

I PROGETTI DI RICERCA

La stretta collaborazione tra l'Università di Roma Tor Vergata ed il CNVVF nell'ambito dei Master internazionali in Protezione da eventi CBRNe

PROGETTI DI RICERCA

Rapid mapping per l'analisi e la gestione del rischio radiologico generato da sorgenti orfane



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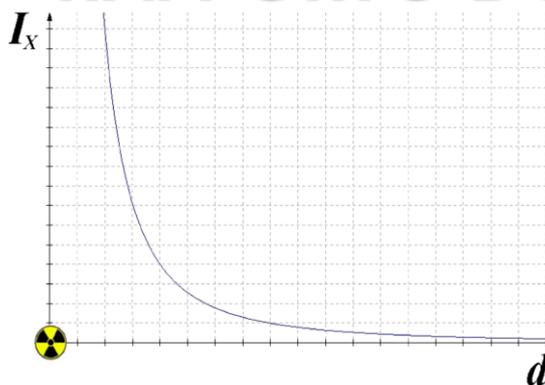
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Rapid mapping per l'analisi e la gestione del rischio radiologico generato da sorgenti orfane

SCOPO

- ✓ **Definire** un modello concettuale per un Sistema di Supporto alla Decisione Spaziale (SDSS);
- ✓ **Sviluppare** il prototipo del software per gli end-user (l'operatore);
- ✓ **Sviluppare** un prototipo dei componenti della Sala Operativa secondo il paradigm SOA (Service Oriented Architecture).

RAPPORTO DOSE DISTANZA



$$I_x = \frac{\Gamma \cdot A}{d^2}$$

I_x = Exposition Intensity [C/(Kg*h)],

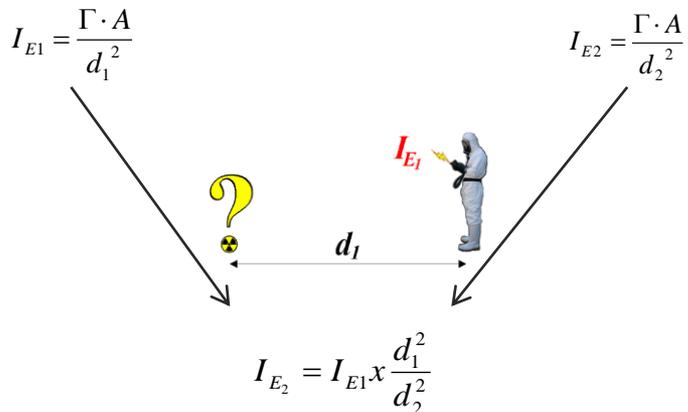
Γ = Gamma specific constant (it is a characteristics of each radionuclides), [(C*m²) / (Kg*h*Bq)],

A = Source activity [Bq],

d = Source distance [m].

MISURAZIONI IN CAMPO

GEOREFERENZIAZIONE DEI DATI (GREAT SW)

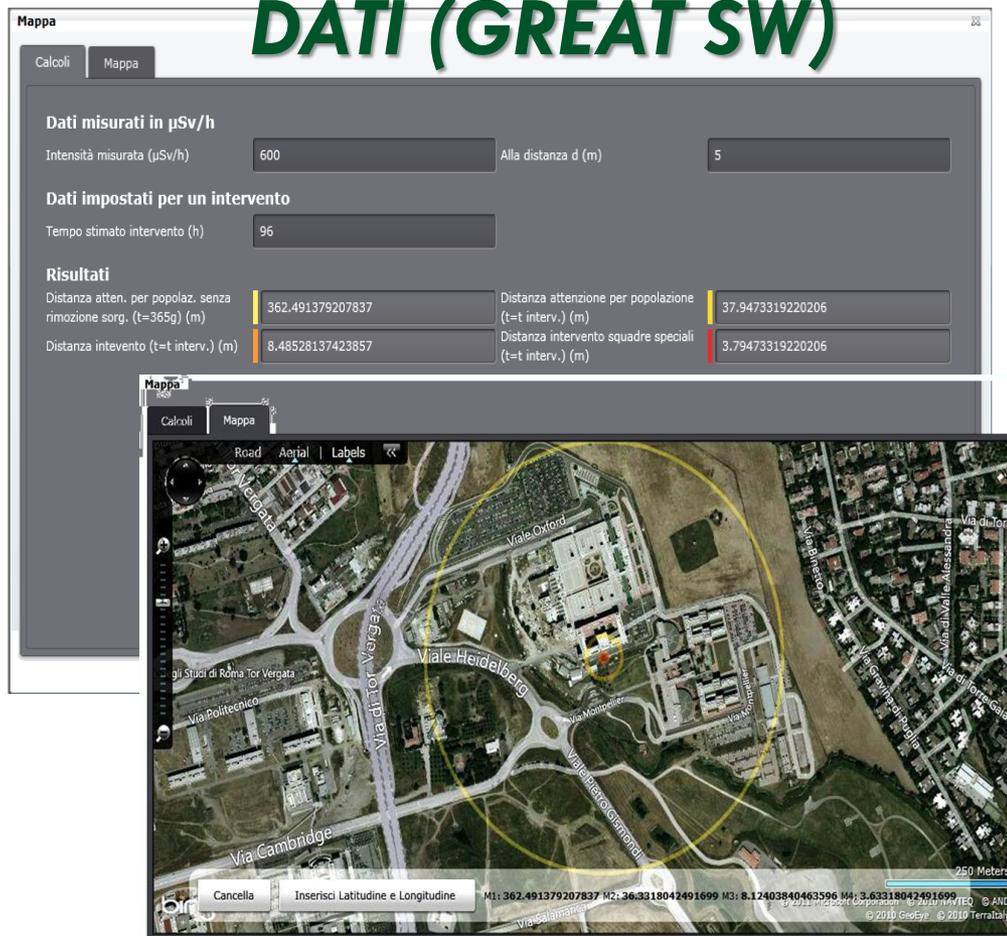


I_x = Exposition Intensity [C/(Kg*h)],

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A = Source activity [Bq],

d = Source distance [m].



Dati misurati in µSv/h

Intensità misurata (µSv/h) Alla distanza d (m)

Dati impostati per un intervento

Tempo stimato intervento (h)

Risultati

Distanza atten. per popolaz. senza rimozione sorg. (t=365g) (m)	<input type="text" value="362.491379207837"/>	Distanza attenzione per popolazione (t=t interv.) (m)	<input type="text" value="37.9473319220206"/>
Distanza intervento (t=t interv.) (m)	<input type="text" value="8.48528137423857"/>	Distanza intervento squadre speciali (t=t interv.) (m)	<input type="text" value="3.79473319220206"/>

Mappa

Map view showing the location of the measurement point (yellow dot) on a street map of Rome Tor Vergata. The map includes labels for streets like Viale Heidelberg, Viale Oxford, and Via di Tor Vergata. A scale bar indicates 250 Meters.

INCIDENT COMMAND TOOL: I²RMS Intergraph Incident & Resource Management System

The screenshot shows the I²RMS software interface. At the top, it displays 'Connected User: User, Planner 1 (planner)' and 'Ver. 2.0.3790.31165'. The main map area shows a topographic view of a coastal region with various assets and tracks marked. A scale bar at the bottom left indicates 10 km and 5 mi.

Assets Table:

Id	Name	Status	Class	Time to I
101	Alfa	Available	PATROL	0
104	Delta	Available	PATROL	0
102	Charlie	Assigned	PATROL	0
105	Echo	Available	PATROL	1
103	Bravo	Available	PATROL	0

Events/Alarm and Tickets Table:

Source	Type	SubTy	Title	Sta
TRCK45046	Alarm	High Seve	Event generated t	Op
TRCK53362	Alarm	High Seve	Event generated t	Op
TRCK59297	Alarm	High Seve	Event generated t	Op
TRCK7756	Alarm	High Seve	Event generated t	Op
TRCK59715	Alarm	High Seve	Event generated t	Op
TRCK62537	Alarm	High Seve	Event generated t	Op
TRCK50922	Alarm	High Seve	Event generated t	Op

Tracks Table:

Id	Classification	Violation	Descript
59715	HOSTILE	Warning zone	
53362	NULL	Green Zone	
62537	HOSTILE	Off limit zone	
50922	FRIEND	Green Zone	
52671	NULL	Green Zone	
1127	HOSTILE	Off limit zone	
24696	FRIEND	Off limit zone	

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PROGETTI DI RICERCA

CBRN Integrated Response Italy

Strengthening CBRN-response in Europe

by enhancing on-site cooperation between safety and security organizations: an Italian pilot



**CBRN
INTEGRATED
RESPONSE**



With the financial support of the Prevention of and Fight against Crime Programme European Commission - Directorate-General Home Affairs



CBRN INTEGRATED RESPONSE

MAGGIO 2013 – APRILE 2015



Scuola Superiore
Sant'Anna
di Studi Universitari e di Perfezionamento



UNIVERSITA' DEGLI STUDI DI ROMA
TorVergata





PARTNER ASSOCIATI

- Comando Carabinieri per la Tutela dell'Ambiente
- Scuola Interforze per la Difesa NBC
- Italian National Civil Protection Department
- CRATI s.c.r.l.



PROTEZIONE CIVILE
Presidenza del Consiglio dei Ministri
Dipartimento della Protezione Civile





OBIETTIVI

- **Identificare** differenze tra il quadro operativo di risposta agli eventi CBRN tra Soccorritori (VV. F.) e Forze dell'Ordine durante eventi che impattano sulla security e le criticità nella collaborazione sul campo e nella sala operativa;
- **Definire** un approccio comune per la gestione delle criticità raffrontandosi con l'esperienza di altri paesi Europei in un ottica di condivisione e risoluzione comune delle problematiche (**Table Top Exercises**);
- **Sviluppare** line guida comuni per la risposta ad eventi CBRN a livello nazionale e prevedendo l'accoglienza di supporto proveniente dall'estero, con particolare riferimento al Meccanismo di Protezione Civile Europeo;
- **Proporre** un **curriculum formativo comune** per First Responders e Forze dell'Ordine da erogare nelle opportune sedi di formazione.

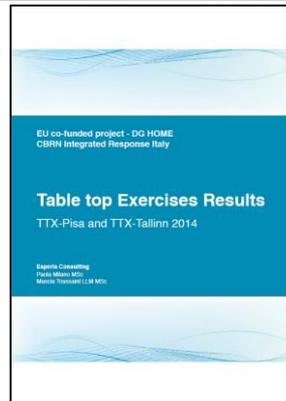
2 Table Top Exercises (TTX)



Italia, Comando Provinciale VV. F. Pisa – TTX organizzata dal C.N.VV.F



Estonia, Accademia per gli Studi sulla Sicurezza



TTX results



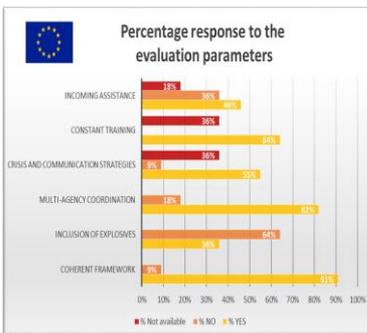
CBRN
Integrated
Response
Italy

enhancing on-site
cooperation
between safety and
security
organizations

MAPPING REPORT



Mapping Report



Coherent framework	Having a coherent framework represents an important goal to achieve an effective response to CBRN events	Develop a coherent framework for CBRN response ability including the aspect of training evidence
Inclusion of explosives	Explosives are essentially related to CBRN agents, nevertheless this aspect is not included in the CBRN response framework of all EU co-funded member states	Consider to treat explosives as part of the subject matter in their respective framework
Multi-agency coordination	Multi-agency coordination is not well defined at national level	Improve multi-agency coordination at the training level, constant training and the definition of common operative framework
Crisis and communication strategies	EU countries approach this aspect in a very common manner. Furthermore, a common framework is developed with communication among first responders, law enforcement agencies, the national and central alarm and communication with the population. This aspect is more developed when considering the international dimension of a CBRN event and all the communication and setting strategies	Improve databases, communication systems (ICT), intelligence and information among all EU member states including emergency communication centres (including emergency services and population centres) in order to guarantee that information of the National Incident Response Centre (NIRC) is available to all EU member states, especially during the emergency
Constant training	Constant training is present to face CBRN scenarios, mainly training is directed to emergency responders in a very common target of training activities. Nevertheless, a well defined national population can directly be managed in an emergency situation	Develop training on international CBRN scenarios involving all response EU agencies. Enhance and update training to the population
Training evidence	A common, consistent and comprehensive approach to training evidence is crucial to respond to a CBRN event. This aspect is well addressed by the member states at the national level	Review the EU Host Nation Support Guidelines considering the CBRN threats and the specific requirements needed to face this kind of events



CBRN
Integrated
Response
Italy

enhancing on-site
cooperation
between safety
and security
organizations

EU response to
CBRN incidents:
proposal for the
integration of the
EU Host Nation
Support Guidelines



Proposta di integrazione delle EU HNSG



CBRN Integrated Response course – training programme

Module	Content
1	CBRN-IR Introduction 1.1 Course introduction and structure 1.2 CBRN incidents: terminology, causes and threats 1.3 Ethical and gender issues
2	International framework governing the response to CBRN incidents 2.1 International conventions, treaties and guidelines 2.2 CBRN incidents: EU Civil Protection Mechanism's tools 2.3 The EU Host Nation Support Guidelines – request and offer of assistance 2.4 EU member State's CBRN response system: an overview 2.5 Relation with Third Parties 2.6 Civilian-military cooperation
3	CBRN safety and security related issues 3.1 Forensic 3.2 Hazardous materials and waste management 3.3 Protection from CBRN agents: Personal and Collective Protective Equipment 3.4 Management of sensitive and classified information related to CBRN incidents 3.5 Communication: means and procedures 3.6 Risk assessment and zoning and risk maps reading 3.7 Information to the population
A	CBRN Case studies a.1 CBRN incidents case studies and lessons learnt a.2 Open discussion
B	Discussion based exercises (DBE) b.1 Exercise on CBRN scenarios requiring international assistance b.2 Debriefing and open discussion

Formulazione di un Curriculum Formativo comune

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TESI DI MASTER

COORDINATION OF INCOMING ASSISTANCE

Actors Coordination	LEMA	OSOCC	Sub OSOCC	RDC	CBRN Coordination	CBRN Teams
		OSOCC structure		RDC Structure		
Information Management Tools	Request for simplified border crossing	Communication equipment	Temporarily imported goods: personnel	Temporarily imported goods: vehicles and machines	Temporarily imported goods: operating equipment	Temporarily imported goods: dangerous goods
	CBRN team fact sheet	RDC briefing	CBRN team situation report	CBRN team mission summary report		CBRN team demobilization form

MANAGEMENT OF THE INCOMING ASSISTANCE

Notification and Request for Assistance for CBRN emergency	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
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PROCEDURES FOR CBRN RESPONSE

Zoning	Personal Protection	Sampling	Triage	Technical Decontamination
Zoning criteria	Areas of CBRN agents exposure	Pocket card sampling checklist	Zoning and Triage	Deployment of technical decontamination
Hazard control zones	PPE selection	Water sampling	Priority categories for START triage	
	PPE according to different zones	Ground sampling		



EU Host Nation Support Guidelines

UNDAC Field Handbook

OSOCC Guidelines

IDRL Guidelines

EU Handbook on assistance interventions in the frame of the Community Mechanism for Cooperation in Civil Protection

UNIVERSITY OF ROME TOR VERGATA



Department of Industrial Engineering
School of Medicine and Surgery

Il level International Master course in
"PROTECTION AGAINST CBRNe EVENTS"

**Technical Guidelines for a standardized
EU CBRN support**

Internal Coordinator:
Prof. Carlo Bellecci

Candidate:
Stefania Fiore

External Coordinator:
Ing. Emanuele Pianese

Advisor:
Dr. Mariachiara Carestia

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TABLE TOP EXERCISE

Annualmente, grazie alla collaborazione con il Ministero dell'Interno (**Dipartimento dei Vigili del Fuoco, del Soccorso Pubblico e della Difesa Civile, Dipartimento di Pubblica Sicurezza**), vengono organizzate delle "TTX", in cui gli studenti dei Master sono chiamati a vestire i panni delle componenti del "Comitato provinciale per l'ordine e la sicurezza pubblica".



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PROGETTI DI RICERCA

GATE Gap Analysis for TTX Evaluation

Un Tool per l'analisi e la valutazione della performance, di Table Top Exercises relative a scenari CBRNe



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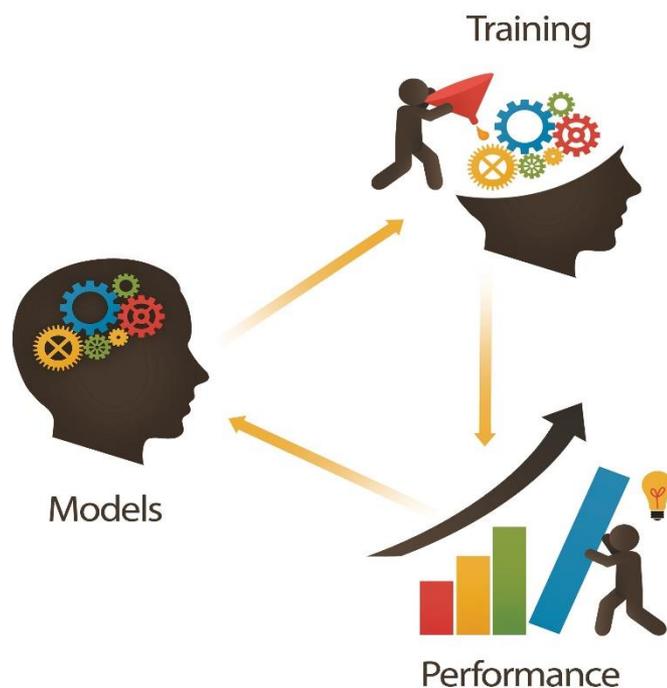
^bItalian Interuniversity Consortium on Materials Science and Technology (INSTM), Italy

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Via del Politecnico 1, 00133, Rome, Italy

^dUniversity of Rome "Tor Vergata", Dept. Biomedicine and Prevention, Via Montpellier 1, 00133 Rome, Italy

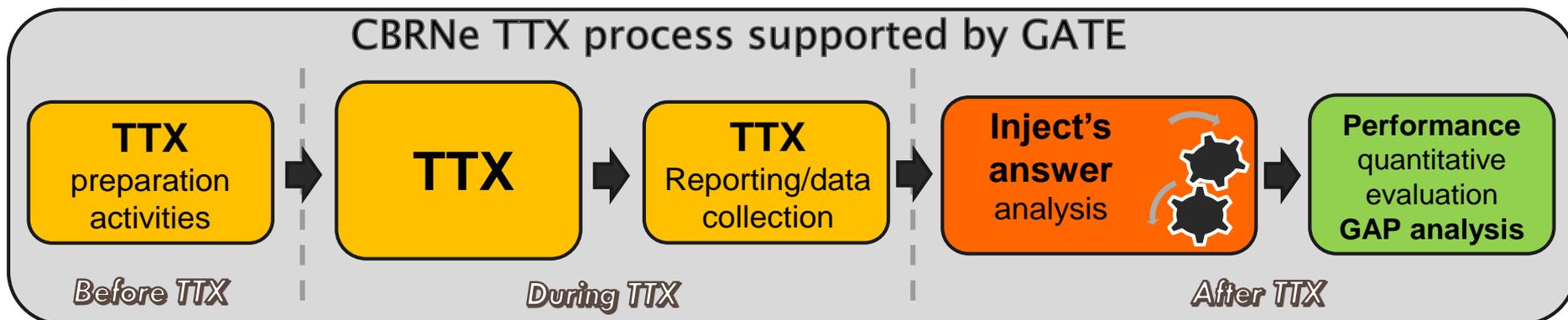
OBIETTIVO:

Sviluppare uno strumento finalizzato al miglioramento delle prestazioni dei **Decisori** e dei loro **consiglieri**.



GATE GAP ANALYSIS FOR TTX EVALUATION

GATE è uno strumento di gap analysis, che permette di raccogliere ed analizzare dati prodotti durante TTX relative ad eventi CBRNe, attraverso *algoritmi sviluppati ad hoc*.



Il tool fornisce:

- Supporto alle attività preparatorie della TTX.
- Supporto alle attività della TTX.
- Supporto alle attività di raccolta dati e reportistica.
- **Una valutazione imparziale** delle prestazioni dei partecipanti.

Struttura del Tool

Lo strumento raccoglie le risposte dei partecipanti ad ogni inject e **permette di pesare l'influenza** di 3 parametri:



- **Answer accuracy**



- **Reaction time**



- **Players CBRNe**

EXPERIENCE

background and expertise

Struttura del Tool

Lo strumento raccoglie le risposte dei partecipanti ad ogni inject e **permette di pesare l'influenza di 3 parametri:**



- Answer accuracy

Restituisce una valutazione pesata, su 4 macro-aree di valutazione.



Area	Tool output		Evaluator report
	final grade (pure)	final grade (knowledge weighted)	
Op/tech	short of expectations	short of expectations	according to the expectations
CMS	beyond the expectations	beyond the expectations	beyond the expectations
Media	expectations	expectations	according to the expectations
Report	according to the expectations	beyond the expectations	beyond the expectations

Valutazione qualitativa

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PROGETTI EUROPEI, LA COLLABORAZIONE CONTINUA...

List of participants

THE FRAMEWORK PROGRAMME FOR RESEARCH AND INNOVATION

HORIZON 2020



#	Participant Legal Name	Country
1	ISTITUTO NAZIONALE DI GEOFISICA E VULCANOLOGIA	Italy
2	UNIVERSITA DEGLI STUDI DI ROMA TORVERGATA	Italy
3	Vitrociset spa	Italy
4	Exelis Visual Information Solutions UK Ltd	United Kingdom
5	SISEKAITSEAKADEEMIA	Estonia
6	VOJENSKY VYZKUMNY USTAV SP	Czech Republic
7	CIT DEVELOPMENT S.L.	Spain
8	StudioBDM S.r.l.	Italy
9	CENTRE TECNOLOGIC DE TELECOMUNICACIONS DE CATALUNYA	Spain
10	ATOS SPAIN SA	Spain
11	WYZSZA SZKOLA OFICERSKA WOJSK LADOWYCH imienia generala Tadeusza Kosciuszki	Poland
12	Univerzita Mateja Bela v Banskej Bystrici	Slovakia
13	Exence S.A.	Poland
14	HELMHOLTZ ZENTRUM POTSDAM DEUTSCHES GEOFORSCHUNGSZENTRUM	Germany
15	MINISTERO DELL'INTERNO	Italy
16	COMARCH SA	Poland
17	SAR-PRO (NATIONAL ASSOCIATION)	Italy



Smart ENERG

Smart Tools for ENhancing European Resilience to Global Disasters

2015

La minaccia NBCR e la collaborazione dell'Università di Roma Tor Vergata con il CNVVF

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26/11/2015

GRAZIE A TUTTI PER... LA COLLABORAZIONE!

