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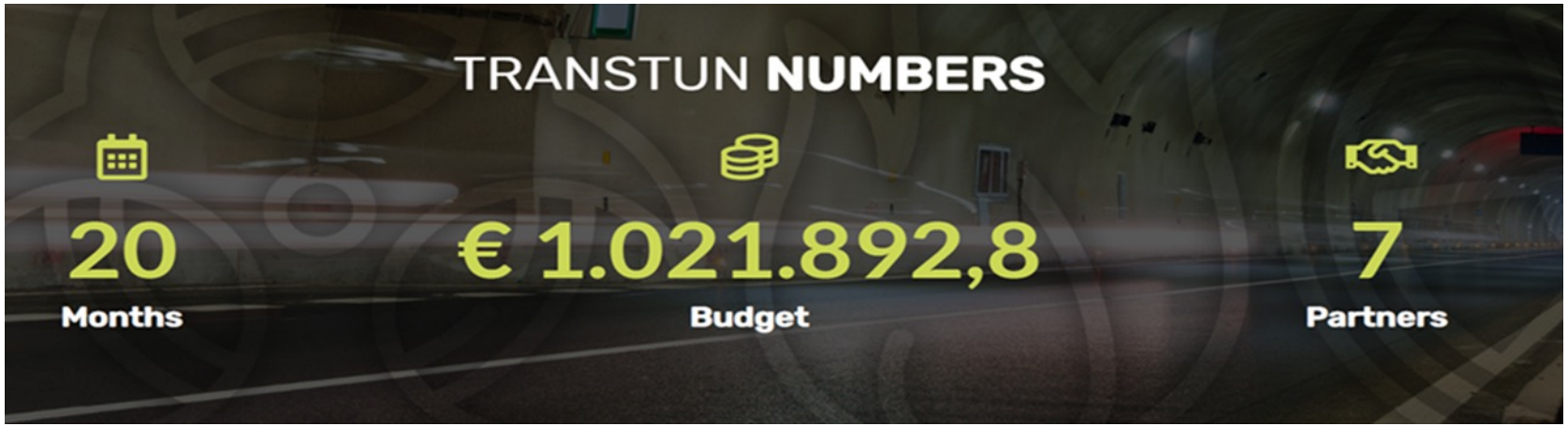
Project TRASTUN
TRANSnational TUNnel operational CBRN risk mitigation

This project was funded by the European Union's Internal Security Fund — Police under Grant Agreement No. 861587

Project Overview

TRANSTUN project is a public-private initiative which addresses the concrete CBRN risk of chemical events in European Cross-Border tunnels.



Start Date: 1st October 2019 End Date: 31st May 2021

7 Partners from

BELGIUM, FRANCE, ITALY, SPAIN

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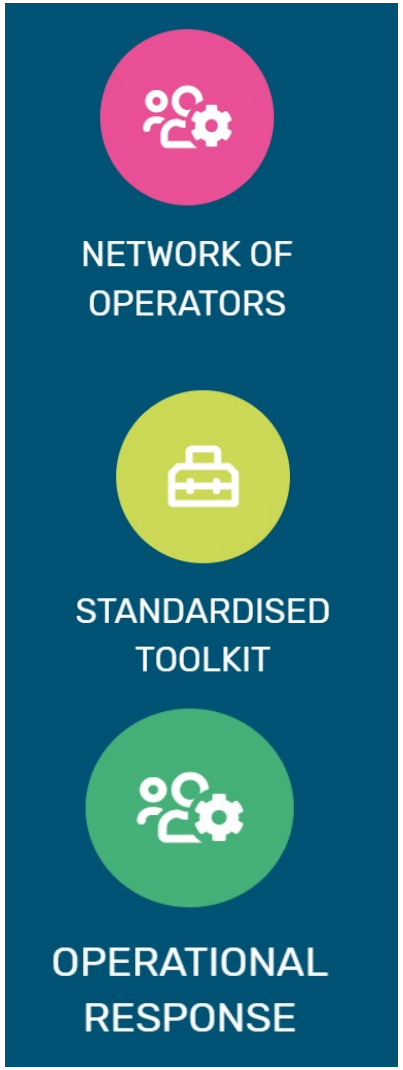
Specific Objectives



Develop and formalise a network of operators and emergency responders for EU Cross-Border tunnels through joint activities, sharing of information, development of synergies, replicability of tools and procedures common to road and rail tunnels.

Develop a standardised toolkit for Member States and operators of EU Cross-Border tunnels to respond to a chemical attack/accident in a cooperative way, ensuring coordination of different national authorities, and thus creating procedures which are not in conflict with national doctrines and legislations.

Improve joint operational response of operators and emergency responders to chemical attacks/accidents occurring in CB tunnels with the aim of testing trans-border coordination protocols, reducing response time and enhancing use of proper equipment.

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Main goals

- **Improve** preparedness/response of operators, emergency responders and Member State in addressing CBRN threats in a Cross-Border road tunnels;
- **Develop** a set of common operational guidelines;
- **Test** in a live scenario in one of EU Cross-Border tunnel.

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Consortium

SAFE
Security and Freedom for Europe

OUVRY
CBRN protective system

Università di Roma Tor Vergata

B&S EUROPE

HCL HOSPICES CIVILS DE LYON

>novadays

Lombardi

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SAFE
Security and Freedom for Europe

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Partner

SAFE is a no-profit association specialised in the **design and implementation of EU-funded projects** in the area of security, defence, peace, stability and fundamental rights with a special focus on CBRNe risk mitigation at European and non-European Critical Infrastructures.

Amongst the services it provides feature, the provision of training and equipment, top-level policy advice, technical competence from experienced practitioners, effective project management and innovative monitoring and evaluation.

Within the TRANSTUN project SAFE is consortium leader (therefore responsible for the coordination of project management).

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TRANSTUN PROJECT

OUVRY
CBRN protective system

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Partner

OUVRY is specialized in **CBRN personal protective systems** and has the mission to define with its clients the most adapted CBRN protection system for their environments and constraints.

For this reason, Ouvry developed a large range of PPEs for all CBRN risks and adapted them to military and civilians needs.

Ouvry's innovative products are intended for all intervention operators – from soldiers and law enforcement staff, to firefighters, first responders and medical staff (ambulances & hospital) – and for a comprehensive range of situations – from those involving CBRN security, health crisis and industrial disasters, to critical infrastructures' incidents and maintenance.

Within the TRANSTUN project Ouvry coordinates CBRN equipment standardization processes, procurement and testing.

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Partner

>novadays

Novadays is a global research and consulting firm specialised in the **design and implementation of innovation and capacity building projects**, public policies (including Defense and Security Policies, but also Transport and Infrastructure or Energy Public Policies) and **management of the public sector** – with the aim of improving economic and social development.

Within the TRANSTUN Project **Novadays is tasked with coordinating the risk assessment on chemical threats to EU cross-border tunnels.**

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Partner

Lombardi

Lombardi is an independent **engineering company** with more than 500 engineers and is located in a dozen countries around the world.

The services offered by the Lombardi Group include **all aspects related to complex infrastructure projects, from design to implementation.**

The Lombardi Group supports customers throughout the work cycle and assists in the operation and maintenance of structures and equipment. Lombardi's expertise in road tunnel safety and intervention procedures is marked. In fact, the group has several Tunnel Safety Officers and Experts working within the company.

As part of the TRANSTUN project, Lombardi is the operational guidelines and live testing coordinator.

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Partner

HCL, **Hospices Civils de Lyon, is France's second university hospital.**

With over 23.000 employees and 14 facilities, HCL provides all patients with 365 days a year and 24 hours a day access to care – area referent for exceptional health situations.

HCL coordinates several national reference centers including those for rare lung diseases, care kidney diseases and cystic fibrosis, and has a **disaster medical assistance team.**

Within the TRANSTUN project, HCL is coordinator of medical planning and response tasks, particularly in relation to guidelines and live testing.

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TRANSTUN PROJECT

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Partner

B&S Europe is a global development and international cooperation consultancy operating in the sectors of security, justice, governance and outreach – with in-depth **experience in communications campaigns and events planning.**

The group works with CBRN risk mitigation centers, law enforcement agencies, and Government Ministries to design and develop solutions to improve security, promote effective inter-agency cooperation, institutional development and innovation.

Within the Transtun Project B&S Europe is **the engagement and networking coordinator with a focus on events and outreach activities.**

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Partner

University Tor Vergata is the leading EU University in CBRN research and training, has NATO selected status, and is an affiliate of the Organization for the Prohibition of Chemical Weapons and of the Italian Ministry of Defence and of Interior.

Within the TRANSTUN project UNITOV is **research leader in all work packages and focuses on desk analysis, risk assessment and elaboration of guidelines. Moreover, it is the partner that deals operationally with the dissemination of information through the newsletter and the management of social channels.**

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Activities

WP	Title
Work Package 1	Management and Communication
Work Package 2	Risk Assessment of Chemical Threats to EU Cross-Border Tunnels
Work Package 3	Preparation of Standard Operational Guidelines for Prevention and Response to Chemical Events in Tunnels
Work Package 4	Cross-Border Testing
Work Package 5	Networking and Capitalization

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Stakeholders engagement

- **Project Website** to disseminate TRANSTUN activities and outcomes **(WP1)**
- Two ad hoc **Workshops** to jointly discuss the risk assessment of potential chemical threats to EU CB tunnels **(WP2)**
- **Stocktaking exercise** to ass gaps in terms of equipment and processes **(WP2)**
- Six Technical platforms focused on PROCESS and EQUIPMENT to deliver **standard operational guidelines (WP3)**
- **LiveTest Exercise** within a real Cross-Border Tunnel **(WP4)**
- **Formal network** of EU Stakeholders to foster discussion on real needs **(WP5)**
- Raising **awareness** about emerging threats and relevant events in the field **(WP5)**

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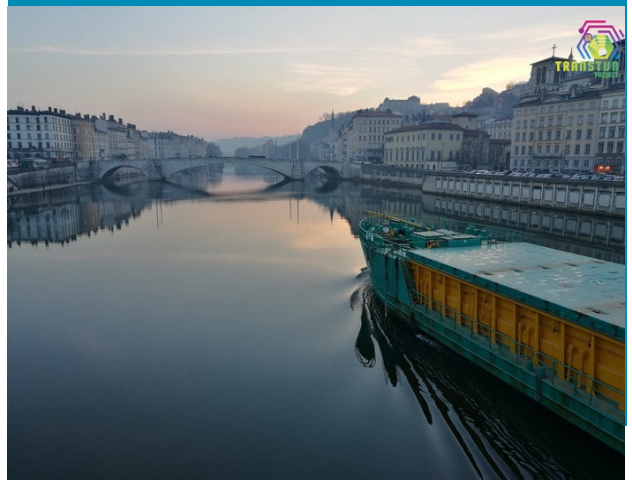
TRANSTUN KICK-OFF AND FIRST TRANSANTIONAL INTERIM MEETING

14/15 OCTOBER 2019

LYON, FRANCE



The two-days **kick-off meeting** of TRANSTUN project started on October in Lyon, France, and saw the participation of representatives from all project partners.

The kick-off meeting represented a priceless opportunity for all partner organisations to discuss more in detail specificities of the project (such as objectives and work plan) in a joint planning approach.

October 14th (Day 1) was dedicated to the **presentation of the project**'s technical aspects focusing on the calendar of activities and joint planning, including financial and administrative planning, internal consortium rules, presentation of the consortium agreement, procedures for the purchase of equipment.

October 15th (Day 2) was dedicated to the **first TRANSTUN Transnational Interim Meeting (TIM)**.

On this occasion, TRANSTUN partners and supporting stakeholders tackled training and exercise planning at the pilot infrastructure, exchanged ideas about communication and dissemination activities and Partner Novadays presented the first 6 months implementation strategy and calendar of activities..

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TRANSTUN
KICK-OFF
AND FIRST
TRANSANTIONAL
INTERIM MEETING

14/15 OCTOBER 2019

LYON, FRANCE

Co-funded by the European Union

WP2 – Risk Assessment of Chemical threats to EU cross-border tunnels

- **Leader: Novadays**
- **Participants:** Ouvry, UNITOV, Lombardi and Novadays
- **Duration:** Oct 2019 (M1) – July 2020 (M10)

Objectives:

- Detailed update on the state of art on transnational Critical Infrastructure examining the **existing security protocols and procedures** under operators of cross-border tunnels.
- The Joint Analysis of main risks faced by a transnational land transport Critical Infrastructure (i.e. tunnel), will allow the set-up of a **standardized risk assessment matrix**, which will then be applied /tested **in a specific pilot infrastructure.**

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2.1. Roadmap for harmonisation of protocols and procedures on cross-border CI

2.1 Desk research – assessment of **state of the art** in terms of

- **Existing security protocols and procedures**;
- **Existing case studies;**
- **Existing joint exercises;**

- **Objective:** Update on the state of art on transnational Critical Infrastructure examining the **existing security protocols and procedures for chemical threats and attacks** under different Member State regulation and operators of CB tunnels.

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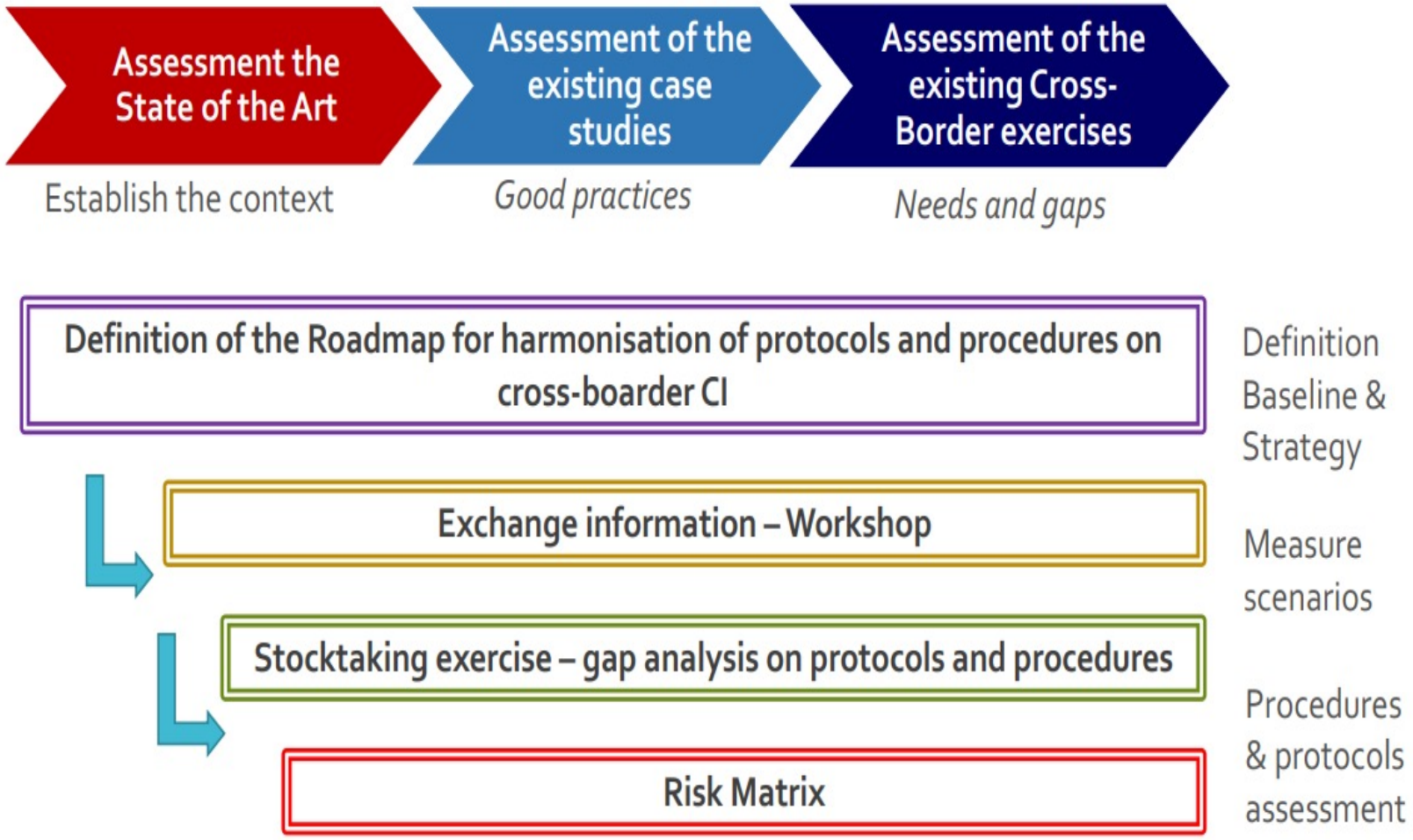
2.1. Roadmap for harmonisation of protocols and procedures on cross-boarder CI



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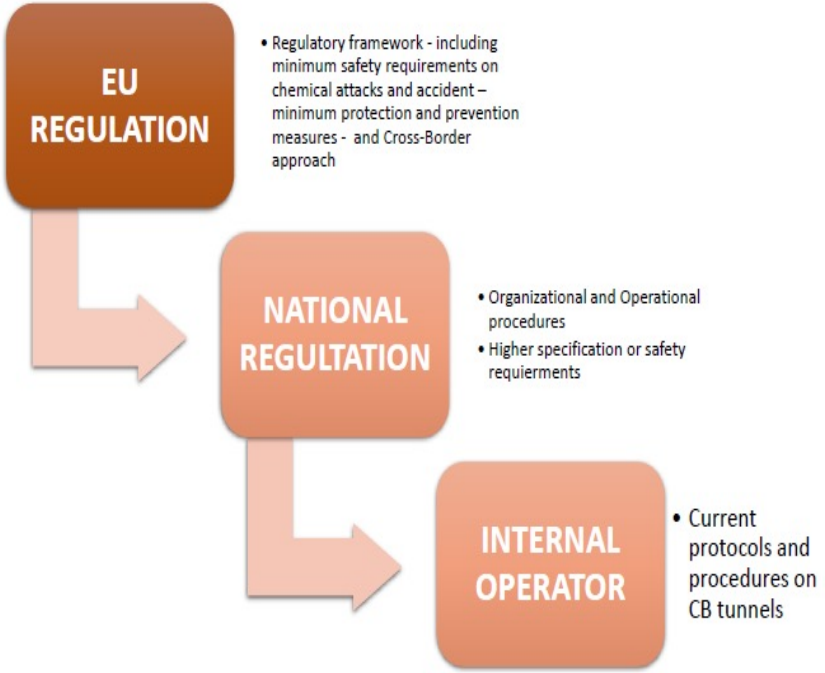
State of the Art – Protocols and Procedures

- The state of the art of the **protocols and procedures**.
  - **3 level assessment** of the regulatory context in the selected countries with specific regard to the regulatory and technical aspects of tunnel safety and CBRN risks.
  - EU member states: **France, Italy, Spain and Austria**
  - **5 Cross-border critical infrastructure (tunnels)** determining the organisational and operational aspects of tunnel safety in these countries.



N°	Tunnel's name	implicated countries	lenght (m)	specialty
1	eurostar	France/ENGLAND	50500	RAILWAY
2	Saint Gothard	Switzerland	57104	RAILWAY
3	**Aragnouet-Bielsa**	**France/SPAIN**	**3070**	**ROAD**
4	Tende	France/Italy	3182	ROAD
5	**Fréjus**	**France/Italy**	**12895**	**ROAD**
6	Grand-Saint-Bernard	Italy/Switzerland	5798	ROAD
7	**Karawanken**	**Slovenia/Austria**	**7864**	**ROAD**
8	**Mont Blanc**	**France/Italy**	**11611**	**ROAD**
9	Drogden	Denemark/Sweden	4050	ROAD
10	**Somport**	**Spain/ France**	**8602**	**ROAD**

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State of the Art – Protocols and Procedures

- 6 categories defined of the Emergency Management
- More than 30 key safety aspects analysis.
- **More than 24 protocols and procedures** to be assessed under the following categories:
  - Incident Management Procedures;
  - Intervention Procedures;
  - Communication Protocols.
- **High Discrepancies** in terms of
  - national safety requirements and organizational models risk analysis model or
  - Organizational aspects
  - Specific mandatory training

Categories	Description	Level
Prevention of chemical risk	reduce its occurrence and consequences	National
Prediction of the chemical risk	to facilitate the management, in the "firefighter" sense of = building rules, equipment, and human means to be implemented to prevent the risk, to fight against it, and the "go back" to normal life)	National
Planning	anticipating the organization of the operational response) of the operation => emergency action plan. In case of serious accident or incident, all concerned tubes are immediately closed to the circulation thanks to simultaneous activation inside and outside the tunnel of standing regulation mechanisms to block circulation coming from outside.	National
Operational readiness	by training = individual training, organization/chain of command training) of entities in charge of the chemical risk management. Underground access to the road lane allowing firemen to intervene with their vehicles in the tunnel and to park them between moisturizer and fire hose.	National
Self-protection plans - Internal emergency plans.	Action and Security plan is elaborated by the operator who is linked with external monitoring services.	Internal Level
Implementation of the Self-Protection Plan		Internal Level
Maintenance of the Self-Protection Plan		Internal Level

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Case Study assessment

- **Objective**: to identify good practices applicable or relevant to TRANSTUN
- **Limited literature** on this matter of CBRN risk in Cross-Border tunnels
- **19 projects** selected for the assessment (EU, national and International)
- **Only 4 projects was selected for the level of relevance to TRANSTUN**
- Potential applicable good practices has been identified:
  - technological, training, and strategic measures
  - Risk Analysis Methodology
  - CBRN
  - Integrated approach of multiple key stakeholders
  - Unified and predefined safety operators and operations

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Case Study assessment

GOOD PRACTICE CATEGORY	PROJECT/CASE STUDY	SPECIFICATIONS
Risk Analysis Methodology	ASTRA2009/001	Integrated methodology; it was ultimately developed into a prototype
	SAFE-T	Guidelines on a harmonized risk analysis system
	READ	CIR capabilities against vulnerabilities
Integrated approach of multiple key stakeholders	SAFE-T	Employed throughout the emergency cycle
	ENCIRCLE	CBRN stakeholders approach
Unified and predefined safety operators and operations	SAFE-T	Appointment of common authorities and response protocols

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Cross-Border exercises assessment

- **Limited literature**, and **sensitive information** with very little data are available for some of the selected exercises.
- **2 Cross-Border Exercises** selected for the assessment:
  - **JEROME -** Capabilities and interoperability for joint RO-BG cross-border first responder intervention to chemical-biological-radiological-nuclear-high yield explosive emergencies (EDRF under the Interreg V-A Romania-Bulgaria Programme, September 2017);
  - **QUINTETO+ -** Counter-CBRN terrorism cross-border exercise (EC – DG HOME, 2019)
- None of exercises directly involved with road tunnels, but **CBRN risks and Cross-border exercises.**
- **Gaps and needs assessment**
  - Cross-boder exercises
  - Involved First responders
  - Scenario
  - Test capacities
  - Type of exercise
  - Partners

Cross-Border exercises assessment

- **Cross-Border exercises:** using **a common methodology** to provide a homogeneous and rapid response to the resolution of a CBRN emergency is very useful especially when the exercise involves several countries, including non-neighbouring countries.
- **Involved First Responders: common communication procedures** among the CBRN emergency units involved with inter-agency approach (involving First Responders)..
- **Scenarios**: it is appropriate to create exercises on previously analysed scenarios that highlight situations of concern. By analysing the risks, the most performing scenarios will be assessed.
- **Tested capacities –**it is essential that the First Responders can be trained to improve emergency response at any level for characterizing the current situation.
- **Type of exercise** – Varying the types of exercise based on the skills that need to be developed, and always following the criterion of cost-effectiveness, is always advisable.
- **Partners** – Develop the interaction of all partners involved in a CBRN emergency response situation; however, definition of each partner role is necessary.

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WP2 – 2.2
1° WORKSHOP
"RISK ANALYSIS FOR CROSS-BORDER CRITICAL INFRASTRUCTURES AGAINST CHEMICAL RISKS"

12TH OF FEBRUARY
TURIN, ITALY

This project was funded by the European Union's Internal Security Fund — Police under Grant Agreement No. 861587

Workshop I

Objectives

<u>The specific objectives for the workshop</u>:

- Discuss on the main CBRN risks,in particular chemical risks, in the Cross-Border tunnel
- Share the Risk Matrix with a multi-stakeholder approach;
- Establish meaningful partnerships that result in sustained use of effective protocols, equipment, and procedures, by the communities responsible of CB critical infrastructure in tunnels against chemical attacks or accident.

<u>Expected outcomes</u>:

- Consolidated risk - Identification of risks based on a common approach and identification of unknown risks.
- Main guidelines for the Risk Assessment for Chemical risks in Tunnel and CB tunnels under the multi-stakeholder perspective
- Stakeholders platform created.

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TRANSTUN – Online Survey

ONLINE SURVEY INFO:

- **Data of submission:** 1 week before the workshop
- **Number of questions:** 18
- **Areas of interest:** COLLABORATION, RISK ASSESSMENT, TRAINING & STAKEHOLDER NEEDS, EQUIPMENT
- **Number of Entities that completed the survey:** 7 different Entities (TSO, Tunnel Operator – GEF, Tunnel Manager – Bielsa, French Emergency Services, CETU, Calle M30 - Tunnel Operator, Geneva Police)
- **Type of Entities that completed the survey:** Tunnel Safety, Emergency services, First Responders

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Workshop I

1st Discussion

FIRST DISCUSSION - ON CBRN IN THE RISK MATRIX OF CB CRITICAL INFRASTRUCTURES.

Objective: Identification of risks, knowing those which are already considered and those which are "**unknown risks**".

Content discussion:

- Regular chemical risks
- CBRN in the risk analysis and the risk matrix.
- Identification of the unknown chemical risks.

Method: n° 4 groups of open forum, an exchange of information is necessary with the key stakeholders involved (operators, authorities, emergencies rescuers, laboratories, manufacturers, researchers, policy makers…) in order to feed this information into the Risk Assesment framework.

Outcomes: Consolidated risk list - Identification of risks based on a common approach and identification of unknown risks.

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Workshop I

1st Discussion

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Workshop I

1st Discussion

Risks list:

1. **Toxic Cloud:** toxig gas, N2 , Metal transport
2. **Explosive Cloud**: O2 comburent Explosive, Hydrogen, VCE (Vapour Cloud Explosion
3. **Fire**, pool fire, flamable cloud after accident
4. **Corrosive Leakage**
5. **Dirty bombs**
6. **Biological leakage**

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Workshop I

2st Discussion

SECOND DISCUSSION SESSION:

This discussion will make it possible to know from the participants their level of consideration of the risks previously listed in the first session. And how it prepares and plans to return to normal situation.

Objectives:

- Review the risk analysis of the consolidated list of risks in order to collect main guidelines for the risk matrix development.

- Once the chemical risks are identified, we will proceed with reviewing each of the risk selected in the following categories:

•PREVENTIVE CONTROL •CONSEQUENCE ASSESSMENT
•CORRECTIVE CONTROL •RESIDUAL RISK RATING

Method: n° 2 groups of open forum with the key stakeholders involved (operators, authorities, emergencies rescuers, laboratories, manufacturers, researchers, policy makers…) in order to feed this information into the RA framework.
Outcomes: develop the guidelines of the Risk Matrix.

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Workshop I

2st Discussion

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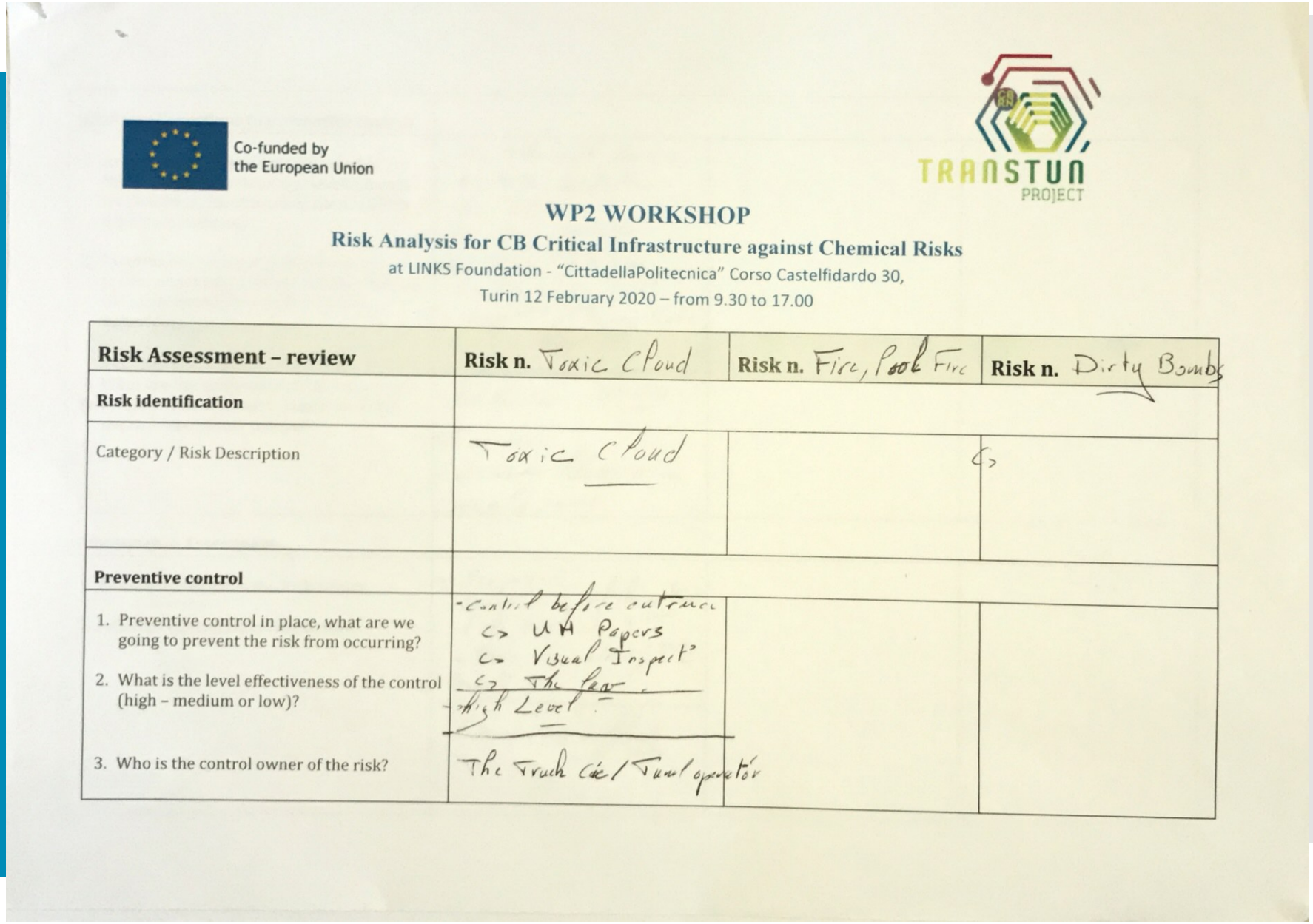
Workshop I

2st Discussion



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WP2 WORKSHOP

Risk Analysis for CB Critical Infrastructure against Chemical Risks

at LINKS Foundation - "CittadellaPolitecnica" Corso Castelfidardo 30,

Turin 12 February 2020 – from 9.30 to 17.00

Risk Assessment – review	**Risk n.** Toxic Cloud	**Risk n.** Fire, Pool Fire	**Risk n.** Dirty Bombs
Risk identification			
Category / Risk Description	Toxic Cloud	<>	
Preventive control			
1. Preventive control in place, what are we going to prevent the risk from occurring? 2. What is the level effectiveness of the control (high – medium or low)?	- Control before entrance <> UH Papers <> Visual Inspect° <> The door High Level		
3. Who is the control owner of the risk?	The Truck cie / Tunnel operator		

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Workshop I

2st Discussion

List of selected Risks divided per group: feedback collected

Group A and **Group B**

Risks list:

-**Toxic Cloud**: toxig gas, N2 , Metal transport

-Fire, pool fire

-Dirty bombs

Group C and **Group D**

Risks list:

-**Explosive Cloud**: O2 comburent Explosive, Hydrogen, VCE (Vapour Cloud Explosion

-Corrosive Leakage

-Biological Leakage

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Workshop I
Results

ONLINE SURVEY:

Collaboration depends from decision of every single Tunnel. There is no procedure that specifies what it the level of collaboration.

Risk Assessment: Identification of CBRN risks in particular chemical are not always included in the Emergency Plan, depends from country and Tunnels characteristics.

Training & Stakeholder Needs: Standardise a training plan as much as possible and include it in the emergency plan. There is no specific exercise for chemical hazards. Standardise the minimum stock of PPE in the emergency plan, in particular with regard to chemical risk.

Preventive Control: There is no standard procedure for the prior checking of Tunnel users. There are no standard procedures to alert and risk identification. There are no standard procedures to identify, after an exercise or accident, the behaviour of Tunnel users.

Corrective Control: correct training to the operators as they will be the first responders present in the place.

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ABOUT THE FIRST AND SECOND DISCUSSIONS:

Group A-B	Group C-D
Toxic Cloud	Explosive

Workshop I
Results

PREVENTIVE CONTROL This aspect seems very important for the experts.

- **Simple procedures** (e.g. visual inspection, safety distance between vehicles, especially between heavy goods vehicles, setting clear speed limits, signal lights) if properly implemented by the organization which manages critical infrastructure can significantly reduce problems and occurrence of risks.
- In addition, the **creation of procedures** aimed to increase the safety of the crossing of heavy goods vehicles carrying **dangerous goods**, avoids further complications. In fact, experts have suggested delays only for the circulation of these vehicles or dedicated one-way passages.
- From on the site point of view, the **first controller** of the risk prevention process is the **tunnel operator**. All attention is focused on him, as the **first operational responders**. For this reason, the importance of his **training** is underlined.

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Workshop I Results

ABOUT THE FIRST AND SECOND DISCUSSIONS:

PREVENTIVE CONTROL

- Experts are very confident in supporting preventive technological measures. They listed several different detection methods, such as thermal detection, infrared, photoionization, ion mobility, explosives detectors. In addition, they listed the methods to identify vehicles carrying dangerous goods, alert procedures such as communications, alarms, alerts of various types, radio alerts, security instructions also on flyers paper or individuals.
- All the techniques which help in the analysis of user's behavior are recommended such as exercises, even with the use of video cameras to analyze user's behavior.
- It will be useful to implement alarm methods to avoid the risks and "domino effect" that would be even more amplified in an environment like that of the tunnels.

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Workshop I
Results

ABOUT THE FIRST AND SECOND DISCUSSIONS:

CORRECTIVE CONTROL measures to mitigate the risk which are primarily structural (barriers, ventilation) but also organizational measures are very important, such as:

- the TIMES indicated for the PASSAGE OF CERTAIN VEHICLES,

- ESCORT for crossing along the tunnel of vehicles considered to be DANGEROUS.

The importance of well-trained tunnel operators is stressed because they will be the first to respond to an emergency.

TIME is a critical and decisive factor in responding to the emergency, since the fire fighters, and those involved in the risk management, are not present on the site. It is therefore necessary that all operators know how to proceed and that the infrastructure is able to respond quickly to any need.

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Workshop I
Results

ABOUT THE FIRST AND SECOND DISCUSSIONS:

RESIDUAL RISK RATING

Probably for time constraints, the experts were unable to provide this section on the assessment of the residual risk. Certainly also because all attention has been given to prevention and related measures.

In fact, it was understood that there was a need to reduce risk situations when further situations would arise. Occurring in a closed critical infrastructure, such as the tunnel, they would be even greater. Additional procedures must be adopted to reduce the consequences of possible problems, both for users and for the staff managing and monitoring the structure

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2.3 Stocktaking Exercise for Gap Analysis

Objective:

set up a STOCKTAKING EXERCISE by taking a PILOT INFRASTRUCTURE as an example and going to design a comprehensive analysis to assess the gaps in terms of equipment and processes that will allow to understand the missing elements and to fill them.

- This objective is crucial for the continuation of the TRANSTUN project because the Pilot Critical Infrastructure itself will be the one on which the live exercise will take place in WP4, with the elements obtained from this and other tasks.

Specific objective of this stocktaking exercise:

identify and assess gaps in terms of procedures and equipment, with the aim of proposing recommendations and reducing the risks of occurrence and/or reducing their severity. The risks on which attention was focused are those identified by the experts during the Workshop of Activity 2.2, involving respectively

-Fire -Dirty bomb -Explosive -CBRN leakage -toxic cloud.

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2.3 Stocktaking Exercise for Gap Analysis

As a first step, a study was carried out on the **vulnerability** of the tunnel to the considered risks:

- The levels of vulnerability in relation to **internal** (concerning the PI itself) or **external factors** (independent by the PI) were highlighted for each of the risks: low, medium and high.
- **Equipment and procedures** already in place in the tunnel to deal with the various risks were listed.

By collecting these different data, a vulnerability map of the tunnel was drawn, taking into account the elements already operational in the tunnel.

The vulnerability map shows a **medium** **vulnerability** for the risks of "**toxic cloud**" and "**CBRN leakage**", **high** for the risks of "**explosive**" and "**dirty bomb**" and **low** for the risk of "**fire**".

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2.3 Stocktaking Exercise for Gap Analysis

Secondly, based on the vulnerability study, **targeted solutions** based on good practice were developed for each of the risks, with the aim to:

- Plan the action to be conducted if the risk occurs;
- Prevent the risk by avoiding or reducing its occurrence;
- Alert of the occurrence of the risk, on the site and its environment;
- Remove the doubt to confirm or deny the chemical nature of the risk;
- Protect people and property on the site and its environment;
- Decontaminate the site;
- Allow the return to minimum operating conditions and then return to normal.

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2.3 Stocktaking Exercise for Gap Analysis

Finally, a Gap-analysis was developed by describing the gap for each area of intervention • Planning • Preparation • Prevention • Protection •Operation • Recovery and defining the criticality level of each gap.

With the main objective to identify and understand how to improve the performance of the infrastructure against chemical risks, it was carried out by analyzing:

- the current equipment and procedures used by the Pilot Infrastructure;
- the design of target solutions (to be further developed in the following WPs);
- the comparison of current equipment and procedures with the target solutions.

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2.3 Stocktaking Exercise for Gap Analysis

- The level of resilience of the Infrastructure and the identification of future requirements to mitigate the level of vulnerability against these risks and to cover the gap between preventive and corrective measures were assessed.
- High levels of gaps were found in Planning, Preparation, Prevention and Protection phases against the risk of toxic cloud, CBRN leakage and dirty bombs, resulting from the lack of chemical risk assessment in the assessment of the Pilot Infrastructure.
- Recommendations have been made so that the level of resilience of the Tunnel of the PI is as close as possible to the recommended level. These recommendations are of three types:
  - detection solutions,
  - protective solutions,
  - human solutions.
- **This analysis shows up that although the five risks, or five shape of chemical risk (one chemical risk which could be shaped in five different forms) are independent to each other, and that their occurrence can be interdependent to each other, they must be treated as a whole.**

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2.4 Preparation of standardized risk Analysis matrix
2.5 Focus on the Pilot Infrastructure

RISK REGISTER

➢ Elaboration of the Risk Matrix

- Review the format and make the relevant modification on the Risk register document according to the CB tunnels
- Adapt the document according to the 2nd discussion of the Workshop.
- Adapt and make the relevant modification the Risk register document according to the Risk online discussions.

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2.4 Preparation of standardized risk Analysis matrix
2.5 Focus on the Pilot Infrastructure

ONLINE DISCUSSION

- ➢ Preparation of the online discussion (n°3)
  - Review the Stakeholder list (from 1° Workshop ok Activity 2.2)
  - Select the target group or the target stakeholders
  - Make the configuration for three online discussion (n°1 group for each discussion)
  - Draft the guide for the online discussion sessions based on the document elaborated for the II workshop discussion
- ➢ Implementation of the online discussion
  - CBRN leakage online discussion
  - Dirty bombs online discussion
  - Fire online discussion
- ➢ Reporting of the risk online discussion
  - CBRN leakage online discussion
  - Dirty bombs online discussion
  - Fire online discussion

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2.6 WEBINAR With Security Manager of operators responsible for EU Cross-Broder tunnels and relevant law enforcement/security agency form interested EU MS

- **Objective:** webinar with 40 people, including security members and relevant law enforcement/emergency responders from all relevant EU Ms will be organized to present the RESULT OF WP2
- **When:** September 2020

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WP3

Preparation of standard operational guidelines for prevention and response to chemical events in tunnels

- **Objective:** the WP3 will stand at core of TRANSTUN activities. It will gather technical input from other WP, mainstreaming and harmonizing them into a set of coherent operational guidelines for operator and end-users. The guidelines will on one side strive to archieve a level of standardization of processes, minimum equipment and protocols, while on the other provide a basis for further tailoring or individual operators guidelines, addressing specific elements of each facility/tunnel.
- **Leader: OUVRY**
- In the WP3 OUVRY and UNITOV have to organize 6 workshops with experts:
  - N°3 focused on process & protocols (UNITOV)
  - N°3 on equipment (OUVRY)
- The experts will be selected with a call for applications.

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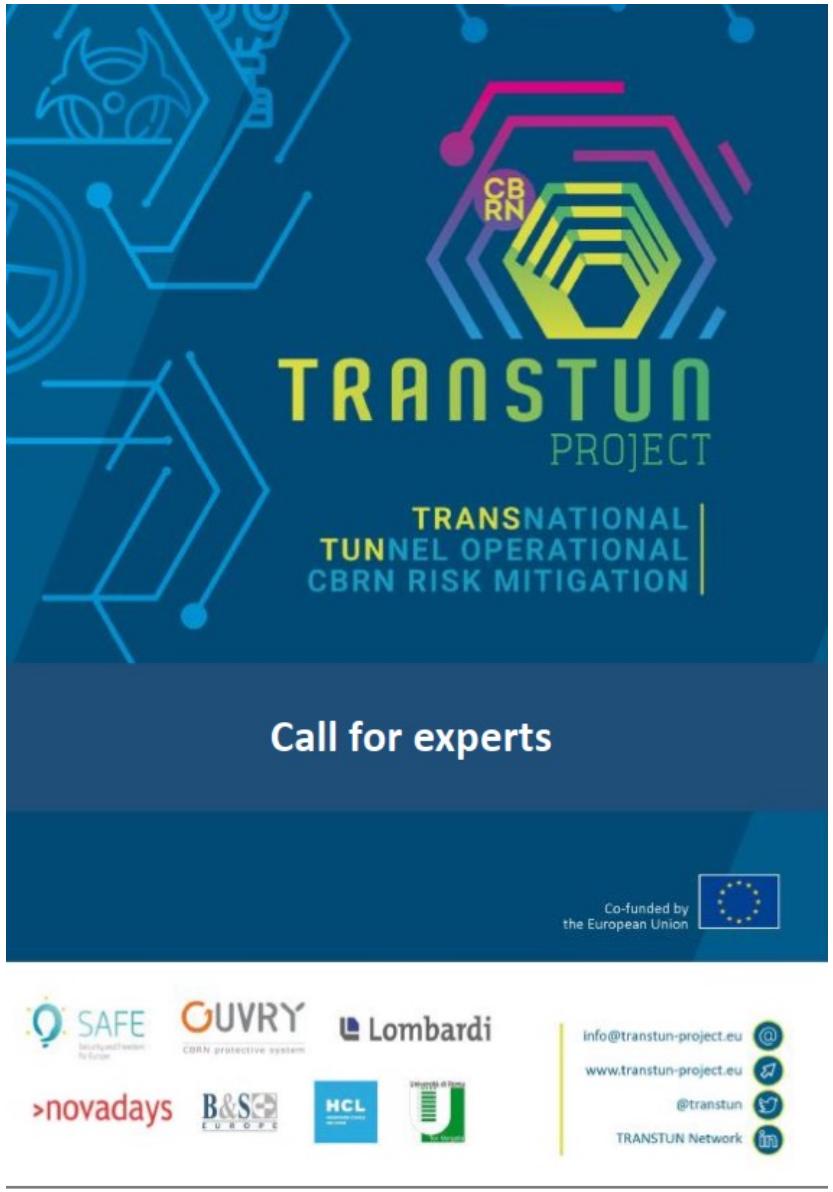
WP3

Preparation of standard operational guidelines for prevention and response to chemical events in tunnels



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WP3
Preparation of standard operational guidelines for prevention and response to chemical events in tunnels

CALL FOR EXPERTS

TRANSTUN PROJECT OBJECTIVES

TRANSTUN project is a public-private initiative that addresses the concrete CBRN risk of chemical events in EU tunnels. The objective is to improve the preparedness and response of operators, emergency responders and Member States in addressing CBRN threats in cross-border land tunnels
TRANSTUN engages operators and end-users from across Europe in an effort to define, produce and test standardized operational guidelines for effective response to chemical events for EU cross-border tunnels.
TRANSTUN will set up and facilitate a network of EU security managers of tunnel operators , in an effort of sharing best practices and standardization of minimum processes and equipment standards.

WORKSHOPS

Within the WP3 **"Preparation of standard operational guidelines for prevention and response to chemical events in tunnels"**, TRANSTUN consortium organizes **3 workshops with experts focused on process & protocols and on equipment.**

Objective : Define common standards on processes & protocols, PPE and equipment for chemical threats in tunnels.

- **WHERE and WHEN :**
  - Lyon – November 2020
  - Brussels – December 2020
  - Madrid – January 2021
- **DURATION :** 1 day + social diner.
- **COSTS :** Travel and hotel costs will be endorsed by the consortium upon receipts.
- **WHO :**
  - Tunnels security managers
  - First responders : fire fighters, emergency medical units, police, security staff
  - Transport of dangerous goods experts
  - CBRN crisis management specialists
  - Tunnel logistic teams (equipment, maintenance ...).
- **TERMS OF REFERENCE :**
  Candidates need to have experience in :
  - CBRN related equipment
  - Tunnels or critical infrastructrure security management
  - Chemical risk management
  - Training in case of CBRN event in critical infrastructures
- **HOW TO APPLY :**

If you have one of these expertise, please send your CV and cover letter to the following address :

SEND CV AND COVER LETTER
transtun@ouvry.com

Deadline for receipt of applications : 31st July 2020
Please visit our website for more information on the project : www.transtun-project.eu

info@transtun-project.eu www.transtun-project.eu @transtun TRANSTUN Network Co-funded by the European Union

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WP4
REAL-LIFE TESTING EXERCISES at the Pilot Infrastructure

- **Objective:** Organisation of real live exercise in the Pilot Infrastructure
- **Leader:** Lombardi
- **When:** October 2020
- Next steps for organization:

- Lombardi will meet with the Prefecture of the Country responsible for the exercise by early July in order to find an agreement about the exercise main plan.
- An additional meeting with local first responders (e.g. firefighters, police forces) has been planned the same day.
- After two weeks, the Prefecture of the Country and the Authority responsible for the tunnel will meet to formalise the activity.

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WP5 Preparation of standard operational guidelines for prevention and response to chemical events in tunnels

- **Objective:** the WP5 is twofold. On the one hand, it promotes networking and capitalization as a toll to spread project activities and results. On the other hand, networking and capitalization will represent crucial tools that will allow the project to benefit from the technical contribution of operators and end users, creating a virtuous cycle of networking - involvement - input - testing - feedback and return to networking. The WP5 therefore goes far beyond a classic WP of visibility and communication, creating a new independent member, sustainability and impact of the project.
- **Leader: B&S**
- UNITOV is the social media manager

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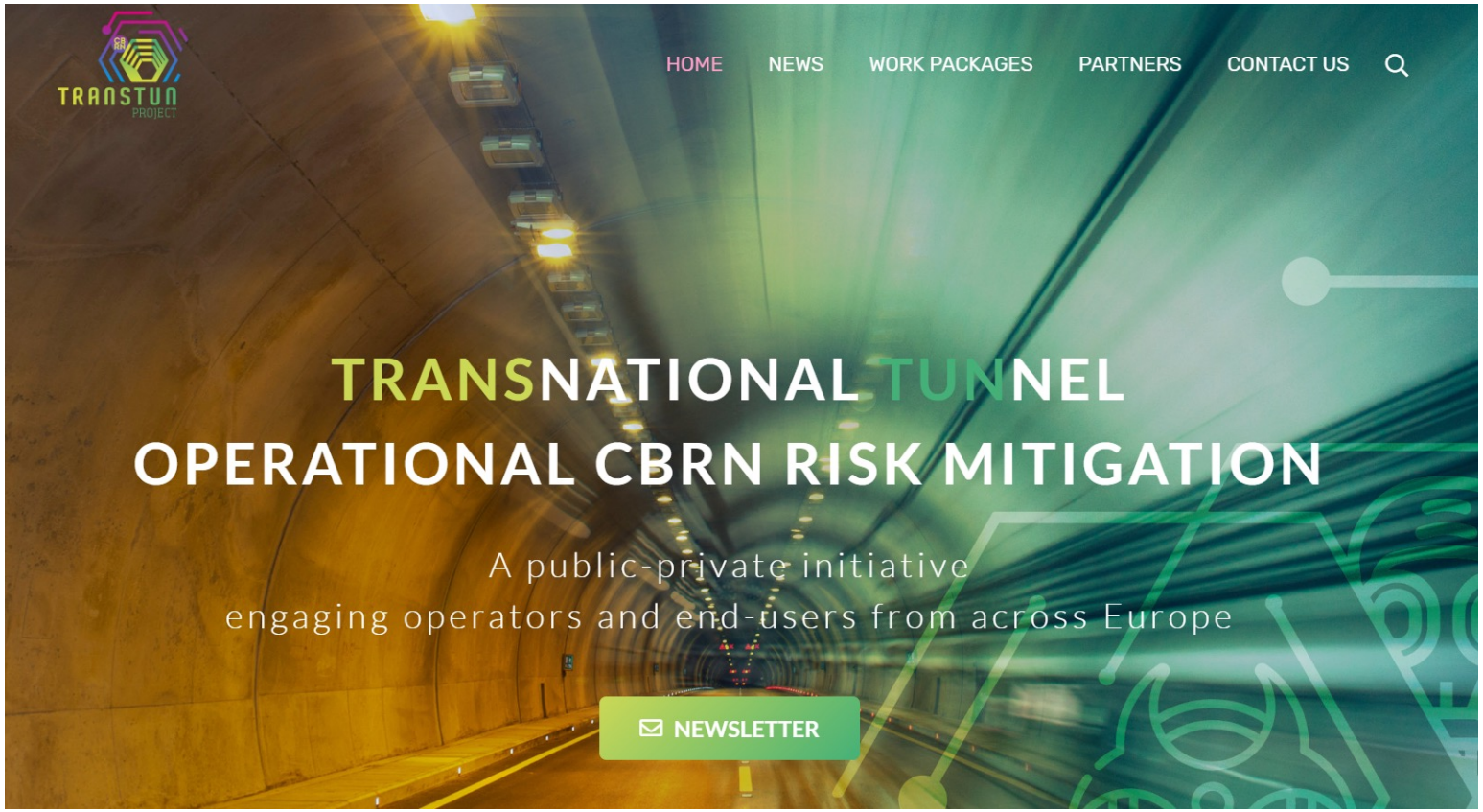
WP5
Preparation of standard operational guidelines for prevention and response to chemical events in tunnels



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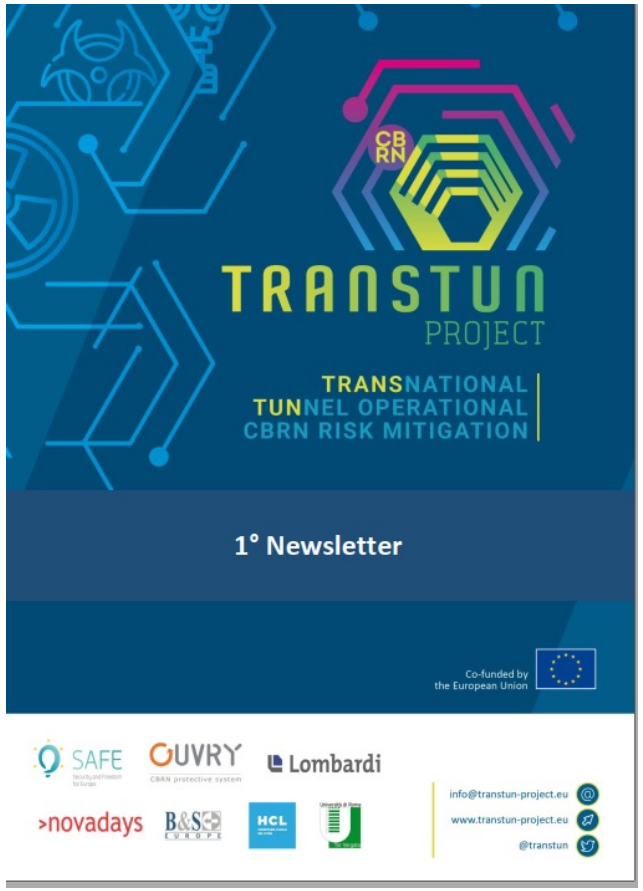
WP5
Preparation of standard operational guidelines for prevention and response to chemical events in tunnels



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WP5 Preparation of standard operational guidelines for prevention and response to chemical events in tunnels

TRANSTUN Project
@transtun

EU-founded project "TRANSnational TUNnel operational CBRN risk mitigation": Public-Private initiative addressing CBRN risks in EU cross-border tunnels.

transtun-project.eu Joined January 2020

679 Following **158** Followers

Edit profile

TRANSTUN Project @transtun
💥TRANSTUN second Newsletter has come out✅! For more information 👉 https://transtun-project.eu/newsletter/ EU **#ISF #CBRN @EUHomeAffairs @SAFE_Italy @Ouvry_NRBCe @Novadays @unitorvergata @BSEuropeGCG**

Impressions 1,527
times people saw this Tweet on Twitter

Total engagements 32
times people interacted with this Tweet

View all engagements

TRANSTUN Project @transtun
We just started! **@EUHomeAffairs @Novadays @SAFE_Italy @unitorvergata @Ouvry_NRBCe** Lombardi, B&S, HCL: "Risk Analysis for CB Critical Infrastructure against Chemical Risks" 📌 in **#LinksFoundation** Turin **#cbrn @PROACTIVE_EU #crossbordertunnels** pic.twitter.com/qbkN6A10AZ

Impressions 4,591
times people saw this Tweet on Twitter

Total engagements 152
times people interacted with this Tweet

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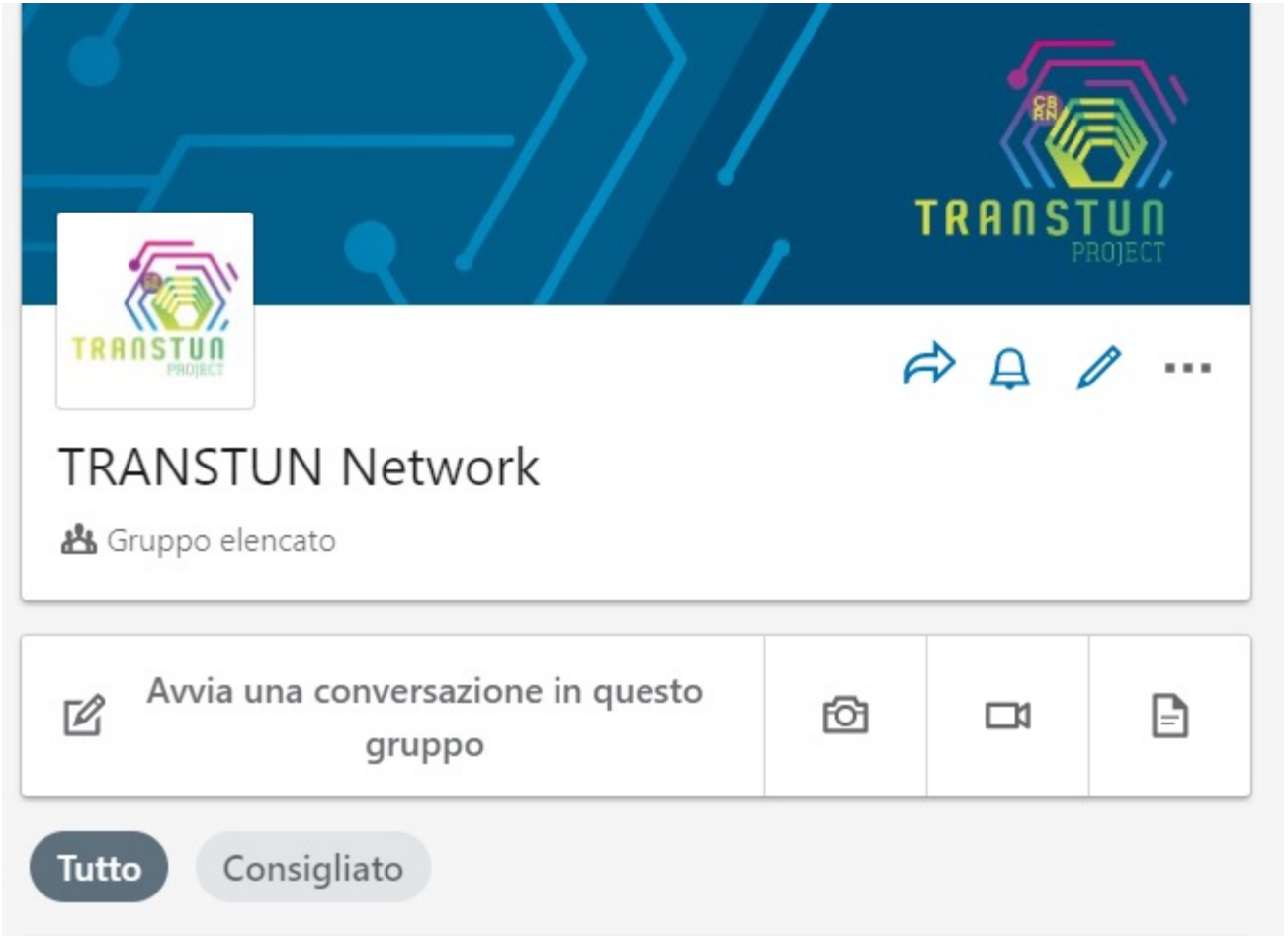
WP5
Preparation of standard operational guidelines for prevention and response to chemical events in tunnels



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TRANSTUN Network

THANK YOU FOR YOUR ATTENTION!

Marta Di Giacinto
Università di Roma Tor Vergata
Industrial Engineering Department

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