security at major events (35)	2011	Major events	Security, major event, threat, police, terrorism, information, assessment, response, sports, services
	The European House of Major Events Security (36)	2014	Major events	Security, major event, policing, plan, international, European, service, public, research, standardization
	Review on Soft target/Public space protection guidance (37)	2018	Soft Targets	Security, Soft Targets, protection, terrorism, attack, design, management, risk, documents, assessment
Czech Republic	Basics of Soft Targets Protection Guidelines (38)	2016	Soft Targets	Security, attacks, Soft targets, incidents, threats, people, staff, suspicious, detection, response
Ireland	Guidelines for Events Organizers (39)	2012	Events	Events, organization, plan, management, safety, requirements, fire, venue, authority, emergencies
Sweden	Event safety Guide (40)	2012	Events	Event, crowd, safety, area, plan, management, staff, risk, emergency, information
UK	The Event Safety Guide (41)	1999	Pop concerts and similar	Event, Safety, site, health, audience, areas, people, plan, management, information
	Guide to Safety at Sports Grounds (42)	2008	Sporting events	Spectators, safety, area, management, barrier, seats, fire, design, capacities, emergencies
	Crowded Places: The Planning System and Counter-Terrorism (43)	2012	Crowded places	Measures, plans, counter-terrorism, security, building, design, application, protection, management, advice
	Protecting Crowded Places: Design and Technical Issues (44)	2014	Crowded places	Security, design, measure, vehicle, building, protection, access, counter-terrorism, management, areas
	Crowded Places Guidance (45)	2017	Crowded places	Security, threats, attack, plan, vehicle, protection, response, staff, risk, system
* The most frequent 10 keywords of each document taken from Nvivo software analysis.				

TABLE 6 – Source best practices documents regarding mass gathering events protection

Next sections review the source documents according to the following structure:

- International. – international bodies, Australia, Canada, India and USA
- Europe. – European dimension, Czech Republic, Ireland, Sweden and UK

A brief summary of each document is included paying special attention to those contents and approaches considered as relevant for the definition of new policy indicators and measures.

2.4.2 International

2.4.2.1 International Bodies

A key general reference is provided by the United Nations Interregional Crime and Justice Research Institute (UNICRI) through the International Permanent Observatory (IPO) on Security Measures during Major Events (22). The IPO Security Planning Model is a common framework to tie national approaches to security planning of major events intended to policymakers and security planners. The document includes the definition of major events and steps for planning by describing the constituents of the proposed model: 1) capacity (in terms of human, physical and technological resources), 2) constraints (financial, time-related and political), 3) intelligence (gathering and analysing information to reduce threats, vulnerabilities and risks) and 4) governance defined as the core of the organisation that leads, plans and implements effective, sensible and pragmatic security measures. Apart from the proposed system, what is interesting from this document is the inclusion of an effective external communication to:

- Create a positive public image for the event.
- Reassure the public about the extent of the operation and communicate information such as traffic disruption, ticketing arrangements, recommended routes, location of facilities, and others.
- Keep the media appropriately informed.
- Monitor international, national and local media reporting.
- Develop strategies to ensure fair and accurate reporting.
- Develop policies and procedures for managing all official responses to media comments on major event security.
- Coordinate and facilitate press conferences on security.

Media and public information strategy is considered as one of the main elements of major events security planning. This includes the design of public information to explain to the community, participants and spectators the security issues as well as restrictions including awareness campaigns. This element also involves a robust media strategy to influence targeted audiences/stakeholders avoiding inaccurate reporting and/or alarmist communication and direct targeted audiences to respond in a certain way. The document also provides examples of checklist questions in relation with security measures both inside the designated secure area (physical and technical means of protection, search and surveillance, cordon control measures, accreditation, access control and VIPs protection) and outside the designated secure area (country access points, traffic operations and tactics of protection of people, critical infrastructures, other soft targets) as well as contingency plans. The risks are classified as terrorism, public disorder, crime, image embarrassment, accidents, emergencies and disasters. To sum up, this document provides innovative best practices that can be used to identify policy indicators and measures in relation with:

- Type of events (definition of major events)
- Organization (leadership, structure and coordination)
- Security measures (resources and logistics)
- Public information (external communication)
- Security measures (specially inside and outside the secure area)
- Security planning (definition of risks)

2.4.2.2 Australia

This country is prolific as far as best practices for mass gathering events are concerned. One of the main references focuses on providing information and tools for crowd control solutions (23). This document includes recommendations to conduct a risk assessment (qualitative approach), key activities for the crowd controllers, incident reporting and references to legislation and other sources of information. From this document crowd risk related solutions are deemed to be used when defining related policy indicators.

Another document of reference is the Guidelines for Concerts, Events and Organized Gatherings (24) which covers a wide range of policy issues. The purpose of this reference is to identify basic standards and safety measures for event organisers which are necessary to satisfy authorities such as local government. The document is divided into two main parts. While Part A includes legal issues defining roles and responsibilities (e.g. security officer and crowd controller) and administrative considerations (e.g. approvals and applications, licensee, insurance requirements), Part B is the proper guideline where several issues are addressed: 1) accessibility and risk management, 2) public building approvals, 3) operational considerations, 4) management of alcohol, 5) drug related issues, 6) reducing the impact of surroundings and 7) amenities. A key point of this document is the provision of practical supporting tools and several measures in relation to the main issues. For instance, one of the aspects fully addressed is creating accessible events. The document provides a checklist for a quickly overview of the accessibility of a venue and function (entrances, parking facilities, internal environment, etc.) by providing measures including an analysis of the information provided in promotional material of the event. Another relevant aspect can be found in the provided checklist of crowd control duties and planning tool where the location and number of crowd controllers as well as their duties are provided (e.g. 1 per 200 m of perimeter security, 1 per entry inside venue, etc.). This document can provide several concepts and criteria for the definition of indicators and their measures in relation to many policy issues for mass gathering events. Nevertheless, the document does not address specific features related with security.

In relation with security of crowded places, the Australian governments are carried out a strategy in collaboration with private sector and LEAs. The strategy includes a set of supplementary materials (documents) for owners and operators of crowded places to understand and implement protective security measures to make these places more resilient to terrorism. These supplementary materials can be found at www.nationalsecurity.gov.au/CrowdedPlaces. The guidelines provide guidance on the issues and options that owners and operators may consider during risk mitigation and contingency planning activities. The guidelines are also designed to increase understanding of the threat posed by particular weapons and tactics (e.g. vehicles, improvised explosive devices) to crowded places.

The Crowded Places Self-Assessment Tool (25) helps to understand the attractiveness of a given crowded place as a terrorist target. The user of this tool should assign numbers to each of the following aspects (rating from 1 to 7): 1) the location is symbolic (historical, iconic, religious or political), 2) the number of people at any one time, 3) whether people gather at the location of predictable basis and 4) the people density. Other aspects (rating from 1 to 5), 5) the significant social importance of the location, 6) the consequences of interrupting the location in its functioning, 7) the protective security of the location, 8) whether the attacker can do its action without detection and 9) access to information about the location by the attacker. Final scores indicate the users the next actions. If the score is higher than 40 the user should contact the relevant area and inform of the results. If the score is 39 or less the user should consider joining Crowded Places Forum. While this tool does not directly provide information to identify possible indicators, it could be used as an example tool to be suggested by policy makers during the planning stage of a mass gathering event.

The other supplementary documents proposed by the Australian government have useful contents as well for the definition of policy indicators and measures. For instance, the Crowded Places Security Audit (26) is a checking list (audit) through questions that should be answered with “Yes”, “No” or “N/A”. The contribution of this document for the definition of policy indicators is clear as it covers a wide range of security issues/aspects such as governance, physical security, access control, perimeter, hostile vehicle mitigation, CCTV, Improvised Explosive Device (IED) blast mitigation, detection of suspicious behaviours and personnel security. Other interesting reference is the Guide about hostile vehicle mitigation (27). Obviously, this document includes useful aspects for defining policy indicators in relation with security measures (tactics, design and barriers) against these types of attack. Other material available focus on IED (46), chemical (47) and armed attacks (48).

2.4.2.3 Canada

There are several references of best practices for mass gatherings events in Canada. The first document is a guide prepared by Office of Critical Infrastructure Protection and Emergency Preparedness (28). The document focuses on crowd management providing measures to be applied to a wide range of events. The document begins with a set of questions to be addressed during the pre-planning stage. Then, venue aspects and spectator management and crowd control are highlighted in a traditional approach. However, this document also proposes practical and innovative solutions for example for defusing i.e. when spectators have an extended wait in line (for tickets or admission) such as playing of up-tempo music over the public-address system, mascots, large inflated beach balls, food and beverage sellers moving through the people. Three types of security are suggested for concerts: 1) peer security, 2) regular police officers in uniform and 3) private security guards in uniform. Post-event actions are also proposed from a public health and environmental perspective (e.g. ensure a proper clean-up is undertaking). Key measures and concepts for venue capacity and crowd management can be found of interest from this document for the definition of indicators and measures.

The second document is the Major Planned Events Guidelines (29) intended to local authorities and event organizers to plan safe and successful events. The Guidelines look at the groups involved from two perspectives: the event functions/roles, and the host community functions/roles. The roles and competencies of LEAs and authorities are well defined and things to consider when conducting a risk assessment and planning considerations are included. What is more important for this review is the plan suggested in this document which includes a table with required information of event description, organizer team, site plan, security plan, fire safety plan, communications plan, traffic management plan, liquor control plan, etc. Another interesting part of this document is the inclusion of communication and social media issues that should be considered by organizers and local authorities (before, during and after the event). Considerations include messaging policies, monitoring of social media, and dedicated resources to manage the social media presence of a major planned event. This reference also includes after action debrief to examine what went well, what could be improved, and changes to be made in policy and planning for the next event. This document helped us to identify and define policy indicators and their measures in relation with security organizational aspects and planning.

Special attention should be paid to the third reference document from Canada as it represents a good example of an innovative policy action. This document presents survey results about mass gathering risk perception in Toronto (30). The survey was carried out online. A sample size of 380 respondents was considered for this descriptive study designed to understand attitudes, beliefs and perceptions of the key stakeholders (public safety & emergency management forces, event planners, organizers). By 47% of the respondents perceived that the biggest challenge is safety and security among other possible options (crowd behaviour, lack of public, impact of social media, likelihood of injury or death, disease outbreak, damage property or public image) and by 74% of the respondents believed that event planning requires the greatest attention when planning for mass gatherings. Another interesting result is that by 43% of the respondents agree or strongly agree that police should take a zero-tolerance approach in crowd management or control. What is relevant from this source document is the provision of information to conduct surveys of public opinion about security polices in mass gathering events which can be suggested by proposed indicators.

2.4.2.4 India

One of the most completed references is a guide for state government, local authorities, administrators and organizers for effectively crowd management at places of mass gathering in India (31). This document mainly deals with crowd management, but it incorporates a holistic approach considering several aspects such as the use modern technological tools/models for effective and efficient decision making, the role of media, legal provisions, understanding of crowd behaviour, information management and dissemination, security among other aspects. Measures to avoid crowd disasters are proposed in this guide such a Rapid Venue Assessment through a rating sheet and an assessment questionnaire.

The document also includes recommendations to inform the visitors in relation with proper briefing, weather, allowed and not allowed to carry out, maps with information such as routes and places of importance, list of activities, expected waiting time, registration requirements and means of transport. The typical functions and competencies of security agencies at the venue of mass gatherings and organizational aspects such as the provision of a command and control/control room as well as the definition of roles and responsibilities of agents involved (i.e. police officers) are also considered. The role of media before, during and after a potential disaster is an innovative approach included in this document. Also, other innovative aspects included in this document focus on the use of Information and Communication Technologies (ICT) for prevention, monitoring and response (e.g. GIS, RFID and CCTV) and the potential inclusion of research trends to improve crowd management and protection (image processing, crowd simulation and crowd behaviour). To conclude, this document offers information that can be used to identify and define policy indicators and their measures in relation with:

- The crowd (crowd classification, crowd management arrangements and past incidents)
- Public information
 - the provision of information to visitors
 - the role of media and managers engagement with media
- Organization (security organizational aspects and duties)
- Innovative security measures
 - the use of technology
 - the inclusion of research trends

2.4.2.5 USA

There are several documents of reference in USA regarding safety and security in mass gathering events. Three main documents of reference were selected. The first reference is the Special Events Contingency Planning (32), a job aids manual published by the Department of Homeland Security (DHS)/Federal Emergency Management Agency(FEMA). The purpose of this manual is the prevention of injury, suffering, or death that may occur as a result of poor planning or preventable incidents at public events. This manual is intended to provide guidance for the management of risks in events that involve mass gatherings and assist planners and organizers in making such events safe and successful. Several pre-event planning aspects are described such as team approach, legal issues, crowd issues (crowd types and composition, measures for people densities), event cancelation, venue characteristics and threat assessment approaches focused on terrorist actions. Then, operational considerations are described by considering a wide range of factors including several security issues. For instance, the document provides a completed list of risks and hazards to take into account and it also considers controversial events defined as those involving groups that hold controversial beliefs present a greater risk for criminal or terrorist behaviour. As in the Canadian document described above (28), techniques for defusing crowd tension are also suggested in this document. The hazardous materials in their relationship with terrorist attacks are also managed in the suggested operational aspects. An interesting aspect considered in this document is the rumour control. An exhaustive approach to security operational aspects is also detailed in this document by defining the three types of security (peer security, private uniformed security guards, uniformed police officers), their roles and responsibilities. Pre-event briefings of security personnel and their deployment are also aspects included. This document addresses organizational aspects in a very detailed way by explaining the structure and functionalities of the Incident Command System (ICS) and the roles and expectations of the agents involved in the organization (incident commander, safety officer, information officer, liaison officer, operations section chief, planning section chief, logistics section chief and administration chief). Note that the document also highlights how to deal with spontaneous events. Finally, this manual considers post-event actions such as post-event analysis meetings and after-actions reports. Information providing by this document mainly focused on issues/aspects described was considered for the definition of several indicators and some measures. Furthermore, the job aids manual that includes several checklist documents was also considered as some indicators could be easily identified.

The second reference document was published by the U.S. department of Justice and it can be considered a very completed guideline to assist law enforcement in planning and managing security for mass gathering events (21). This document deals with a large number of security issues in a comprehensive manner. Pre-event planning discussed in the document involves leadership and structure and threat and risk assessments. The guidelines report discusses each responsibility area: workforce issues (including specialized services deployed such as explosive detection canines and handlers, mounted units, crisis management units and other units, private security, hotel security and volunteers), communications and communication technology (radio interoperability and Integrated Communications Command Center), access control, screening and physical security, transportation/traffic, intelligence, credentialing, administrative and logistic support, protection of critical infrastructure, public health, hazardous materials/weapons, tactical support and crisis management, public information and media relations, training, demonstrations and other crowd control issues, security management during the event as well as post-event activities. An important aspect of this reference is the involvement of citizens and business community in the planning efforts. To sum up, this document of reference covers and discusses a complete list of security issues including definitions, approaches and measures which provide a reliable support for the identification and definition of security indicators for the PMT.

Finally, the third document of interest is The Event Safety Guide (33) published by the Event Safety Alliance of USA. This reference presents a standardized structure covering a wide range of safety aspects (e.g. planning and management, venue, fire safety, communications, transport, structures, barriers, crowd management etc.) useful for defining related policy indicators. Nevertheless, the document provides little information about security aspects apart from the roles and competencies of security staff.

2.4.3 Europe

2.4.3.1 European dimension

This section includes available general best practices approaches that go beyond a single country in Europe. The first document reviewed is the Handbook for policy and security authorities concerning the cooperation at major events (34). The purpose of this handbook is to serve as a practical instrument providing guidelines for law enforcement authorities in Europe undertaking responsibility for security at major events with an international dimension. It mainly addresses terrorist threats in Olympic games and similar sporting events. The general roles and responsibilities of the organizing states as well as the LEAs are defined. The document also suggests conducting a threat assessment and risk analysis. One of the parts of this reference describes the cooperation between countries (cross border, operational support, liaison officers, observers, communication plans, media strategy and training). Therefore, policy indicators can be identified from this document regarding security management at an international level.

The second document of interest is a User Guide for policy security planners and policy makers in the field of major events at the strategic European level (36). This document is neither a manual nor a catalogue of best practices. As stated by authors, this document is simply a service user's guide to provide the basic understandings required for making the best use of The European house of major Events Security (The House) services in relation to a national authority's own research programme on security planning for future major events they foresee as hosting and needing to organise (or supervise) security for. High level policies are presented and discussed (approaches, strategies, policy development, etc.). One of the most interesting parts of this document is policy suggestions for common planning standards. ANNEX H includes a well-structured summary and recommendations useful for defining general policy indicators. The document also includes ethical considerations likely to be also taken into account in the PMT.

The third reviewed document is the EU's guidelines for security at major events (35). A new set of guidelines published by the EU in late 2011 make up part of this work. These are an attempt to encourage uniformity in the approach of authorities to securing major events. The guidelines are also used to encourage use of EU institutions for security preparations, particularly with regard to information gathering and exchange.

The guidelines also provide a clear example of how cooperation between the police forces of EU Member States can lead to the creation of “best practice” documents with no democratic input whatsoever. Of particular interest for defining policy indicators are the questionnaire results of LEAs from 19 states included in the Annex of this document. Relevant information provided includes answers in relation to the major events held, the responsible bodies involved, the terrorist threat assessments, the critical infrastructure and soft targets involved, the risk of using CBRN materials, the cooperation aspects, the mass media and communications, and other additional material.

Special mention requires the fourth reference document which includes a review of soft targets/public space protection guidance (37). This publication is a Science for Policy report by the Joint Research Centre (JRC), the European Commission’s science and knowledge service. The document comprises a list of the available information sources focusing on the protection of soft targets against terrorist and other types of malicious extremist attacks. The collected documents mainly focus on the so-called soft targets, the term being used to represent vulnerable material or human assets, which in principle should not be specifically protected. The referenced information sources originate from various countries and bodies, such as UK, France, Sweden, Czech Republic, USA, Australia etc. Although policy indicators cannot be extracted from this document, it is considered a useful reference to find those available information sources according to specific categories such as soft target definition, public spaces, security planning, policies and even drones.

2.4.3.2 Czech Republic

The reference document from the Czech Republic is quite different than other references here reviewed as it focuses on soft targets protection against terrorist actions (38). The document includes an outline of various security components divided into three basic categories (security personnel, electronic devices and mechanical devices) likely to be considered when defining potential indicators in relation to security measures. The role of non-professional personnel, the protocol for detecting suspicious behaviours and the proposed standardization of the security procedures are other novel aspects included in this reference deemed to be considered when defining some security indicators.

2.4.3.3 Ireland

The reference document from Ireland is the Guidelines for event organizers developed by Dublin City Council Event Unit (39). The guidance document is designed to provide information and advice to event organisers with public safety as a priority, regardless of the size or content of the event. This document advocates a common-sense approach to event organization by focusing on: 1) planning the event, 2) providing a safe venue, 3) staff organisation, 4) preparing for the unexpected, 5) documentation and 6) event stakeholders. A risk assessment approach is suggested focused on the severity and the likelihood using the three conventional categories (High, medium and Low). Licences and permissions are also considered in the document by providing a timeline scheme. Venue capacity arrangements and people management principles are also described. The document establishes a distinction between crowd control and crowd management. The former is reactive while the latter is proactive. One of the most important aspects in this document is the proposed management structure by defining roles and responsibilities of local authority, event controller, safety officer, chief steward, medical manager and additional event staff. Communications and public information issues are also included in the document. The proposed event management plan template has a comprehensive structure and comprises several aspects likely to be taken into account for the definitions of policy indicators (event details, event safety, emergency action, plan appendices, contact details and site layout maps and plans). However, this document does not include main security issues in mass gathering events.

2.4.3.4 Sweden

The Swedish reference is the Event Safety Guide developed by the Swedish Civil Contingencies Agency (40). It is based on existing regulations that may be important to event safety. The aim is to serve as a basis for discussion between organisers and public authorities (promote and increase communication).

As other documents this reference covers several organizational and safety issues (e.g. planning, legal aspects, venue capacity, accessibility, evacuation, crowd management, mass media and emergency preparedness) that can be used as criteria for the definition of several policy indicators. Nevertheless, security aspects are limited to the description of the role and competencies of police and security guards.

2.4.3.5 UK

The UK authorities have traditionally been concerned with the management and safety aspects of mass events. Several documents from the UK have been considered as references in the subject matter.

One of the main references is The Event Safety Guide (41) intended to event organisers, their contractors and employees. The guidance offers suggestions for many types of music events that take place at a variety of venues. The first chapter gives event organisers essential points to consider in these areas as well as general advice on legal duties. Subsequent chapters provide advice on specific arrangements for the health and safety of those involved in events, including the provision of services and facilities. There are also chapters which give some specific guidance for different types of event. The final chapter outlines issues relating to employees and other workers and provides a summary of the law relating to events. As many other references reviewed, this document provides information of management and safety issues which is useful for defining related policy indicators. However, this document pays less attention to security aspects.

The next reference document also provides insights of safety management specifically for sport grounds (42). The document, developed by the Sports Grounds Safety Authority (SGSA), provides detailed guidance to ground management, technical specialists such as architects and engineers and all relevant authorities to assist them assess how many spectators can be safely accommodated within a sports ground. This document provides support to calculate capacities (seated and standing spectators), safety planning aspects, management issues (personnel and structures and installations), circulation (crowd management, evacuation, barriers), spectator accommodation measures, fire safety, communications (control points, PA systems, CCTV, warning) and media. The document ends by addressing alternative events at sport grounds. The most interesting of the document is the provision of useful measures to calculate capacities of areas, entrances and exits.

Recently, the UK authorities have focused on security issues in mass events. The first reference considered is Crowded Places: The Planning System and Counter-Terrorism (43) produced by the Home Office in partnership with the Department for Communities and Local Government. The document is intended to local authorities when preparing local development documents. The guide provides advice on how counter-terrorism protective security measures can be incorporated into new developments. The document is divided into two main parts. The first part provides advice on the matters that are taken into account when considering the risk of terrorist attack, the proportionate response to that risk and how best to integrate counter-terrorism protective security measures as part of good urban design. The second part concerns general aspects of the planning process. What is interesting from this document is the provision of a table with counter-terrorism design principles and examples of measures that may help to deter, detect or delay terrorist attacks. The information provided by this document is generic but useful to explore new indicators and measures in relation to counter-terrorism policies for mass gatherings. More detailed counter-terrorist advice is found in another reference document also produced by the Home Office (44). This document includes the same table as the previous one.

The most recent document developed in UK in relation with the protection of mass gathering events is the Crowded Places Guidance (45). This guidance is issued by the National Counter Terrorism Security Office NACTSO with the aim of helping organisations that provide protective security to Crowded Places to improve their protective security. This reference constitutes a novel approach because: 1) it is aimed at both those in the security sector and those who own or run business, organizations, amenities and utilities and 2) it provides protective security advice in a number of sectors and scenarios covering the key forms of protective security: physical, personnel, cyber and personal.

The document also provides links to the Websites of interest for further information of readers. From this document several security indicators and measures can be defined for the PMT. For instance, the document presents a detailed approach to cybersecurity attacks. It also provides guidance for staff when dealing with several terrorist attacks. Training of personnel aspects are also described in detail. The relation of checklists provided are also recommendations of things to consider and actions to be taken as supporting criteria for the definition of security operational indicators and measures. For example, the checklists include a suspicious behaviour reporting form. In conclusion, the information provided in this document is of high interest for defining any policy action in relation to security in mass gathering events.

2.4.4 Bets practices review conclusions

There are a variety of best practices in relation with mass gathering events around the world. Some sources mainly focus in traditional approaches intended to organizers/promoters addressing crowd control and management issues. Other documents are specialized on people protection against terrorism of criminal actions or focus on major events. From this review a number of different aspects likely to be considered in future policy actions and therefore to be included in the PMT were identified:

- Media and public information strategy
- Venue capacity/Accessibility
- Public opinion (citizens perception, rumour control, etc.)
- Terrorist attacks and mitigations (Soft-targets protection)
- Intelligence process (information gathering, suspicious behaviours, etc.)
- Innovative security measures (advanced technology and research)
- Citizens involvement in planning
- Post event actions

3 INDICATORS AND MEASURES

Once a thorough review of state of art was commented, this section presents the set of policy indicators and measures defined for the PMT. The policy issues which include the defined indicators and measures are divided into 8 categories; 1) event information, 2) the crowd, 3) legal issues, 4) public information, 5) security organization, 6) intelligence, 7) security planning, and 8) post-event actions.

The policy indicators are defined according to the following types:

- D.- Descriptive indicators specify the state of a system without specific policy interpretations. They are close to data or statistics (i.e. dichotomous, number, grade, time series, or ratios or other derived functions) and they do not presuppose a specific type of use.
- P.-Performance indicators compare values against a standard or target value. They can concern policy inputs, processes, outcomes, effectiveness or efficiency and demand a specific type of intended use (49).
- C.- Composite indicators focus attention on policy issues, offer more rounded assessment of performance and present the big picture in a manner accessible to a range of audiences. A composite indicator is formed when individual indicators are compiled into a single index on the basis of an underlying model. The composite indicator should ideally measure multidimensional concepts, which cannot be captured by a single indicator.

Measures involve the following types of variable:

- Binary.- A variable with two possible states (e.g. true-false, completed task/failed to complete task).
- Categorical.- A variable that contains values indicating membership in one of several categories (e.g. sporting, cultural, religious, etc.).
- Continuous.- A variable not restricted to particular values other than limited by the accuracy of the measuring instrument (e.g. people density).

- Discrete.- A variable that includes only integer values (e.g. number of exits).
- Ordinal.- A variable used to rank a sample with respect to some characteristics and different points at the scale that are not necessarily equivalent (e.g. >1000, 1000-2000, 2000-5000, 5000-10000, >20000 patrons).

Based on the type of variables the proposed values likely to be used by the PMT were defined. A discussion of the main selected indicators and their measures is also included.

3.1 EVENT INFORMATION

Table 7 shows the set of indicators and their proposed measures for the PMT in relation with the event information. Note that several indicators are categorized as D-P (descriptive-performance) because they can state the conditions of the event and venue, but they are also deemed to be used as policy requirements i.e. they can be mandatory, and/or they can be compared against a standard reference. The event details [indicator 1.1] includes basic information of the stakeholders involved, the date of the event, the event duration and the estimated number of attendees are considered as relevant indicators for policy makers. The type of event [indicator 1.2] is an indicator that may have important implications for security policies. For instance, a political protest is likely to require more resources and efforts than an exhibition.

Venue details [indicators 1.3] comprises a set of indicators that can be also taken into account as they describe the initial conditions that might have impact on safety and security. Indicators such access points for intervention and environmental and critical infrastructure assets to protect can provide useful information for security planning. Relevant indicators that are likely to help planning actions have been also proposed such as the provision of graphical information of the venue and the weather forecasting.

One of the most important indicators in relation with the protection of the mass gathering events is the Capacity of the venue [indicator 1.4], a composite indicator that depends on several indicators such as the number of entrances/exits, their width and capacity and the characteristics of other circulation elements (e.g. seats, stairs). The measure of this indicator is a categorical variable that contains values indicating membership in one of the three proposed categories: complied/partially complied/not complied. The first category indicates that the venue meets the required capacity. The second category allows flexibility as some capacity indicators could not be accomplished but alternative solutions to compensate this could be provided. The third category represents an unfulfillment of the capacity requirements. Note that this involves considering the expected number of attendees. There are two basic approaches for assessing the capacity of the venue: static and/or dynamic. The static approach involves the use of prescriptive codes where design and capacity requirements are well established. Countries have their own codes in relation with this issue. Information of venue capacity requirements can be found in different reference documents, mainly those best practices focus on safety issues (crowd control and or crowd management). A good best practice reference is the Guide to safety at Sports Grounds (42) that provides a complete section for calculating the safe capacity of standing, seating and circulation areas for spectators providing examples using the proposed values and equations. For instance, the proposed equation for calculating the holding capacity of a standing area is:

$$\text{Holding capacity} = \frac{A}{10} \times D$$

Where A is the available viewing area and D the appropriate people density. Design values are also proposed in this document such as the minimum required width for circulation routes (including stairways and gangways) of 1.2m or 1.1 m for new construction and existing construction respectively. Another example of can be found in Safety and Healthy Mass Gatherings (50) where flow rates of 1 per/s with a constant queue are proposed for doorways and a maximum pedestrian capacity of 25 per/min per 0.3 m of clear width in dense crowds.

The dynamic approach allows the possibility to use advanced tools such as crowd modelling and simulation, often applied when prescriptive requirements are not met. But also, the use of these tools could be appropriate for calculating the required times for people to access/exit the venue. The advantage of using such tools is the possibility to treat physical elements as well as people activities and behaviour patterns.

It is also able to reflect the dynamic nature of people flows and the interactions between individual pedestrians providing a better understanding and more accurate view of pedestrian circulation performance. The visual nature of these models provides a good communication tool (density maps, congestions, etc.), particularly when presenting to non-technical audiences (i.e. policy makers).

Another important indicator for policy creation in relation with the event information is accessibility [indicator 1.5] which is in line of the Article 9 of the United Nations Convention of the Rights of Persons with Disabilities (51) and the European Accessibility Act (52). This indicator is defined to enable access for people with disabilities to the mass gathering event. This is a composite indicator measured as: complied/not complied. As mentioned, one of the main references for accessibility is the Guidelines for Concerts, Events and Organized Gatherings (24). According to this reference document, ramps for disabled must be:

- Minimum 1 m wide.
- Gradient no steeper than 1:14.
- Landings at no more than 9 m intervals (greater distances are permitted where gradients are flatter).
- Hand rails on both sides.
- non-slip.

This reference document also provides a checklist for a quick overview of the accessibility of a venue and measures including an analysis of the information provided in promotional material of the event.

Indicators	Measure		
Description	Type	Type of variable	Proposed values
1.1. Event details	D-P	Binary	Completed/failed to complete
1.1.1. Name of the event	D-P	Binary	Completed/failed to complete
1.1.2. Organizer	D-P	Binary	Completed/failed to complete
1.1.2.1. Promoter name	D-P	Binary	Completed/failed to complete
1.1.2.2. Organization (s)	D-P	Binary	Completed/failed to complete
1.1.2.3. Contact data	D-P	Binary	Completed/failed to complete
1.1.3. Stakeholders involved	D-P	Binary	Completed/failed to complete
1.1.3.1. Organizer/promoter	D-P	Binary	True/false
1.1.3.2. Firefighting	D-P	Binary	True/false
1.1.3.3. Medical/health care	D-P	Binary	True/false
1.1.3.4. LEAs	D-P	Binary	True/false
1.1.3.5. Public Administration	D-P	Binary	True/false
1.1.3.6. Private/Companies	D-P	Binary	True/false
1.1.3.7. Sponsors	D-P	Binary	True/false
1.1.3.8. Others (Specify)	D-P	Binary	True/false
1.1.4. Date (s) of the event	D-P	Discrete	DD:MM:YY
1.1.5. Start time	D-P	Binary	Fixed/variable
1.1.6. Event duration	D-P	Ordinal	Short term (few hours)/Medium term (several hours)/Long term (a day)/Very long term (more than a day)
1.1.7. Estimated number of attendees	D-P	Ordinal	1.001-5.000/5.001-10.000/10.001-20.000/>20.000
1.2. Type of event	D-P	Binary	Completed/failed to complete
1.2.1. Sporting	D-P	Binary	True/false
1.2.2. Religious	D-P	Binary	True/false
1.2.3. Cultural	D-P	Binary	True/false
1.2.4. Political	D-P	Binary	True/false
1.2.5. Convention	D-P	Binary	True/false
1.2.6. Exhibition	D-P	Binary	True/false
1.2.7. Entertainment	D-P	Binary	True/false
1.2.8. Race	D-P	Binary	True/false

1.2.9. Major/Special

D-P

Binary

True/false

1.3. Venue details

D-P

Categorical

Completed/partially completed/failed to complete

1.3.1. Name of the venue

D-P

Binary

Completed/failed to complete

1.3.2. Address

D-P

Binary

Completed/failed to complete

1.3.3. Usability for the event

D

Binary

Normally used/ Not previously used

1.3.4. Suitability for large crowds

D

Binary

Normally used/Not previously used

1.3.5. Venue type

D

Categorical

Outdoor/indoor/Both

1.3.5. Space for the crowd

D

Categorical

Closed/Open/Both

1.3.6. Structures

D

Categorical

Temporary/Permanent/Both

1.3.7. Crowd boundaries

D

Binary

Completed/failed to complete

1.3.7.1. Fences

D

Binary

True/false

1.3.7.2. Walls

D

Binary

True/false

1.3.7.3. Natural barriers

D

Binary

True/false

1.3.7.4. Glasses

D

Binary

True/false

1.3.7.5. Turnstiles

D

Binary

True/false

1.3.7.6. Other (Specify)

D

Binary

True/false

1.3.8. Access points for intervention

D-P

Binary

True/False

1.3.8.1. Number of access points

D-P

Discrete

N

1.3.8.2. Width of access points

D-P

Continuous

m or cm

1.3.9. Environmental and historic issues

D-P

Binary

Completed/failed to complete

1.3.9.1. Historic site

D

Binary

True/false

1.3.9.2. Plants/wood

D

Binary

True/false

1.3.9.3. Animals

D

Binary

True/false

1.3.9.4. Other (specify)

D

Binary

True/false

1.3.10. Critical infrastructure issues

D-P

Binary

Completed/failed to complete

1.3.10.1. Transport

D

Binary

True/false

1.3.10.2. Business

D

Binary

True/false

1.3.10.3. Water supply

D

Binary

True/false

1.3.10.4. Energy

D

Binary

True/false

1.3.10.5. Government facilities

D

Binary

True/false

1.3.10.6. Communication

D

Binary

True/false

1.3.10.7. Health care

D

Binary

True/false

1.3.10.8. Other (specify)

D

Binary

True/false

1.3.11. Natural features likely to be hazardous	D-P	Binary	Completed/failed to complete
1.3.11.1. River	D	Binary	True/false
1.3.11.2. Lake	D	Binary	True/false
1.3.11.3. Sea	D	Binary	True/false
1.3.11.4. Cliffs	D	Binary	True/false
1.3.11.5. Forest	D	Binary	True/false
1.3.11.6. Other (specify)	D	Binary	True/false
1.3.12. Graphical information	D-P	Binary	Completed/failed to complete
1.3.12.1. Format	D	Categorical	Paper/electronic/both
1.3.12.2. Layout information	D	Binary	Completed/failed to complete
1.3.12.2.1. Diagram	D	Binary	True/false
1.3.12.2.2. Map/plane	D	Binary	True/false
1.3.12.2.3. GIS	D	Binary	True/false
1.3.12.2.4. Other (Specify)	D	Binary	True/false
1.3.12.3. Type of information	D-P	Binary	Completed/failed to complete
1.3.12.3.1. Layout of the venue	D	Binary	True/false
1.3.12.3.2. Resources allocation	D	Binary	True/false
1.3.12.3.3. Access points for intervention	D	Binary	True/false
1.3.12.3.4. Security perimeter	D	Binary	True/false
1.3.12.3.5. Location of critical places	D	Binary	True/false
1.3.12.3.6. Density maps/hot points	D	Binary	True/false
1.3.12.3.7. Other (Specify)	D	Binary	True/false
1.3.13. Weather forecasting	D-P	Binary	Completed/failed to complete
1.3.13.1. Temperature	D	Continuous	Celsius (°C); Kelvin (K); Fahrenheit (F)
1.3.13.2. Precipitations	D	Binary	True/False
1.3.13.2.1. Type	D	Categorical	Rain/Hail/Snow
1.3.13.2.2. Probability	D	Continuous	P= [0-1] or %= [0-100]
1.3.13.2.3. Intensity	D	Categorical	Low/medium/high
1.3.13.3. Wind flow velocity	D	Continuous	Km/h or m/s
1.3.13.3.1. Probability	D	Continuous	P = (0-1) or % = (0-100)

1.4. Capacity of the venue

1.4.1. Standing net area	D-P	Continuous	m ²
1.4.5. Number of seats	P	Categorical	ℕ
1.4.6. Seating specifications	P	Binary	Completed/failed to complete

1.4.6.1. Distance between rows	P	Continuous	m or cm
1.4.6.2. Number of seats in the dead end	P	Discrete	\mathbb{N}
1.4.6.3. Width/aisles	P	Continuous	m or cm
1.4.7. Number of entrances	D-P	Discrete	\mathbb{N}
1.4.8. Width/entrance	P	Continuous	m or cm
1.4.9. Entrances capacity	P	Continuous	Per/s m or Per/min m
1.4.10. Number of emergency exits	D-P	Discrete	\mathbb{N}
1.4.11. Width/emergency exit	P	Continuous	m or cm
1.4.12. Emergency exits capacity	D-P	Continuous	Per/s m or Per/min m
1.4.13. Number of stairs	D	Discrete	\mathbb{N}
1.4.14. Width/stair	D	Continuous	m or cm
1.4.15. Stairs capacity	D-P	Continuous	Per/s m or Per/min m
1.4.16. Places for VIPs capacity	D	Discrete	\mathbb{N}
1.4.17. Required time for people to access	D-P	Discrete	HH:MM:SS
1.4.18. Required time for people to leave	D-P	Discrete	HH:MM:SS
1.5. Accessibility	C-P	Binary	Complied/not complied
1.2.9.1. Number of accesses for disabled people	D-P	Discrete	\mathbb{N}
1.2.9.2. Width of accesses for disabled people	P	Continuous	m or cm
1.2.9.3. Places for disabled people capacity	P	Discrete	per/m ² or m ² /per

TABLE 7 – Proposed policy indicators and measures regarding the event information

3.2 THE CROWD

The analysis of the expected crowd in the event could have important implication for security policy making. Table 8 displays the suggested main indicators that policy makers may take into account:

- admission type [indicator 2.1],
- the size of the crowd [indicator 2.2],
- the maximum expected people density [indicator 2.3],
- duration [indicator 2.4],
- population [indicator 2.5],
- expected behaviour [indicator 2.6] and,
- crowd characterization [indicator 2.7].

Whereas some indicators are descriptive (D) other indicators can be also related with expected values and/or standardized references (D-P). For instance, indicator [2.3] offers proposed values to determine the maximum expected people density which may have implications for life safety. The proposed values were taken from (1) (2). Hand calculations or simulations could be used to estimate the expected people density in an event. It should be noted that this indicator is related to the capacity of the venue [Indicator 1.4] but it is not necessarily the same capacity because crowd density can vary and/or be localized in specific areas (e.g. next to the stage in a concert). According to the consulted references, values higher than 2 per/m² are deemed to become dangerous. These conditions could be avoided though the provision of additional policy actions (e.g. restricting access, providing more space for the crowd and/or implementing crowd management solutions) or even prohibit the event, if necessary. Similarly, the expected size of the crowd provided by indicator [2.2] should be taken into account by policy makers, LEAs and other stakeholders. In this case the suggested values are given by a 3-level rating (low/medium/large) to characterize the crowd size. Note that other proposed values could be considered (e.g. 5-level rating scale). The crowd size and the maximum expected density are directly related to the admission type: indicator [2.1] as restricted access allows the opportunity to know the number of attendees while free access type does not.

As mentioned, other indicators are purely descriptive (D) such as population [2.5], expected crowd behaviour [2.6] and crowd characterization [2.7]. Despite these indicators are subjective estimations that cannot be compared against a standard or target number, they can however facilitate valuable information for security policy actions (e.g. risk assessment, legal issues, intelligence, security measures and/or precautions, etc.). For instance, Berlonghi's definitions (53) [indicator 2.7.1] are suggested to characterize the type of crowd for understanding and planning security actions (e.g. crowd management and control). Furthermore, participants mood [indicator 2.6.1] seems to be a rough but also a straightforward way for LEAs when planning security measures. Therefore, these indicators and measures that focus on the psychological dimension of the crowd were considered as relevant for the PMT in supporting new policies regarding security of mass gathering events.

Indicators		Measure	
Description	Type	Type of variable	Proposed values
2.1. Admission type	D-P	Binary	Free/restricted (sold tickets)
2.2. Size	D	Ordinal	Small (<1.000)/medium (1.000-10.000)/large (>20.000)
2.3. Maximum expected people density	D-P	Ordinal	Rating (1): Low (<0.7 per/m²)/Medium (0.7-1.2 per/m²)/High (1.2-2 per/m²)/Very high (>2 per/m²) Level of Service of Fruin (2): A (<0.08 per/m²)/B (0.08-0.27 per/m²)/C (0.27-0.45 per/m²)/D (0.45-0.69 per/m²)/E (0.69-1.66 per/m²)/F (>1.66 per/m²)
2.4. Duration	D	Ordinal	Short (few hours)/medium (several hours)/Long (a day)/very long (more than a day)
2.5. Population	D	Categorical	Completed/partially completed/not completed
2.5.1. Children 0-18 years old	D	Discrete	% of total estimated attendees
2.5.2. Young 18-30 years old	D	Discrete	% of total estimated attendees
2.5.3. Adults 30-60 years old	D	Discrete	% of total estimated attendees
2.5.4. Elderly >60 years old	D	Discrete	% of total estimated attendees
2.5.5. Disabled people	D	Discrete	% of total estimated attendees
2.5.6. VIPs	D	Discrete	% of total estimated attendees
2.6. Expected behaviour	D	Categorical	Completed/partially completed/not completed
2.6.1. Participants mood	D	Binary	Mainly cooperative/mainly non-cooperative
2.6.2. Level of participants involvement	D	Categorical	Low (mainly passive)/medium (passive and active participants)/high (mainly active participants)
2.6.3. Level of membership identification	D	Binary	Low (e.g. commuters)/high (e.g. football fans)
2.6.4. Level of interaction	D	Categorical	Low (e.g. commuters)/medium (e.g. between fans and stewards)/high (e.g. between fans and police)
2.7. Characterization	D	Categorical	Completed/partially completed/not completed

2.7.1. Type based on Berlonghi's definitions (53)	D-P	Binary	Completed/failed to complete
2.7.1.1. Ambulatory	D	Binary	True/False
2.7.1.2. Limited movement	D	Binary	True/False
2.7.1.3. Escaping or trampling	D	Binary	True/False
2.7.1.4. Dense or suffocating	D	Binary	True/False
2.7.1.5. Cohesive or spectator	D	Binary	True/False
2.7.1.7. Expressive or rebellious	D	Binary	True/False
2.7.1.7. Participatory	D	Binary	True/False
2.7.1.8. Demonstrator	D	Binary	True/False
2.7.1.9. Aggressive or hostile	D	Binary	True/False
2.7.1.10. Rushing or looting	D	Binary	True/False
2.7.1.11. Violent	D	Binary	True/False
2.7.2. Purpose	D-P	Binary	Completed/failed to complete
2.7.2.1. Entertainment	D	Binary	True/False
2.7.2.2. Religious meeting	D	Binary	True/False
2.7.2.3. Political demo	D	Binary	True/False
2.7.2.4. Spontaneous	D	Binary	True/False
2.7.2.5. Mixed (e.g. shopping at the event)	D	Binary	True/False
2.7.3. Heterogeneity of membership	D	Categorical	Low (e.g. cohesive and purposeful behaviour)/medium (e.g. football match men with good mobility)/high (e.g. crowd in the airport)
2.7.4. Size of unit	D	Categorical	Mainly singletons/mixed (e.g. some singles and some groups)/mainly groups

TABLE 8 – Proposed policy indicators and measures regarding the crowd

3.3 LEGAL ISSUES

Indicators provided in Table 9 are highly related with policy-making and mostly covered by the policy documents revised in Section 2.2. Key contacts [indicator 3.1] and roles and responsibilities [indicator 3.2] are well defined indicators in the current policies as they constitute the basis for legality (e.g. specific duties imposed upon persons to care or provide for others, person's role in causing an event to happen, chain of causation where individuals are responsible for a given event as part of the law of legal liability and public liability).

In addition, one of the main legal issues for policy-makers is the authorization of the event [indicator 3.3] defined as a composite indicator (C) that depends on many other performance indicators (P). The proposed value is a binary variable that determines whether the event to be held complies with a given set of requirements (indicators) or not. This involves defining authority and applicants, administrative process, technical and legal requirements to be completed but also ensuring that not permitted activities will occur during the event.

Criteria for cancelation of mass gathering events are also proposed through the indicator [3.4]. The proposed measure is a binary variable (complied/not complied) which depends on three indicators: not complying with the law [3.4.1], different/other than the proposed activities [3.4.2] and imminent risk to people [3.4.3.]. If at least one of these indicators is set to “true” in the PMT, then the event can be cancelled by the corresponding authority.

Infringements and sanctions are also defined as part of legal issues through indicators [3.5] and [3.6] respectively. Infringements are measured by a categorical variable that specifies their seriousness and/or degree of importance. Also, several indicators define the set of potential infractions for different agents involved (i.e. organizers, attendees and also LEAs personnel). Complying with indicator [3.5] means that all the defined infringements are set to “false”. Sanctions are measured through two indicators: the type of sanctions [indicator 3.7.1] including monetary and non-monetary sanctions and their level [indicator 3.7.2] directly linked with the level of infringements.

A list of fundamental rights [indicator 3.7.1] and a list of specific rights for attendees of the event [indicator 3.7.2] are also likely to be provided for the PMT. Complying with such indicators occurs when all the defined binary measures are set to “true”.

Indicators	Measure		
Description	Type	Type of variable	Proposed values
3.1. key contacts	D-P	Binary	Completed/failed to complete
3.1.1. Government authorities	D	Binary	True/false
3.1.2. Event promoter/organizer	D	Binary	True/false
3.1.3. Sponsors	D	Binary	True/false
3.1.4. Police/LEAs	D	Binary	True/false
3.1.5. Private security	D	Binary	True/false
3.1.7. Ambulance service	D	Binary	True/false
3.1.7. Firefighters	D	Binary	True/false
3.1.8. Transportation authority	D	Binary	True/false
3.1.9. Media	D	Binary	True/false
3.1.10. Other (specify)	D	Binary	True/false
3.2. Roles and responsibilities	D-P	Binary	Completed/failed to complete
3.2.1. Government authorities	D	Binary	True/false
3.2.2. Event promoter/organizer	D	Binary	True/false
3.2.3. Police/LEAs	D	Binary	True/false
3.2.4. Private security	D	Binary	True/false
3.2.5. Ambulance service	D	Binary	True/false
3.2.7. Firefighters	D	Binary	True/false
3.2.7. Other (specify)	D	Binary	True/false
3.3. Authorization of the event	C	Binary	Complied/not complied
3.3.1. Defined authority	P	Binary	Completed/failed to complete
3.3.2. Defined applicants	P	Binary	Completed/failed to complete
3.3.3. Events and activities not permitted	P	Binary	Complied/not complied
3.3.3.1. Not complying with the law	P	Binary	True/false
3.3.3.2. Fomenting violence, racism and discrimination	P	Binary	True/false
3.3.3.3. Involving animal abuses	P	Binary	True/false
3.3.3.4. Involving risk to the environment	P	Binary	True/false
3.3.3.5. Involving risk to cultural heritage	P	Binary	True/false

3.3.3.7. Other (specify)	P	Binary	True/false
3.3.4. Administrative process	P	Binary	Completed/failed to complete
3.3.4.1. Time for application	P	Discrete	MM:DD
3.3.4.2. Time for acceptance	P	Discrete	MM:DD
3.3.4.3. Technical requirements	P	Binary	Completed/failed to complete
3.3.4.3.1. Risk assessment	P	Binary	Completed/failed to complete
3.3.4.3.2. Emergency plan	P	Binary	Completed/failed to complete
3.3.4.3.3. Certificates of approval	P	Binary	Completed/failed to complete
3.3.4.3.4. Other (specify)	D-P	Binary	Completed/failed to complete
3.3.4.4. Legal requirements	P	Binary	Completed/failed to complete
3.3.4.4.1. Regulation references	P	Binary	Completed/failed to complete
3.3.4.4.2. Event application form	P	Binary	Completed/failed to complete
3.3.4.4.3. Insurance/certificate of currency	P	Binary	Completed/failed to complete
3.3.4.5. Amendment/notification/revision	P	Binary	Required/non-required
3.3.4.7. Audits/inspection	P	Binary	Completed/failed to complete
3.4. Criteria for cancelation	P	Binary	Complied/not complied
3.4.1. Not complying with the law	P	Binary	True/false
3.4.2. Different/other activities	P	Binary	True/false
3.4.3. Imminent risk to people	P	Binary	True/false
3.4.4. Other (specify)	P	Binary	True/false
3.5. Infringements	P	Binary	Complied/not complied
3.5.1. level of infringements	P	Categorical	Very serious (e.g. leading to high risk to people and goods)/serious (e.g. not complying with the law)/slight (e.g. not complying with administration)
3.5.2. By organizers	P	Binary	Complied/not complied
3.5.2.1. Neither authorization nor communication of the event	P	Binary	True/false
3.5.2.2. Changing the authorized conditions of the event	P	Binary	True/false
3.5.2.3. Overcrowding	P	Binary	True/false
3.5.2.4. Not comply with technical requirements	P	Binary	True/false
3.5.2.5. Nor comply with legal requirements	P	Binary	True/false
3.5.2.7. Allowing illicit actions/activities	P	Binary	True/false
3.5.2.7. Shelling alcohol when not permitted	P	Binary	True/false

3.5.2.8. Allowing drugs	P	Binary	True/false
3.5.2.9. Avoiding access to authorities	P	Binary	True/false
3.5.2.10. Cancellation without just cause	P	Binary	True/false
3.5.2.11. Arbitrary use of right of admission	P	Binary	True/false
3.5.2.12. Not complaining with accessibility/"egressibility"	P	Binary	True/false
3.5.2.13. Allowing symbols inciting violence, xenophobia and discrimination	P	Binary	True/false
3.5.2.14. Breach timing	P	Binary	True/false
3.5.2.15. Other (specify)	P	Binary	True/false
3.5.3. By attendees	P	Binary	Complied/not complied
3.5.3.1. Assault/battery	P	Binary	True/false
3.5.3.2. Attempt/terrorist attack	P	Binary	True/false
3.5.3.3. Robbery/thief	P	Binary	True/false
3.5.3.4. Burglary	P	Binary	True/false
3.5.3.5. Drug offences	P	Binary	True/false
3.5.3.7. Sexual violence	P	Binary	True/false
3.5.3.7. Disturbing/vandalism	P	Binary	True/false
3.5.3.8. Arson	P	Binary	True/false
3.5.3.9. Other (specify)	P	Binary	True/false
3.5.4. By LEAs personnel/security staff	P	Binary	Complied/not complied
3.5.4.1. Arbitrary arrest or detention	P	Binary	True/false
3.5.4.2. Discrimination	P	Binary	True/false
3.5.4.3. Inhuman or degrading treatment and punishment	P	Binary	True/false
3.5.4.4. Torture	P	Binary	True/false
3.5.4.5. Using illegal non-lethal weapons	P	Binary	True/false
3.5.4.7. Using fire arms when not allowed	P	Binary	True/false
3.5.4.7. Not compliance with privacy	P	Binary	True/false
3.5.4.8. Other (specify)	P	Binary	True/false

3.7. Sanctions

3.7.1. Type of sanctions	P	Categorical	Monetary/non-monetary/both (monetary and non-monetary)
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3.7.2. Level of sanctions

P

Categorical

High (for very serious infringements)/medium (for serious infringements)/low (for slight infringements)

3.7. Rights	P	Binary	Complied/not complied
3.7.1. Fundamental	P	Binary	Complied/not complied
3.7.1.1. Assembly and association	P	Binary	True/false
3.7.1.2. Freedom of expression	P	Binary	True/false
3.7.1.3. Protection	P	Binary	True/false
3.7.1.4. No discrimination	P	Binary	True/false
3.7.1.5. Fair trial	P	Binary	True/false
3.7.1.7. No torture	P	Binary	True/false
3.7.1.7. Privacy	P	Binary	True/false
3.7.1.8. Property	P	Binary	True/false
3.7.1.9. Equality	P	Binary	True/false
3.7.1.10. Minor protection	P	Binary	True/false
3.7.1.11. Health care	P	Binary	True/false
3.7.1.12. Other (specify)	P	Binary	True/false
3.7.2. Attendees	P	Binary	Complied/not complied
3.7.2.1. Refund the amount in case of cancelation	P	Binary	True/false
3.7.2.2. Admittance	P	Binary	True/false
3.7.2.3. Complain (claim sheets)	P	Binary	True/false
3.7.2.4. Information	P	Binary	True/false
3.7.2.5. Protection of children and adolescents	P	Binary	True/false
3.7.2.7. Accessibility	P	Binary	True/false
3.7.2.7. Other (specify)	P	Binary	True/false

TABLE 9 – Proposed policy indicators and measures regarding legal issues

3.4 PUBLIC INFORMATION

Extensive information of the event and potential incidents need to be communicated to different audiences. Public opinion in relation with security policy actions is also an important aspect to be managed by the PMT. Table 10 provides the suggested indicators and their measures regarding public information. Security planners must define a public information plan [indicator 4.1] to deliver relevant information to attendees and citizens in general through different communication channels. This indicator is measured by a categorical variable that indicate whether the public information plan is completed, partially completed or not completed at all.

Another indicator consists of public opinion gathering [indicator 4.2] which provides a list of possible sources of information [indicator 4.2.1], collection methods [indicator 4.2.2], type of data collected [indicator 4.2.3], data processing methods [indicator 4.2.4] and also the type of information [indicators 4.2.5]. Public opinion is one of the most important aspects when design, implement and evaluate security policies. One of the main aims of LETSCROWD is involving citizens. A better understanding of how the citizens perceive security policies and how it affects their feeling of insecurity is taken into account in the PMT through these proposed indicators. As the previous indicator, indicator [4.2] is measured by three stages (completed/partially completed/not completed).

Indicators	Measure		
Description	Type	Type of variable	Proposed values
4.1. Public Information Planning	D-P	Categorical	Completed/partially completed/not completed
4.1.1. Responsible	D-P	Binary	Completed/failed to complete
4.1.1.1. Public Authority	D-P	Binary	True/false
4.1.1.2. LEA personnel	D-P	Binary	True/false
4.1.1.3. Stakeholders (firefighters, emergencies, etc.)	D-P	Binary	True/false
4.1.1.4. Organizer	D-P	Binary	True/false
4.1.2. Type of information	D-P	Binary	Completed/failed to complete
4.1.2.1. Security issues	D-P	Binary	True/false
4.1.2.2. Polices and measures	D-P	Binary	True/false
4.1.2.3. Management of an incident	D-P	Binary	True/false
4.1.2.4. Accessibility	D-P	Binary	True/false
4.1.2.5. Other (specify)	D-P	Binary	True/false
4.1.3. Timing	D-P	Binary	Completed/failed to complete
4.1.3.1. Before the event	D-P	Binary	True/false
4.1.3.2. During the event	D-P	Binary	True/false
4.1.3.3. After the event	D-P	Binary	True/false
4.1.4. Means/Channels	D-P	Binary	Completed/failed to complete
4.1.4.1. TV	D-P	Binary	True/false
4.1.4.2. Radio	D-P	Binary	True/false
4.1.4.3. Websites	D-P	Binary	True/false
4.1.4.4. Social networks	D-P	Binary	True/false
4.1.4.5. Leaflets/brochures	D-P	Binary	True/false
4.1.4.7. Other (specify)	D-P	Binary	True/false
4.1.5. Media relations in case of incident or crisis	D-P	Binary	Completed/failed to complete
4.1.5.1. Media and public enquires	D-P	Binary	True/false
4.1.5.2. Emergency information and warning	D-P	Binary	True/false
4.1.5.3. Media monitoring	D-P	Binary	True/false
4.1.5.4. Other (specify)	D-P	Binary	True/false
4.2. Public opinion gathering	D-P	Categorical	Completed/partially completed/not completed

4.2.1. Sources	D	Binary	Completed/failed to complete
4.2.1.1. Eurobarometer	D	Binary	True/false
4.2.1.2. Media	D	Binary	True/false
4.2.1.3. Experts opinion	D	Binary	True/false
4.2.1.4. Citizens	D	Binary	True/false
4.2.1.5. Organizations/institutions	D	Binary	True/false
4.2.1.7. Other (specify)	D	Binary	True/false
4.2.2. Collection methods	D	Binary	Completed/failed to complete
4.2.2.1. Surveys	D	Binary	True/false
4.2.2.2. Interviews	D	Binary	True/false
4.2.2.3. Questionnaires	D	Binary	True/false
4.2.2.4. Round tables	D	Binary	True/false
4.2.2.5. Social media analysis	D	Binary	True/false
4.2.2.7. Other (specify)	D	Binary	True/false
4.2.3. Type of data	D	Categorical	Quantitative/qualitative/both
4.2.4. Data processing methods	D	Categorical	Statistics/qualitative assessment/both
4.2.5. Type of information	D	Binary	True/false
4.2.5.1. Perception of security	D	Binary	True/false
4.2.5.2. Perceived threats	D	Binary	True/false
4.2.5.3. Perception of LEAs actions	D	Binary	True/false
4.2.5.4. Perception of current security policies	D	Binary	True/false
4.2.5.5. Perception of future security policies	D	Binary	True/false
4.2.5.7. Perception of restrictions to fundamental rights and freedoms	D	Binary	True/false
4.2.5.7. Other (specify)	D	Binary	True/false

TABLE 10 – Proposed policy indicators and measures regarding public information

3.5 SECURITY ORGANIZATION

One of the key issues in security policy making is the security organization. With this regard, three main indicators are suggested to be included in the PMT: leadership [indicator 5.1], structure [indicator 5.2] and command and control [indicator 5.3]. Table 11 described the defined indicators and proposed measures. These indicators are considered as relevant in policy making as they reveal how the security is going to be managed for a given mass gathering event. The first point refers to responsible and the security team members involved. It is considered as a performance indicator (P) measured through a binary variable with two potential values: completed/failed to complete. The second point allows the PMT user the possibility to know the managing structure. This is considered as a descriptive indicator (D) measured by a categorical variable with three possible values: completed/partially completed/not completed. Finally, the third point provides information of the command and control deployment defined as a descriptive indicator (D) that can be measured by a binary variable involving only two possible values: completed/failed to complete (i.e. whether the required information is provided or not).

Indicators	Measure		
Description	Type	Type of variable	Proposed values
5.1. Leadership	P	Binary	Completed/failed to complete
5.1.1. Director/responsible	P	Binary	Completed/failed to complete
5.1.2. Executive team members involved	P	Binary	Completed/failed to complete
5.1.2.1. Public authority	P	Binary	True/false
5.1.2.2. LEAs	P	Binary	True/false
5.1.2.3. Medical	P	Binary	True/false
5.1.2.4. Firefighting	P	Binary	True/false
5.1.2.5. Organizer/promoter	P	Binary	True/false
5.1.2.7. Other (specify)	P	Binary	True/false
5.2. Structure	D	Categorical	Completed/partially completed/not completed
5.2.1. Areas involved	D	Binary	Completed/failed to complete
5.2.1.1. Administrative	D	Binary	True/false
5.2.1.2. Special security (e.g. antiterrorist, antiriot, etc.)	D	Binary	True/false
5.2.1.3. Medical	D	Binary	True/false
5.2.1.4. Firefighting	D	Binary	True/false
5.2.1.5. Logistics	D	Binary	True/false
5.2.1.7. Intelligence	D	Binary	True/false
5.2.1.7. Media relation	D	Binary	True/false
5.2.1.8. Patrols	D	Binary	True/false
5.2.1.9. Communications	D	Binary	True/false
5.2.1.10. Emergency management	D	Binary	True/false
5.2.1.11. VIP	D	Binary	True/false
5.2.1.12. Crowd control/management	D	Binary	True/false
5.2.1.13 Transport	D	Binary	True/false
5.2.1.14. Other (specify)	D	Binary	True/false
5.2.2. Organization chart	D-P	Binary	Completed/failed to complete
5.2.2.1. Format	D	Categorical	Paper/electronic/both
5.2.2.2. Basic information	D-P	Binary	Completed/failed to complete
5.2.2.2.1. Leaders and areas	D	Binary	True/false

5.2.2.2.2. Functions of areas	D	Binary	True/false
5.2.2.2.3. Shift/work schedule	D	Binary	True/false
5.2.2.2.4. Considerations/comments	D	Binary	True/false
5.2.2.2.5. Other information (specify)	D	Binary	True/false
5.3. Command and Control	D	Binary	Completed/failed to complete
5.3.1. Type	D	Binary	Permanent/temporal
5.3.2. Location	D	Binary	Remote/in place

TABLE 11 – Proposed policy indicators and measures regarding security organization

3.6 INTELLIGENCE

Intelligence functions - before, during and after an event - are critical for event security (21). It is well known that intelligence is a continuous process conducted by LEAs with the aim of gathering as much information as possible that could be relevant to security. Although this is normally an internal process and the information gathered could not be available to the public for security reasons, the proposed indicators provide the PMT users the opportunity to know several aspects concerning the intelligence activities conducted for a given mass gathering event (e.g. whether historical data of past events have been considered and/or what sources of information have been used). The main proposed indicators and measured defined for the PMT are presented in Table 12. The first indicator [7.1] is descriptive but also could be a performance indicator (D-P) and it is related with the collection and analysis of previous events. The proposed measure is defined by a categorical variable with three possible values: completed/partially completed/not completed. This indicator depends on other two indicators namely past experiences [7.1.1] and sources of information [7.1.2.] to determine whether the historical data analysis of past events have been conducted or not based on several indicators measured by a binary variable: true/false. The next proposed indicator [7.2] concerns the sources of information (open sources, external sources and/or internal sources). As previous indicator, the measure is defined by a categorical variable with three possible values: completed/partially completed/not completed. Finally, indicator [7.3] delivers information to PMT users of the intelligence process before, during and after the event that is measured as completed/partially completed/not completed.

Indicators		Measure	
Description	Type	Type of variable	Proposed values
6.1. Historical data of past events	D-P	Categorical	Completed/partially completed/not completed
6.1.1. Past experiences	D	Binary	Completed/failed to complete
6.1.1.1. Previous events/same type and venue	D	Binary	True/false
6.1.1.2. Previous events/different type and same venue	D	Binary	True/false
6.1.1.3. Previous events/same type at different venue	D	Binary	True/false
6.1.1.4. Other events/different type and venue	D	Binary	True/false
6.1.2. Sources of information	D	Binary	Completed/failed to complete
6.1.2.1. Events database	D	Binary	True/false
6.1.2.2. Post event reports	D	Binary	True/false
6.1.2.3. Scientific literature	D	Binary	True/false
6.1.2.4. Media	D	Binary	True/false
6.1.2.5. Internet (e.g. Global Terrorist Database)	D	Binary	True/false
6.1.2.5. Legal (e.g. judicial resolutions)	D	Binary	True/false
6.2. Information gathering of the event	D-P	Categorical	Completed/partially completed/not completed
6.2.1. Sources of information	D	Binary	Completed/failed to complete
6.2.1.1. Open sources	D	Binary	True/false
6.2.1.1.1. Media reports	D	Binary	True/false
6.2.1.1.2. Internet (e.g. social networks)	D	Binary	True/false
6.2.1.1.3. Commercial information providers	D	Binary	True/false
6.2.1.1.4. Business directories	D	Binary	True/false
6.2.1.2. External sources	D	Binary	True/false
6.2.1.2.1. International (e.g. INTERPOL, EUROPOL)	D	Binary	True/false
6.2.1.2.2. National (e.g. intelligence Center for Counter-Terrorism and Organized Crime, Spain)	D	Binary	True/false
6.2.1.2.3. Regional and local	D	Binary	True/false
6.2.1.3. Internal sources	D	Binary	Completed/failed to complete

6.2.1.3.1. Informants	D	Binary	True/false
6.2.1.3.2. Indices checks	D	Binary	True/false
6.2.1.3.3. Undercover operatives	D	Binary	True/false
6.2.1.3.4. Physical surveillance	D	Binary	True/false
6.2.1.3.5. Electronic surveillance	D	Binary	True/false
6.2.1.3.7. Patrol Officer observations	D	Binary	True/false
6.2.1.3.7. Citizens	D	Binary	True/false
6.2.1.3.8. Calls for service	D	Binary	True/false
6.2.1.3.9. Offense reports	D	Binary	True/false
6.2.1.3.10. Arrest reports	D	Binary	True/false
6.2.1.3.11. Citizen complains	D	Binary	True/false
6.2.1.3.12. Field Interview Cards	D	Binary	True/false
6.2.1.3.13. Suspicious reports	D	Binary	True/false
6.2.1.3.14. Historical files	D	Binary	True/false
6.2.1.3.15. Other (specify)	D	Binary	True/false

6.3. Intelligence process	D-P	Categorical	Completed/partially completed/not completed
6.3.1. Pre-event intelligence	D	Binary	Completed/failed to complete
6.3.1.1. Intelligence group composition	D	Binary	True/false
6.3.1.2. Timeframe before the event	D-P	Binary	True/false
6.3.1.3. Outcomes (e.g. reports, special security plans)	D-P	Binary	True/false
6.3.2. Intelligence during the event	D	Binary	Completed/failed to complete
6.3.2.1. Intelligence group composition	D	Binary	True/false
6.3.2.2. Intelligence staff in the field	D	Binary	True/false
6.3.2.3. Outcomes (e.g. reports of suspicious activity)	D	Binary	True/false
6.3.4. Intelligence after the event	D	Binary	Completed/failed to complete

TABLE 12 – Proposed policy indicators and measures regarding security information/intelligence

3.7 SECURITY PLANNING

Risk assessment and contingency plans are actions often required by authorities when planning a mass gathering event. Table 13 shows the defined indicators and their measures for security planning. The main indicators include:

- risk assessment [indicator 7.1],
- emergency plan [indicator 7.2],
- pre-event meetings [indicator 7.3], and
- training [indicator 7.4]

It should be noted that all these main indicators are assumed as performance indicators (P) as they are considered as essential in security policy making. There are several risk assessment approaches with different degree of sophistication. The first indicator [7.1] covers some general features when conducting a risk assessment for allowing policy-makers (PMT users) to have evidences of the approach used and the key aspects considered. The proposed measure is a binary variable to determine if the proposed secondary indicators have been taking into account. The type of risk assessment conducted (static/dynamic/both), the methodology (quantitative/qualitative/both), the scope (general/specialized), the technique and tools (Analytical/computational/both) are addressed by proposed indicators. Lists of assets to protect and potential threats are provided measured as true/false. The rating scale used for assessing the risk and the way findings are reported are also included through proposed indicators thus obtaining useful information of the analysis conducted. That way PMT users will be able to evaluate not only the risk assessment results but also the appropriateness of the analysis.

Similarly, information of the emergency plan already conducted or to be conducted is represented by a set of indicators and their measures [indicator 7.2] to know the key issues but also to assess the preventive and response actions taken for protecting participants before the event. Although, there are different approaches to elaborate emergency plans, this indicator [7.2] proposes a wide range of key aspects to be considered and evaluated by the policy makers and PMT users (i.e. event details, management and responsibilities, scenarios definition and procedures).

The organization of pre-event meetings [indicator 7.3] and training [indicator 7.4] are also considered as necessary activities for agents involved likely to be included and/or practically implemented in policy-making regarding emergency planning of mass gathering events.

Indicators		Measure	
Description	Type	Type of variable	Proposed values
7.1. Risk Assessment	P	Binary	Complied/not complied
7.1.1. Responsible data	D-P	Binary	Completed/failed to complete
7.1.2. Type of risk assessment	D	Categorical	Static/dynamic/both
7.1.3. Methodology	D	Categorical	Quantitative/qualitative/semi-quantitative
7.1.4. Scope	D	Binary	General/specialized for mass gathering events
7.1.5. Technique/tools	D	Categorical	Analytical (e.g. decision trees)/computational/both
7.1.7 Assets that must be protected	D	Categorical	Completed/partially completed/failed to complete
7.1.7.1. Attendees	D	Binary	True/false
7.1.7.2. LEAs/security personnel	D	Binary	True/false
7.1.7.3. Safety personnel	D	Binary	True/false
7.1.7.4. VIPs	D	Binary	True/false
7.1.7.5. Critical infrastructures	D	Binary	True/false
7.1.7.7. Monuments/public icons	D	Binary	True/false
7.1.7.7. Environment	D	Binary	True/false
7.1.7.8. Government facilities	D	Binary	True/false
7.1.7.9. Commercial key assets	D	Binary	True/false
7.1.7.10. Other (specify)	D	Binary	True/false
7.1.7. Threats identification	D-P	Categorical	Completed/partially completed/failed to complete
7.1.7.1. Cancellation of the event	D	Binary	True/false
7.1.7.2. Pickpocketing	D	Binary	True/false
7.1.7.3. Loss child	D	Binary	True/false
7.1.7.4. Civil disturbance	D	Binary	True/false
7.1.7.5. Vandalism	D	Binary	True/false
7.1.7.7. Assault	D	Binary	True/false
7.1.7.7. Arson	D	Binary	True/false
7.1.7.8. Shooting attack	D	Binary	True/false
7.1.7.9. "Cold" terror attack (e.g. knife, axe)	D	Binary	True/false
7.1.7.10. Suicide bomber	D	Binary	True/false
7.1.7.11. IED (Improvised Explosive Device) (e.g. left luggage)	D	Binary	True/false
7.1.7.12. VBIED (Vehicle-Borne Improvised Explosive Device)	D	Binary	True/false

7.1.7.13. Cyber-attack	D	Binary	True/false
7.1.7.14. Intentional chemical release	D	Binary	True/false
7.1.7.15. Intentional radiological release	D	Binary	True/false
7.1.7.17. Intentional biological release	D	Binary	True/false
7.1.7.17. Vehicle ramming attack	D	Binary	True/false
7.1.7.18. Other (specify)	D	Binary	True/false
7.1.8. Rating scale	D-P	Categorical	5 level (e.g. very low-low-medium-high-very high)/4 level (e.g. no risk-minor-moderate-high)/3 level (e.g. low-medium-high)
7.1.9. Reporting findings	D-P	Categorical	Completed/partially completed/failed to complete
7.1.9.1. Significant hazards identified	D	Binary	True/false
7.1.9.2. Remaining risks	D	Binary	True/false
7.1.9.3. Conclusions/actions identified to reduce the risk	D	Binary	True/false
7.1.10. Updating/reassessment	D-P	Binary	Completed/failed to complete
7.2. Emergency Plan	P	Binary	Complied/not complied
7.2.1. Responsible data	P	Binary	Completed/failed to complete
7.2.2. Event details	P	Binary	Completed/failed to complete
7.2.2.1. Event overview and venue	D	Binary	True/false
7.2.2.2. Event schedule/timing	D	Binary	True/false
7.2.2.3. Attendance profiles	D	Binary	True/false
7.2.2.4. Crowd characterization	D	Binary	True/false
7.2.3. Management and responsibilities	D-P	Categorical	Completed/partially completed/failed to complete
7.2.4. Scenarios definition	D-P	Categorical	Completed/partially completed/failed to complete
7.2.4.1. Worse cases	D	Binary	True/false
7.2.4.2. Most probable	D	Binary	True/false
7.2.4.3. Risk assessment based	D	Binary	True/false
7.2.4.4. Other (specify)	D	Binary	True/false
7.2.5. Procedures	D-P	Categorical	Completed/partially completed/failed to complete
7.2.5.1. Communications	D-P	Categorical	Completed/partially completed/failed to complete
7.2.5.1.1. Facilities/equipment	D	Binary	True/false
7.2.5.1.2. Protocols	D	Binary	True/false
7.2.5.2. Warning system	D-P	Categorical	Completed/partially completed/failed to complete
7.2.5.2.1. Alarm (e.g. siren)	D	Binary	True/false

7.2.5.2.2. PA system	D	Binary	True/false
7.2.5.2.3. Screens	D	Binary	True/false
7.2.5.2.4. Mobile telephones	D	Binary	True/false
7.2.5.2.5. Social networks	D	Binary	True/false
7.2.5.2.7. Other (specify)	D	Binary	True/false
7.2.5.3. Evacuation	D-P	Categorical	Completed/partially completed/failed to complete
7.2.5.4. Emergency exits	D	Binary	True/false
7.2.5.5. Signalling/guiding	D	Binary	True/false
7.2.5.7. Meeting points/security areas	D	Binary	True/false
7.2.5.7. Other (specify)	D	Binary	True/false
7.2.5.4. Intervention	D-P	Categorical	Completed/partially completed/failed to complete
7.2.5.4.1. Security force	D	Binary	True/false
7.2.5.4.2. Medical assistance	D	Binary	True/false
7.2.5.4.3. Firefighting	D	Binary	True/false
7.2.5.4.4. Special units	D	Binary	True/false
7.2.5.4.5. Other (specify)	D	Binary	True/false
7.2.6. Emergency plan review	D-P	Categorical	Completed/partially completed/failed to complete
7.2.6.1. Responsible	D-P	Binary	Completed/failed to complete
7.2.6.2. Updating	D	Binary	Completed/failed to complete

7.3. Pre-event meetings

P

Categorical

Completed/partially completed/failed to complete

7.3.1. Number of meetings	D-P	Discrete	ℕ
7.3.2. Timeframe before the event	D-P	Discrete	MM:DD:HH

7.4. Training

P

Categorical

Completed/partially completed/failed to complete

7.4.1. Number of exercises	D	Discrete	ℕ
7.4.2. Type of exercises	D	Categorical	Completed/partially completed/failed to complete
7.3.2.1. Discussion based (e.g. workshop, tabletop, etc.)	D	Binary	True/false
7.3.2.2. Operational based (e.g. drills, functional exercises, etc.)	D	Binary	True/false
7.4.3. Timeframe before the event	D	Discrete	MM:DD:HH

TABLE 13 – Proposed policy indicators and measures regarding security planning

3.8 SECURITY MEASURES/OPERATIONS

The aim of the PMT is to support policymakers in the creation, enhancement and implementation of security policies. Although security measures and operational aspects are mostly related with LEAs duties and actions, the proposed indicators and measures are intended to provide general but useful information in a standardized way for policymakers and PMT users. The main indicators are concerned with workforce [indicator 8.1], access control and credentialing [indicator 8.2], deterrence methods [8.3] and monitoring [8.4].

Whereas indicator [8.1] allows the possibility to determine the security staff and units likely to be deployed in a given mass gathering event, indicator [8.2] is highly related with one of the most important security policy issues which consists of the selective restriction of access for people, vehicles and dangerous objects. Deterrence methods defined by indicator [8.3] are also important for security policies as they mainly focus on intentional attacks or malicious actions. It's worth mentioning that unfortunately deterrence methods for vehicles are now widely used for public crowded locations (27) and therefore they are focusing the attention of policymakers and authorities.

Finally, indicator [8.4] is related with measures put in place to maintain constant surveillance over the mass event. Monitoring methods [indicator 8.4.2] likely to be applied are defined and the potential systems for counting people, estimate people density and/or detect suspicious behaviours can be defined and measured by indicator [8.4.3].

Indicators	Measure		
Description	Type	Type of variable	Proposed values
8.1. Workforce	P-C	Categorical	Complied/partially complied/not complied
8.1.1. Type of security workforce	D-P	Binary	Complied/not complied
8.1.1.1. National police	D-P	Binary	True/false
8.1.1.2. Local police	D-P	Binary	True/false
8.1.1.3. Private security	D-P	Binary	True/false
8.1.1.4. Other (specify)	D-P	Binary	True/false
8.1.2. Units deployed	D	Binary	Completed/failed to complete
8.1.2.1. Traffic	D	Binary	True/false
8.1.2.2. Patrols	D	Binary	True/false
8.1.2.3. Crowd control (e.g. antiriot, mounted units)	D	Binary	True/false
8.1.2.4. Special operations (e.g. antiterrorist)	D	Binary	True/false
8.1.2.5. Explosive detection canines and handlers	D	Binary	True/false
8.1.2.7. Intelligence	D	Binary	True/false
8.1.2.7. Other (specify)	D	Binary	True/false
8.1.3. Workforce assignments	D	Binary	Completed/failed to complete
8.1.3.1. Number of tasks/unit	D	Discrete	N
8.1.3.2. Number of agents/post	D	Discrete	N
8.1.3.3. Crowd controllers ratio (54)	D	Categorical	<1:100 (low risk)/1:100 (medium risk)/>1:100 (high risk)
8.1.3.4. Other (specify)	D	Binary	True/false
8.2. Access control/credentialing	P-C	Binary	Complied/not complied
8.2.1. Perimeters	D	Binary	Complied/not complied
8.2.1.1. Outer (e.g. to deter vehicles but no pedestrians)	D	Binary	True/false
8.2.1.2. Middle	D	Binary	True/false
8.2.1.3. Inner	D	Binary	True/false
8.2.2. Restricted access points	D	Binary	Complied/not complied
8.2.2.1. For vehicles	D	Binary	True/false
8.2.2.2. For pedestrians	D	Binary	True/false

8.2.3. Personal belongings restriction	P	Categorical	Low (e.g. portable refrigerators, tends, etc.)/medium(e.g. small rucksacks and handbags)/high (e.g. only very small handbags)
8.2.4. Confiscation	P	Binary	Complied/not complied
8.2.4.1. Alcohol and drugs	D	Binary	True/false
8.2.4.2. Dangerous objects (e.g. sharp objects, glasses, liquids, etc.)	D	Binary	True/false
8.2.4.3. Flammable items	D	Binary	True/false
8.2.4.4. Gasses and pressure containers	D	Binary	True/false
8.2.4.5. Flags, symbols promoting racism and discrimination	D	Binary	True/false
8.2.4.7. Other (specify)	D	Binary	True/false
8.2.5. Credentialing	P	Binary	Complied/not complied
8.2.5.1. Type of attendees	D-P	Binary	Complied/not complied
8.2.5.1.1. VIPs	D	Binary	True/false
8.2.5.1.2. Normal	D	Binary	True/false
8.2.5.2. System	D-P	Binary	Complied/not complied
8.2.5.2.1. Tickets	D	Binary	True/false
8.2.5.2.2. RFID	D	Binary	True/false
8.2.5.2.3. Tyvek wristbands	D	Binary	True/false
8.2.5.2.4. Barcodes	D	Binary	True/false
8.2.5.2.5. Other (specify)	D	Binary	True/false
8.3. Deterrence methods	P-C	Categorical	Complied/partially complied/not complied
8.3.1. Vehicles	D-P	Categorical	Complied/partially complied/not complied
8.3.1.1. Physical barriers	D-P	Binary	Complied/not complied
8.3.1.1.1. Mobile bollards	D	Binary	True/false
8.3.1.1.2. Fixed bollards	D	Binary	True/false
8.3.1.1.3. Spike strips	D	Binary	True/false
8.3.1.1.4. Fences	D	Binary	True/false
8.3.1.1.5. Other (specify)	D	Binary	True/false
8.3.1.2. Surveillance	D-P	Binary	Complied/not complied
8.3.1.2.1. CCTV	D	Binary	True/false
8.3.1.2.2. Alarm intrusion system	D	Binary	True/false
8.3.1.2.3. Motion sensors	D	Binary	True/false

8.3.1.2.4. Personnel	D	Binary	True/false
8.3.1.2.5. Other (specify)	D	Binary	True/false
8.3.1.3. Inspections	D-P	Binary	Complied/not complied
8.3.1.3.1. Visual	D	Binary	True/false
8.3.1.3.2. Magnetometers	D	Binary	True/false
8.3.1.3.3. Full pat-down searches	D	Binary	True/false
8.3.1.3.4. Other (specify)	D	Binary	True/false
8.3.2. People	D-P	Binary	Complied/not complied
8.3.2.1. Physical barriers	D-P	Binary	Complied/not complied
8.3.2.1.1. Walls	D	Binary	True/false
8.3.2.1.2. Fences	D	Binary	True/false
8.3.2.1.3. Natural barriers (e.g, river)	D	Binary	True/false
8.3.2.1.4. Turnstiles	D	Binary	True/false
8.3.2.1.5. Doors	D	Binary	True/false
8.3.2.2. Surveillance	D-P	Binary	Complied/not complied
8.3.2.2.1. CCTV	D	Binary	True/false
8.3.2.2.2. Alarm intrusion system	D	Binary	True/false
8.3.2.2.3. Motion sensors	D	Binary	True/false
8.3.2.2.4. Personnel	D	Binary	True/false
8.3.2.2.5. Other (specify)	D	Binary	True/false
8.3.2.3. Inspections	D-P	Binary	Complied/not complied
8.3.2.3.1. Visual	D	Binary	True/false
8.3.2.3.2. Magnetometers	D	Binary	True/false
8.3.2.3.3. Scanners	D	Binary	True/false
8.2.3.4. Full pat-down searches	D	Binary	True/false
8.2.3.5. Other (specify)	D	Binary	True/false

8.4. Monitoring

	<i>P-C</i>	<i>Categorical</i>	<i>Complied/partially complied/not complied</i>
8.4.1. Focus	D-P	Categorical	Complied/partially complied/not complied
8.4.1.1. Crowd (e.g. density)	D	Binary	True/false
8.4.1.2. Suspicious behaviours (groups, individuals)	D	Binary	True/false
8.4.1.3. Vehicles	D	Binary	True/false
8.4.1.4. Suspicious packages	D	Binary	True/false
8.4.1.5. VIPs	D	Binary	True/false

8.4.1.7. Other (specify)	D	Binary	True/false
8.4.2. Methods	D-P	Categorical	Complied/partially complied/not complied
8.4.2.1. Staff in the field	D	Binary	True/false
8.4.2.2. CCTV	D	Binary	True/false
8.4.2.3. Drones	D	Binary	True/false
8.4.2.4. Sensors	D	Binary	True/false
8.4.2.5. Internet	D	Binary	True/false
8.4.2.7. Other (specify)	D	Binary	True/false
8.4.3. Systems	D-P	Categorical	Complied/partially complied/not complied
8.4.3.1. Counting people	D	Categorical	Hand counters/automatic/both
8.4.3.2. People density	D	Categorical	Staff/image processing/both
8.4.3.3. Suspicious behaviour	D	Categorical	Staff/image processing/both

TABLE 14 – Proposed policy indicators and measures regarding security measures/operations

3.9 POST EVENT ACTIONS

Post event actions involves several indicators and measures deemed to be included in the PMT because learning from the past could benefit future policy actions. The indicators and measures in Table 15 are intended to help policymakers and PMT users to take this into account. There are a number of main indicators related with the organization of post-event meetings [indicator 9.1], summary of the event [indicator 9.2], data collected [indicator 9.3] and data analysis [indicator 9.4], incidents identification [9.5], measures for the occurred incidents [indicator 9.6], the identification of security gaps (faults) [indicator 9.7] and post-event report [9.8]. All these indicators and their measures are presented orderly to facilitate the suggested policy actions proposed the PMT.



Indicators		Measure	
Description	Type	Type of variable	Proposed values
9.1. Post-event meetings	P	Binary	Competed/failed to complete
9.1.1. Number of post-event meetings	D-P	Discrete	\mathbb{N}
9.1.2. Timeframe after the event	D	Discrete	MM:DD:HH
9.1.3. Responsible	D-P	Binary	Completed/failed to complete
9.2. Event summary	P	Binary	Competed/failed to complete
9.2.1. The event details	D	Binary	True/false
9.2.2. The crowd	D	Binary	True/false
9.2.3. Legal issues	D	Binary	True/false
9.2.4. Public information	D	Binary	True/false
9.2.5. Security organization	D	Binary	True/false
9.2.7. Security information/intelligence	D	Binary	True/false
9.2.7. Security planning	D	Binary	True/false
9.2.8. Security measures/operations	D	Binary	True/false
9.3. Data collected	P	Binary	Competed/failed to complete
9.3.1. Sources	D	Binary	Completed/failed to complete
9.3.1.1. Physical surveillance (i.e. video recordings)	D	Binary	True/false
9.3.1.2. Citizens (i.e. witnesses, interviews, etc.)	D	Binary	True/false
9.3.1.3. Communications (transcripts and/or recordings)	D	Binary	True/false
9.3.1.4. Media	D	Binary	True/false
9.3.1.5. Expert opinions	D	Binary	True/false
9.3.1.7. Social networks	D	Binary	True/false
9.3.1.7. Internet (e.g. social networks)	D	Binary	True/false
9.3.2 Type	D	Categorical	Qualitative/quantitative/both
9.3.3. Format	D	Categorical	Paper/electronic/both
9.4. Data analysis	P	Binary	Competed/failed to complete
9.4.1. Video-investigation	D	Binary	True/false
9.4.2. Statistics	D	Binary	True/false

9.4.3. Semantic analysis	D	Binary	True/false
9.4.4. Analysis method framework	D	Binary	True/false
9.4.5. Communications (e.g. audio recordings, transcriptions)	D	Binary	True/false

9.5. Incidents identification	P	Binary	Completed/failed to complete
9.5.1. Type	D-P	Categorical	Intentional/accidental/both
9.5.2. Infringements (according to indicator 3.5)	D-P	Binary	Completed/failed to complete
9.5.3. Severity (based on AIS-Abbreviated injury scale)	D	Binary	Completed/failed to complete
9.5.3.1. Minor injuries	D	Binary	True/false
9.5.3.2. Moderate injuries	D	Binary	True/false
9.5.3.3. Serious injuries	D	Binary	True/false
9.5.3.4. Critical injuries	D	Binary	True/false
9.5.3.5. Maximal (e.g. fatalities)	D	Binary	True/false
9.5.4. Responsible area identified (according to indicators in 5.2.1)	D-P	Binary	Completed/failed to complete
9.6. Measures put in place for the incident (see indicators in Table 14)	D-P	Binary	Completed/failed to complete
9.6.1. Workforce deployed	D	Binary	True/false
9.6.2. Access control/credentialing	D	Binary	True/false
9.6.3. Deterrence methods applied	D	Binary	True/false
9.6.4. Monitoring	D	Binary	True/false
9.6.5. Other (specify)	D	Binary	True/false
9.7. Gaps identification and definition	D-P	Binary	Completed/failed to complete
9.7.1. Personnel (e.g. lack of personnel)	D	Binary	True/false
9.7.2. Communication	D	Binary	True/false
9.7.3. Warning systems	D	Binary	True/false
9.7.4. Evacuation/egress provisions	D	Binary	True/false
9.7.5. Intervention issues/tactics	D	Binary	True/false
9.7.7. Training	D	Binary	True/false
9.7.7. Access control/credentialing	D	Binary	True/false
9.7.8. Deterrence methods	D	Binary	True/false
9.7.9. Monitoring	D	Binary	True/false

9.7.10. Other (specify)	D	Binary	True/false
9.8. Post event report	D-P	Binary	Completed/failed to complete
9.8.1. Responsible data	P	Binary	Completed/failed to complete
9.8.2. Availability	D	Binary	Confidential/public available
9.8.3. Structure	D-P	Binary	Free style/standardized (e.g. for database)
9.8.4. Contents	D-P	Categorical	Complied/partially complied/failed to comply
9.8.4.1. Event summary	D-P	Binary	True/false
9.8.4.2. Incidents	D-P	Binary	True/false
9.8.4.3. Measures put in place	D-P	Binary	True/false
9.8.4.4. Gap identification	D-P	Binary	True/false
9.8.4.5. Lessons learned and future precautions	D-P	Binary	True/false
9.8.5. Reviewer data	D-P	Binary	Completed/failed to complete
9.8.7. Date of revision	D	Discrete	DD:MM:YY

TABLE 15 – Proposed policy indicators and measures regarding post-event actions

4 CONCLUSIONS

The present analysis has aimed to provide policy indicators and their measures for the Policy making Toolkit (PMT). For that purpose, a systematic methodology was used involving the following steps: 1) define security issues, 2) collect current policies and best practices, 3) analyse current policies and best practices, 4) select preferred policies and best practices and 5) define indicators and measures for the PMT.

The survey on policy documents commonly used by LEAs involved in the project and the review of best practices and new policies around the world permitted the identification of the indicators and their measures proposed for their implementation in the PMT. The survey involved 16 policy documents currently applied by state members (Belgium, Germany, Italy and Spain). Questions were asked about three main policy issues: 1) Events considered, 2) legal issues and 3) security issues. This survey allowed a preliminary analysis to find those issues addressed in the current security policy implementation. Survey results showed a high coverage in policy documents in relation with events considered and a fairly good coverage in relation with legal issues, mainly those issues related with roles and responsibilities and authorisation of events. A lack of coverage was observed regarding policy and security measures. Furthermore, citizens' rights are in general less covered in a variety of interpretations. The analysis of best practices around the world involved 25 source documents devoted to mass gathering events using different approaches (from those documents focused on crowd control and management to those documents specialized on people protection against terrorism and criminal actions). From this review, several innovative policies were identified and transformed into indicators with their respective measures for the PMT.

The defined indicators were classified into 9 categories: 1) Event information, 2) the crowd, 3) legal issues, 4) public information, 5) security organization, 6) intelligence, 7) planning, 8) security measures and operations and 9) post-event actions. It should be noted that some of the proposed indicators form a category are directly related with others (i.e. authorization of the event depends on many indicators). The indicators were also classified into descriptive, performance and/or composite. The proposed measures were defined by the type of variable (binary, categorical, continuous, discrete and/or ordinal) and the values of these variables were proposed for the PMT.

Results presented here are the basis for the next tasks of WP4 (T4.2, T4.3 and T4.4) aimed to build a comprehensive and pragmatic knowledge base that will support security policy making on challenges by sharing best practices that are in use throughout Europe, and by providing visualization and assessment tools and guidelines that help European, national and local policy makers to assess the impact of their practices, and improve their decision making mechanisms.

From the current analysis it is possible to conclude that policymakers, using the PMT with the proposed indicators and measures, will be able to make key decisions (e.g. authorize the mass gathering event, ensuring an appropriate protection of participants and respect the citizen rights) but also to design, implement and evaluate new security policies in the near future.

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6 ANNEX 1.- Survey questionnaire on policy documents

1 Executive report-policies

This is a survey of the policy documents currently available in your country.

1.1 REVISED DOCUMENTS

Basic information

#	Reference (name/date/country)	Type* (mark with an "X")			Scope^ (mark with an "X")		
		Reg.	St.	Guid.	Nat.	Reg.	Loc.
1							
2							
...							

* Reg. Regulation - A document containing specific mandatory requirements adopted and enforced by a legal government entity;
St. Standard - A document containing mandatory language, usually produced by a technical entity such as an association or society. These documents by themselves have no legal standing, except where they have been adopted by or on behalf of a government agency by legislative action or other legal empowerment or authority;
Guid. Guideline - A document providing recommended policies and practices in the security and/or protection for mass gatherings. These documents are typically prepared by technical associations as well as by certain governmental agencies.

^Nat. National; Reg. Regional; Loc. Local.

FILL THE FOLLOWING TABLES WITH INFORMATION FROM EACH REVISED DOCUMENT

Document Reference/name/date/country:

1.2 EVENTS CONSIDERED

Type

Type	(mark with an "X")	Include a description of contents according to the revised document
Sporting events		
Religious events		
Cultural events		
Political events		
Special events		
Other events?		

Venue

Venue	(mark with an "X")	Include a description of contents according to the revised document (in English)
Indoor		
Outdoor		
Contained venue		
Uncontained venue		
Other?		

1.3 LEGAL ISSUES

Roles and responsibilities

Role	(mark with an "X")	Include a description of contents according to the revised document (in English)
Public authorities		
Organizer		
LEAs		
Stakeholders		
Others?		
Responsibilities	(mark with an "X")	Include a description of contents according to the revised document (in English)
Public authorities		
Organizer		
LEAs		
Stakeholders		
Others?		

Authorization

	(mark with an "X")	Include a description of contents according to the revised document (in English)
Authority		
Events/activities not permitted		
Administrative process		
Organizer duties		
Requirements /conditions		

Infraction of the law/sanctions

	(mark with an "X")	Include a description of contents according to the revised document (in English)
Organizer		
Spectators/citizens		
Stakeholders		
LEAs		
Others?		

Citizen rights

	(mark with an "X")	Include a description of contents according to the revised document (in English)
Rights/restrictions		
Privacy		
Information/awareness		
Insurance coverage		
Complaints		
Others?		

1.4 SECURITY ISSUES

Organization

	(mark with an "X")	Include a description of contents according to the revised document (in English)
Leadership authority/structure		
LEAs involved		
Other agents		
Communications		
Procedures		
Others?		

Planning

	(mark with an "X")	Include a description of contents according to the revised document (in English)
Risk assessment		
Emergency plan		
Meetings		
Inspections		
Gathering information		
Others?		

Police and security measures

	(mark with an "X")	Include a description of contents according to the revised document (in English)
Access control		
Crowd management		
Cybersecurity		
Alarm/warning		
Surveillance		
Security personnel		
Asset deployment		
Others?		