



ENCIRCLE

EuropeaN Cbrn Innovation for the maRket CLustEr

D5.2 ENCIRCLE Cluster Impact Y2

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Executive Summary

The Deliverable D5-2 presented herein provides a summary of Impact of the developments conducted by the ENCIRCLE consortium throughout the year two of the ENCIRCLE project.

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1 Introduction

The main goal of the ENCIRCLE project is to strengthen the European industry to help create the tools and strategies needed to consolidate the EU CBRN communities of suppliers and practitioners in order to strengthen the field of CBRN safety, security and defence in the European Union.

In order to achieve this goal, an innovative approach was proposed. Based on five objectives, it aims at prompting the innovation and business development, and filling market gaps within the project timeframe. The project objectives include:

- Create an open and neutral EU CBRN cluster,
- Provide a sustainable and flexible vision and roadmap for the development of the European CBRN market and innovations,
- Provide integration with platforms (systems, tools, services, products) by proposing standardized interfaces and future EU standards to integrate CBRN technologies and innovations developed from the Part b projects,
- Support CBRN safety, security and defence commercial and market services,
- Improve and facilitate European CBRN dissemination and exploitation.

The purpose of this document is to summarise the ‘impact’ of the ENCIRCLE Project to date, covering the period from February 2018 to March 2019

2 ENCIRCLE Impact

The ENCIRCLE project has been running since the 10th March 2017 and the following sections summarise the impact to date over the period February 2018 to March 2019.

2.1 INNOVATION PLAN AND DISSEMINATION

2.1.1 Part B Call Topics

The starting point for ENCIRCLE catalogues was the list of the technologies which were originally identified as gaps in certain functions (based on the STACCATO functions) of the main phases in the CBRN Security Cycle (Prevention, Preparedness, Response, Recovery) at the end of the EDEN project. This catalogue was updated based on the careful evaluation of its content as well as other contributions including ENCIRCLE workshops in 2017. In the second year of the project activities we have continued work on further evaluation of the gaps in the catalogue and focused on their prioritisation and refinement. During our work we were supported by practitioners who, during such events like Biogarden exercise organised by eNOTICE project, have reviewed the full list of needs and gaps. Our efforts have led to development of an updated topics catalogue. This catalogue was further extended by addition of comments regarding market pull, standardization and links to EU CBRN Action Plan.

The refinement and update since the project has commenced is as follows:

- Part B 2017 Call Topics – D3-9, recommended for the 2017 call, issued in May 2017
- Refined future Part B Call Topics, as a result of the ENCIRCLE workshop D3-10 in November 2018
- D3.11 Part b 2019 Call Topics

Before the official DRS04 2019 call the D3.11 Part b 2019 Call Topics have been additionally reviewed by the European Commission and suggested changes and additions have been made.

2.1.2 ENCIRCLE Dynamic Catalogue

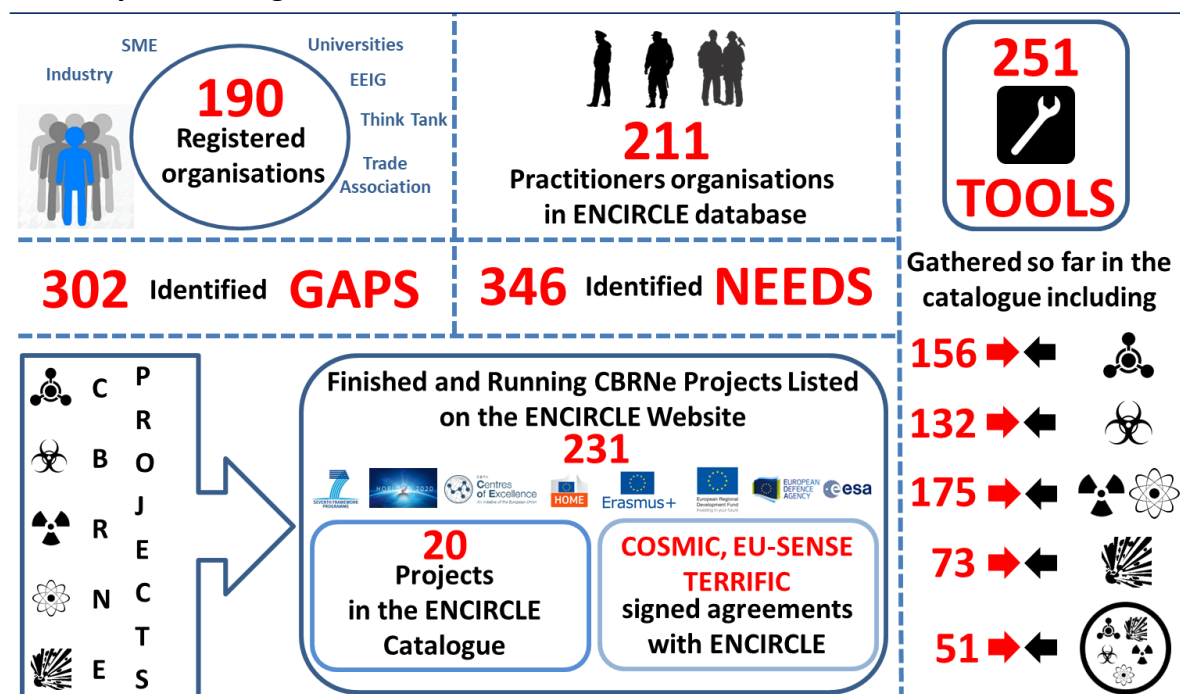
The work on further development of the catalogue has continued and the work carried out during second year of project has included:

- Improvements being made to the catalogue based on user feedbacks including a refined registration process
- A Network and Group forum has been available since March 2018. It consists in a part of the catalogue where the networks communities can proactively create groups for thematic exchanges, choosing if they want to create a group accessed upon request or a group of discussion open to all the network or to a restricted part of the network. All

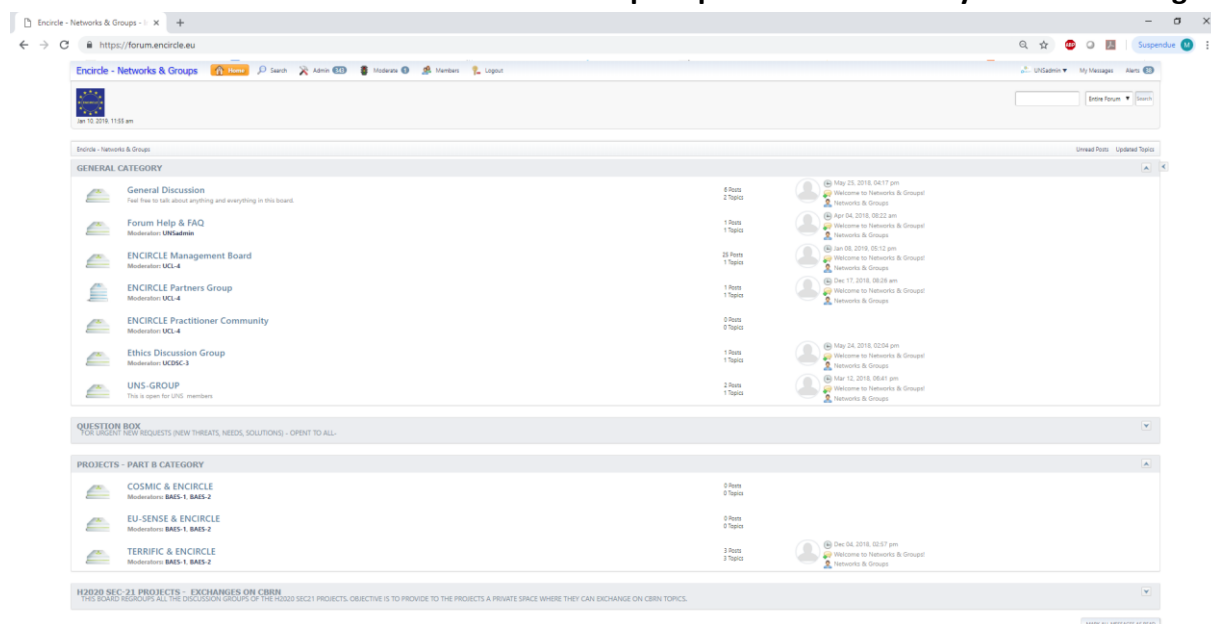
the members of the networks have access to this functionality. The Network and Groups include those created by ENCIRCLE partners but also by cooperating projects from CBRN Cluster Part b call. A Question box function for urgent requests regarding: (i) new treats; (ii) procurement opportunities, (iii) urgent needs.

- Standard interface: since August 2018, it now possible to describe tools and project with as many standards as required as the former version only allowed the addition of one standard per tool/project.
- Integration capabilities of tools by categories since October 2018, the description of tools integration capabilities has been refined: Integration capabilities can now be described by key words categories and advance search functionalities allow the dynamic catalogue user to search for integration capabilities by categories.

Currently the catalogue contains



Overview of the Network and Groups part of the Dynamic catalogue



Overview of the Network and Groups members activity the last 100 day (February 4, 2019)

ID	Username	Display name	Email Address	Last Online	Posts
1	UNSAadmin	UNSAadmin		Today	32
11	ADS-1	ADS-1		Today	0
15	BAES-1	BAES-1		Today	11
43	IAI-1	IAI-1		6 days ago	0
62	OSAS-1	OSAS-1		6 days ago	0
118	ITTI-Sp-1	ITTI-Sp-1		6 days ago	0
87	UCDSC-1	UCDSC-1		7 days ago	0
123	AITEX-1	AITEX-1		12 days ago	0
122	CONSORZIO-1	CONSORZIO-1		12 days ago	0
106	ARKTIS-1	ARKTIS-1		19 days ago	1
14	ARTTIC-1	ARTTIC-1		27 days ago	0
119	TECNALIA-1	TECNALIA-1		45 days ago	0
93	UCL-4	UCL-4		47 days ago	3
117	MaSa-Tech-1	MaSa-Tech-1		47 days ago	0
96	WAT-1	WAT-1		56 days ago	1
101	UNS-TEST	UNS-TEST		62 days ago	0
113	FLUIDYN-Fr-1	FLUIDYN-Fr-1		76 days ago	0
89	UCDSC-3	UCDSC-3		82 days ago	2
28	FC-1	FC-1		84 days ago	0
81	SARTG-2	SARTG-2		87 days ago	0
27	EO-2	EO-2		88 days ago	0
103	Kromek-1	Kromek-1		94 days ago	0
54	Miksel-1	Miksel-1		96 days ago	0
66	PIAP-2	PIAP-2		98 days ago	0
104	Hidronav-1	Hidronav-1		109 days ago	0

2.1.3 ENCIRCLE Dissemination activities

The ENCIRCLE dissemination activities, which are coordinated by Falcon Communications are based on the released in 2018 communication and dissemination plan for Period 2. All dissemination activities were actively supported by whole consortium. The dissemination activities included among many:

- Sharing information about ENCIRCLE activities through use of social media, ENCIRCLE website, and websites of ENCIRCLE partners
- Release of ENCIRCLE Magazine issue 2.



- Promotion of the Part b call topics
- ENCIRCLE participated to many events to both promote ENCIRCLE project by presenting it but also to support other project.
 - Presentation at CoU event, March 8th, 2018 – **BAE**
 - ENCIRCLE banners on display at H2020 Secure Societies International Info Day and Brokerage Event, April 11th, Warsaw, Poland – **WAT**
 - The 3rd Conference of the National System of Contamination Detection and Alarm, April 12-13, 2018, Kazimierz, Poland – **WAT**
 - The 6th Scientific Conference EpiMilitaris 2018 Medical aspects of the use of Weapons of Mass Destruction factors challenge for the uniformed services, April 16-18, 2018, Ryn, Poland – **WAT**
 - Cibus, 20th international food exhibition. Encircle presentation: "What's next: the evolution of food defense in EU" May 9, 2018 - **TCA**
 - NBC 2018 symposium in Rovaniemi, Finland June 4-7, 2018 – **Miksei/Environics**

- The final session of the ‘CBRN Security Manager’ course organized in the frame of the “SE-CBRN-URE – Support for European Union action in the field of CBRN security managers education” project co-funded by the Internal Security Fund of the European Union - June 11, 2018 Łódź, Poland – **WAT**
- Eurosatory 2018– CBRNe Domain series, Encircle and Par b collaborations presented (EU-Sense, Terrific), June 13, 2018 – Paris, France - **Ouvry, UNS, UCL**.
- E-Notice & Exercise BioGarden, June 2018, Belgium – **UCL, BAE, UNS, WAT**.
- The 4th International Symposium on Development of CBRN Protection Capabilities, Berlin, September 3-5, 2018 – **WAT**
- Participation to the IN-PREP TTX, November 2018 – **IAI, UCSC**
- SRE2018, December 5-6, 2018, Brussels, Belgium – ENCIRCLE booth presented by **UCL, BAE, WAT, UCSC, TCA**
- 2nd workshop of FIRE-IN TWG CBRNE “Emergencies related to the outbreak of highly contagious diseases and the threat of abuse of the situation by specific groups”, 12-14.02.2019, Prague, Czech Republic – **WAT**
- CEPOL/ENFSI course on “forensic investigation in CBRN contaminated environment/terroristic attack” 26.02.-01.03.2019, Budapest, Hungary – **WAT**

Live Webinar

On December 20th the Encircle Project held their first live webinar. This was a free, open house event, the purpose of which was to be able to demonstrate the functions, properties, and benefits the Dynamic Catalogue can provide in an interactive way, as opposed to showing static images of the site. The webinar was hosted virtually by UNS, at the same time there was a real-world hosting of the session by CBRN UK at which people could sit and watch the webinar in a group.

This was the first time we had attempted a webinar, and, despite some small technical issues, it was successful. We successfully generated interest in the session with quite a few people contacting the dissemination team to register their interest and request access details for the day.

This was a successful exercise which we aim to repeat during the project on different aspects of the work.

2.1.4 Innovation Watch

In order to monitor different media streams (social networks, news feeds, etc) for content from the main CBRN solution providers, main associations or clusters that may be of interest, the idea of web semantics and NSA-like methods has been further developed and customized for the CBRN topic since March 2018.

Besides a dedicated user interface has been developed in February 2019 (BETA version). The tool provides the results in 2 forms: A dynamic network clustering the topics and a list of articles (with links). An example of results is provided in annex 1.

2.2 ENCIRCLE COMMUNITIES

2.2.1 ENCIRCLE practitioner and technological communities

The activities dedicated to development of ENCIRCLE practitioner's community included:

- Invitation to join the catalogue. Invitations have been sent to the participants of the Italian Cluster CBRN–P3 and informative material about ENCIRCLE and the Catalogue has been distributed during a Cluster meeting. (February 2018).
- Invitation to participate in surveys. In particular, invitations have been sent to the participants of the Italian Cluster CBRN–P3 as well as SERIT stakeholders (platform Security Research in Italy – Technological Area 6, CBRNE, <http://www.piattaformaserit.it/area-tecnologica-6-cbrne/?lang=en>).
- Preparation of the Italian language version of the ENCIRCLE Market Survey Questionnaire (November 2018)
- Participation to the eNOTICE Joint Activity and Workshop held in Rieti (October 2018)
- Outreach to and engagement of HEIMDAL and IN-PREP projects to start cooperation and enlarge the practitioners' community
- Invitations sent to the members of the Italian Cluster CBRN–P3 to participate to the Catalogue Webinar (December 2018)

2.3 MARKET AND BUSINESS SUPPORT

2.3.1 Market analysis

A Market Analysis Report has been submitted by CBRN UK for approval to the ENCIRCLE Management Board. This Report presents and offers an analysis of the results of a Market Survey Questionnaire hosted on the Survey Monkey platform which has been running since 29th Jan 2018 as an English Language version; a French and Italian language version of the same Questionnaire has been running since 13.7.18 and 15.11.18 respectively. The Questionnaire contains questions aimed at the Industry, End User and Procurement personnel stakeholder groups within the CBRN community. Some of the analysis results drawn out in this Report include:

- A reasonably commonplace acknowledgement that capability gaps and needs within the CBRN market do exist;
- An acknowledgment of marked differences between the Military and Civilian (e.g. “First Responder”) parts of the CBRN Market;

Military/Civil	Strongly Agree	Inclined to Agree	Inclined to Disagree	Strongly Disagree
The community is much more integrated and coherent.		DEFENCE	CIVIL SECURITY	
CBRN Capability funding is given a high priority and availability.		DEFENCE	CIVIL SECURITY	
The community is generally very risk averse to adopting newly developed CBRN technology improvements or innovations.		DEFENCE		
		CIVIL SECURITY		
Customer/End User community is generally very willing to engage and discuss with us over their CBRN needs and technology gaps		CIVIL SECURITY	DEFENCE	
			DEFENCE	
The procurement agency are very supportive of innovation and make it easy to participate in their requirements.			CIVIL SECURITY	

SUPPLY <ul style="list-style-type: none"> • 50% RESPONDENTS • BELIEVE BEST PRICE NOT BEST CAPABILITY 		DEMAND <ul style="list-style-type: none"> • 67% RESPONDENTS • BELIEVE PROCURE ON BEST CAPABILITY NOT PRICE
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- That there is a form of disconnect regarding the various Standards that are in use in the CBRN market to the extent that there appears to be levels of dissatisfaction in the scope and relevance of those Standards. Furthermore, the mantra that existing Standards promote technology improvement and aid new market entrants as far as the CBRN market is concerned at least would appear to be relatively flimsy *after* first sight with a number of issues surfacing and discernible from the different stakeholder groups of Industry, End Users and Procurement Agency personnel once further questions are asked. Those same stakeholder groups see each other differently and do not always have a consistent or possibly even correct view of the various drivers, constraints and aspirations of each other.



The Market Survey Questionnaire is a rolling exercise from which annual Reports will be produced. It is recognised within ENCIRCLE that a key target is to try and encourage as many Questionnaire respondents as possible in order to get as large a cross section of opinions from the wider CBRN community as possible.

The relevant language versions of the Questionnaire can be found at:

English: <https://www.surveymonkey.co.uk/r/NX6TVK8>

French: <https://www.surveymonkey.co.uk/r/RJJTXYP>

Italian: <https://www.surveymonkey.co.uk/r/SZRSQNO>

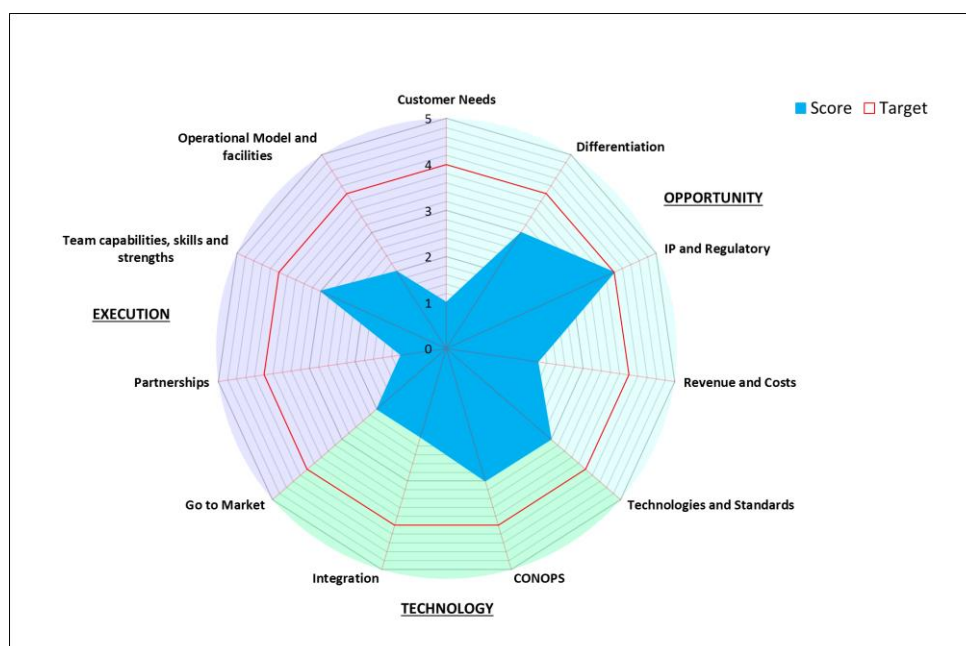
A copy of the Report can be accessed from the "CBRN Marketing" forum within the 'Networks & Groups' part of the ENCIRCLE Dynamic Catalogue.

2.3.2 Business Models and Plans and Financial Instruments

A list of financial instruments is being maintained on the ENCIRCLE project website (<http://encircle-cbrn.eu/resources/funding-instruments/>)

During the last year the business maturity model has been developed further and used to baseline two out of the three SME led Part B projects (EU-SENSE and TERRIFIC) to identify the initial gaps that will need development to improve the business success of the projects.

	CRITERIA	EXPLANATION	IDEA	DEVELOPMENT			PRODUCT/SERVICE	Score	Target
				Maturing Stage 1	Maturing Stage 2	Maturing Stage 3			
			1	2	3	4	5		
O P P O R T U N I T Y	Customer Needs	Customer needs are understood and there is a willingness to procure Addressable market and attainable market share is understood	Initial view has been identified of the needs and who the potential customers are	The identified needs have been validated Have identified the customer segments and the business opportunities and addressable market understood	The customers willingness to pay has been identified and there is a clear idea of the attainable market	The customers willingness to pay has been identified and there is a clear idea of the attainable market	Orders, sales and revenues achieved	1	2
	Differentiation	Competitive landscape is understood		The competitive landscape is understood and the 'need and gap' has been validated, and a route to market has been identified	The product/service has been shown to have differentiation against competitive solutions and the route to market identified	The product/service has barriers against other products in this market space	Market leader for this product/service	2	3
	IP and Regulatory	Intellectual Property and Regulatory Environment and Environment	Have an initial view on the regulatory environment	The patent landscape is understood, IPR position has been identified, and external environment understood	The IPR position has been validated, IP protection if required is being put in place, and it is understood how to meet the external and regulatory environments	IP freedom to operate in the space is confirmed and plans have been implemented to meet any regulatory requirements	The IP protection is in place and we have freedom to operate and we are resilient to changes in the regulatory environments	3	4
	Revenue and Costs	Size of the opportunity, Business Model, revenue and costs	An initial view of the size of the opportunity	Potential Revenue streams have been identified. Potential business models, cost drivers and investment identified	The revenue streams, business models, cost drivers have been validated and the investment case and timescales identified	The revenue streams, business models and investment case have been matured	Orders and sales are in forecast and investment is in place	1	2
T E C H N O L O G Y	Technologies and Standards	Critical technology and standards and interfaces	Have a broad outline of the technology requirements	Have an initial view of the technology requirements and the gaps that need to be filled	The technology components, standards and interfaces have been identified	Technology demonstrator has been developed to the correct standards and interfaces (TRL5/6)	The product is matured and is being maintained (TRL9)	1	2
	CONOPS	Concept of operations and use	We have an initial view of what difference this solution would have when deployed	Some initial evaluation has been conducted on the expected concept of operations	There is a good understanding of the CONOPS with 'customer' practitioner support	We have detailed understanding of the CONOPS and customer support		1	2
	Integration	Integration		We have the integration/domain knowledge to develop the business opportunity	We have validated our integration/domain knowledge with experts/customers/suppliers/internal stakeholders	We have validated our integration/domain knowledge	We have the integration/domain knowledge to scale and achieve the adoption for the business opportunity (IRL9)	1	2
E X E C U T I O N	Go to Market	Route to market, market and distribution		We have identified options for go to market and evaluated them against the business opportunity and customer segments	We have prioritised go to market options and have a strategy in place	We have trialled new go to market strategies	We have implemented the optimal Go to Market strategy	1	2
	Partnerships	Partnerships and suppliers relationships		We have identified areas where we may require partners / suppliers and identified key partners / suppliers	We have engaged and vetted preferred partners / suppliers	Preferred partners / suppliers have successfully co-created and delivered into immediate product opportunities	We have contracts in place with preferred partners / suppliers for full product launch	2	3
	Team	Capabilities, skills and strengths of the team	We have the business skill and capabilities to complete Concept study	We understand high level team business skill and capability requirements and have identified gaps for the business opportunity	We have sourced required business skills and capability resources	We have implemented the required business skill and capability resources	We have the business skill and capabilities to succeed with our business opportunity	1	2
	Operational Model	The operational model, processes and facilities				Have identified gaps in processes and facilities for the product/service to be offered	We have implemented the target processes and systems and validated them	1	2



2.4 INTEGRATION AND TECHNICAL SUPPORT

2.4.1 Standards and Interfaces

The identification and collection of common CBRNe standard as well as interfaces is continued.

Additional standards have been gathered between the ENCIRCLE partners and the CBRN community. Selected standards have been cataloged and collected in the working file. They have been divided for categories and main functions. Final review of the working file is ongoing, the preliminary view is reported below:

A	C	D	E	F	G	H	I	J	K	L	M
STAC	Category	Sub-Category	CBRN	M/C	INT/EU/NAT	STANDARD	TITLE	PURPOSE	PREFERRED	Double-check	Full document available
F4 F5	Search and Detection Identification and Monitoring	Ingress Protection				IP67	International Protection Marking, IEC standard 60529	used to define levels of sealing effectiveness of enclosures against intrusion from foreign matter (solids, dirt etc) and moisture. The ratings are determined by testing, additional detail of which can be found overleaf.		no	
F4 F5	Search and Detection Identification and Monitoring	Ingress protection			EU	EN 60529		used to define levels of sealing effectiveness of enclosures against intrusion from foreign matter (solids, dirt etc) and moisture. The ratings are determined by testing, additional detail of which can be found overleaf.		no	
F4 F5	Search and Detection Identification and Monitoring	Quality Management			INT	ISO 9001	Quality Management System			yes	
F4 F5	Search and Detection Identification and Monitoring	Portal Monitor	R	C	NAT	ANSI N42.35-2016	American National Standard for Evaluation and Performance of Radiation Detection Portal Monitors for Use in Homeland Security	Minimum performance specifications and testing methods for the evaluation of radiation portal monitors, also known as RPMs, are contained in this standard.		yes	
F4 F5	Search and Detection Identification and Monitoring				NAT	Swedish Govt and JIN standards					
F4 F5	Search and Detection Identification and Monitoring	Borders	R	C	INT	IAEA TECDOC Series No. 1312	Detection of Radioactive Materials at Borders	guidance for Member States for use by customs, police or other law enforcement bodies on the radiation monitoring of vehicles, people and commodities at border crossing		yes	
F4 F5	Search and Detection Identification and Monitoring	Smuggling	R	C	INT	IAEA TECDOC Series No. 1313	Response to Events Involving the Inadvertent Movement or Illicit Trafficking of Radioactive Materials	Practical information for use by emergency response and law enforcement personnel involved in dealing with incidents of inadvertent movement or illicit trafficking of radioactive materials		yes	
F4 F5	Search and Detection Identification and Monitoring		R	C	INT	IAEA TECDOC Series No. 1311	Prevention of the Inadvertent Movement and Illicit Trafficking of Radioactive Materials	typical regulatory framework so that customs, police and other law enforcement staff are aware of the measures being taken to prevent loss of control		yes	
F4 F5	Search and Detection Identification and Monitoring		CBRN	M	INT	NATO STANAG 2133	VULNERABILITY ANALYSIS OF CHEMICAL AND BIOLOGICAL HAZARDS	INACTIVE			
F4 F5	Search and Detection Identification and Monitoring		CBRN	M	INT	NATO AEP 66, AJP 3.8	ALLIED JOINT DOCTRINE FOR CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR DEFENCE	provides North Atlantic Treaty Organization (NATO) strategic and operational commanders with fundamental principles for the planning, execution, and support of NATO operations for which the threat and/or risk of intentional or accidental use of chemical, biological, radiological, and nuclear (CBRN) substances are either assessed or exist.		yes	
F4 F5	Search and Detection Identification and Monitoring		CBRN	M	INT	STANAG 2352	Chemical, Biological, Radiological And Nuclear (CBRN) Defence Equipment - Operational Guidelines	To provide a NATO agreed document detailing CBRN defence equipment requirements based on the main threats from CBRN weapons or devices and potential hazards originated (resulting) from toxic industrial materials (TIM) within		yes	

In addition, the most common wired communication interfaces, wireless and bluetooth low energy interfaces as well as some military communication protocols have been identified by ENCIRCLE partners.

The identified communication interfaces will be communicated to Part B projects (EU-SENSE and TERRIFIC) coordinator as suggestions for the development of tools and innovations during their projects.

2.4.2 Integration Platforms and Human Factors

The draft document describing Platform Integration has been generated. The challenge is that there is no standardized official term and definition for “integration platform” by the ISO (the International Organisation for Standardization) or CEN (European Committee for Standardization). The document is going to give some definitions for future use.

For getting information from practitioners and end-users, the questionnaire of interfaces and interoperability has been generated and the intention is that questionnaire will be used in planned workshops in May 2019.

There was also a presentation of ENCIRCLE at the NBC symposium in 4th to 7th

of June 2018 Rovaniemi. As previously stated the Integration and platform section in Dynamic Catalogue has been developed and refined during 2018

The Human Factors task has continued the collection of bibliography and information around human factors applied or applicable to CBRN. In addition a questionnaire was developed in the previous period and uploaded on EUSurvey platform and sent to selected EU projects that have in their scope CBRN issues and practitioner networks (FIRE-IN, DRIVER+, IN-PREP, ENOTICE, ILEAD, ILENET). Furthermore the questionnaire was sent to other practitioners known by UCSC and PIAP.

The questionnaire is available on the ENCIRCLE website and was promoted via twitter. Due to the small number of replies, the questionnaire will be sent to new projects in the next months. The analysis of the answers will be done when the quantity of the answers will be sufficient to provide a statistical base for analysis.

2.4.3 Impact Policy and Exploitation

Representatives of the ENCIRCLE consortium held a meeting with representatives of DG HOME and EUROPOL to investigate potential synergies between the ENCIRCLE cluster and other initiatives coordinated by DG HOME and EUROPOL with regards to CBRN innovations policy and procurement. Initiatives of the involvement of the practitioners into ENCIRCLE community will be pursued mainly via links to other projects oriented to end-users participation.

Work focused on measuring the impact of the ENCIRCLE Dynamic Catalogue has been started. It is foreseen to analyse the connection between practitioners' activities in the Catalogue and the actions (e.g. dissemination) performed by the ENCIRCLE consortium. Currently, the gathering of information has started and the analysis will be performed in the following months.

Identification of the documents describing security and defence procurement in various EU Member States has also been started. When finished, these documents will be an input to the analysis of recommendations for the improved procedures to clear the road to market for the innovative products from security and defence area.

2.5 FEEDBACK ON PART B RESEARCH AND DEVELOPMENT ACTIVITIES

2.5.1 Collaboration agreement

A collaboration agreement, which is required to be in place for the Part B proposals, was drafted and agreed and then loaded on the ENCIRCLE project site. During the proposal submission, 13 collaborations agreements were signed between UCL and the proposal coordinators.

2.5.2 TERRIFIC

The TERRIFFIC (Tools For Early and Effective Reconnaissance in CBRNE Incidents Providing First Responders Faster Information and Enabling Better Management of The Control Zone) project will deliver a step change in the effectiveness of first responders during the first hours of a Radiological, Nuclear, explosive (RNe) incident. It will lead to reduced response time, less health and safety risks for the response team, and less human intervention in the operation due to higher number of automated processes and extended mobile detection capabilities. TERRIFFIC will enrich the European response to RNe events by a set of modular technology components in a comprehensive system, incl. new detectors, algorithms, drones, robots, dispersion models, information management software and decision support systems. The project will provide detailed information on the applicability of some developments within a chemical and biological (C/B) context. Dedicated Key Performance Indicators will measure the progress towards targeted performance goals, such as significant acceleration of the time to start terrain interventions due more accurate and near-to-real-time estimation of the control and exclusion zones. Advanced mixed reality technology will be leveraged to provide first responders with ad-hoc available and continuously updated information during operations.

The TERRIFFIC workshop was supported and the business case maturity model has been used to baseline the project. A preliminary IPR assessment has also been conducted on the TERRIFIC building blocks and recommendation made in the TERRIFFIC Management report.

2.5.3 EU-SENSE

EU-SENSE (European Sensor System for CBRN Applications) proposes the design and development of a sensor network system, which will allow for improved chemical detection. The network will incorporate commercially available stationary and person-worn sensors, which will constitute heterogeneous sensor nodes. These nodes will comprise sensors incorporating various detection technologies. The application of heterogeneous sensor nodes will allow for detection of a large spectrum of chemical agents. The overall performance of the network will be enhanced with novel data fusion algorithms. Moreover, the fundamental part of the EU-SENSE system will focus on network performance improvement and false alarm reduction via data fusion algorithms including machine learning of the environmental noise and contamination modelling.

The EU-SENSE Business case maturity model has been baselined and gaps for development identified. A preliminary IPR assessment has been conducted

2.5.4 COSMIC

The threat of CBRNE (Chemical, Biological, Radiological, Nuclear and Explosives) components used by terrorists is major concerns for EU and worldwide security. Today there is a major security gap in the existing security flow that can be used by terrorists to hide and smuggle CBRNE materials inside containers and vehicles. The challenge of improving container and vehicles border crossing and critical infrastructure entrance security checks is of great

importance in fighting terrorist threats, theft and smuggling. Improvised Nuclear Device (IND) could be detonated using nuclear weapon components, modified nuclear weapons, or a self-made device and Radiological Dispersal Device (RDD) could be designed to disperse radioactive materials through an explosion (or 'dirty bomb'). COSMIC (CBRNE Detection in Containers) system plans to bridge the major security gap for fast inspection of large number of containers and vehicles in sea port and in crossing borders for CBRNE materials. COSMIC's technology can be adapted also to air containers. COSMIC proposes a novel technological approach for the detection of CBRNE materials hidden in shipping containers. COSMIC project includes the research, design and implementation of a three stage (primary, secondary, focused manual inspection) detection system using new set of innovative sensors.

The baselining of the project with the Business case maturity model is in progress

2.5.5 Other Projects and Initiatives

Collaborative efforts with other projects and initiatives is summarised below

Project	Progress
COU	Supported the CBRN related Community of user events: March 2018 <ul style="list-style-type: none"> https://www.securityresearch-cou.eu/node/9190 December 2018 Civil Military Cooperation <ul style="list-style-type: none"> https://www.securityresearch-cou.eu/node/9197
eNOTICE	Supported eNOTICE Biogarden exercise in June 2018 including conducting a needs and gaps workshop
FIREIN	Supported FIREIN annual dissemination workshop in May 2018 and currently finalising actions for future collaborations Supported FIREIN workshop in Prague February 2019 - Emergencies related to the outbreak of highly contagious diseases and the threat of abuse of the situation by specific groups
NO-FEAR	Supported the NO-FEAR Foresight workshop in Nice in November 2018
ILEAD	Held preliminary discussions on potential collaborations
ILEANET	Held preliminary discussions on potential collaborations

CEPOL	Providing a training slot at CEPOL EPOL Course 80/2018 Forensic investigation in CBRN contaminated environment/terrorist attack-possible engagement-Feb 2019
SRE 2018	Supported the security Research event in Brussels in December 2018, ENCIRCLE project stand

2.6 KEY ACTIVITIES IN 2019

Event	Activity Type	When/Where
2019 Part B Topics	Call for proposals	Mar 2019
CEPOL	Training	Mar 2019, Hungary
COU	Support community of users and workshop	March 2019, Brussels
eNOTICE	Support and Develop Standards and Integration	May 2019, Gurcy
Toxtriage	Support and Develop standards and integration	May 2019, Mikkeli
CBRN Innovation	ENCIRCLE Standard, Panel session and workshop	May 2018, Nantes
	Support International CBRN Symposium	Nov 2019, Farnborough
	Support SRE	Nov 2019

3 ENCIRCLE Impact Summary

The following table summarises the impact of the project to date to shorten the time to market for novel CBRN technologies and innovations







Impact		Status
a	Provide an early identification of needs and markets for new innovations	Needs and gaps from EDEN have been updated and relationships are being built with the practitioner networks. These have been prioritised for the DRS calls
b	Provide early identification of new products and innovations	ENCIRCLE Dynamic Catalogue has been refined Innovation watch is being set up and pilot exercise conducted
c	Support better exploitation of previous and current innovation projects, including orphan results, through identification and facilitation of the most appropriate financial instruments,	Surveys are being conducted of financial instruments and these are being posted on ENCIRCLE project site Links have been made with the winning projects from the 2017 call and initial IPR assessments and business maturity have been made to start to understand their needs
d	Provide recommendations to fill/meet important gaps through the Part b calls,	The 2017 Call was conducted successfully. A lessons learnt exercise has been conducted and the 2019 DRS04 prepared
e	Provide improved and easier integration and interfaces between research results and products and existing practitioner and user systems, by sharing commercial efforts and access to market between SME and large industries cooperating in the cluster	Integration and interface and standards collection are being conducted Market analysis has been conducted and is posted in the ENCIRCLE Dynamic Catalogue Network and groups forum
f	Speed up the European CBRN innovation capacity by its open, standardised interfaces and its portal facilities (catalogue, community network, market place)	Interfaces to allow better integration of CBRN solutions are being collected and workshops are be arranged 2019
g	propose innovation topics that will meet the significant market current and forthcoming needs for the Part b call	2017 Call conducted successfully, 2019 call has been prepared and commented by the European Commission
h	speed up the European innovation capacity in CBRN through the use of standardised interfaces. The integration of	Interface and standard information are being collected, policy, procurement and market analysis surveys have been

	new knowledge will be included in the Portal (catalogue, expert network and market)	conducted and results presented at the COU's Market Analysis report available in the catalogue
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4 Annex 1: an example of Risk Radar Results

The following provides an example of the Risk Radar results for the innovation watch

1. Sources





+ Add new record			
Name	Description	Edit Source	Delete Source
CBRN e-portal	www.cbrneportal.com		
CBRN e-central	cbrnecentral.com		
Daily Mail	www.dailymail.co.uk		



2. Subjects

+ Add new record		
Subject	Edit Subject	Delete Subject
"CBRN"		
CBRN AND ("Personal Protective Equipment" OR PPE)		
CBRN AND detection AND tool		

3. Search string template

https://www.google.de/search?q="CBRN"&tbs=cdr%3A1%2Ccd_min%3A11%2F30%2F2017%2Ccd_max%3A11%2F30%2F2018&pws=0&lr=lang_en&num=100&as_sitesearch=www.cbrneportal.com

	Subject (e.g. "CBRN")
	Start date (e.g. 11.30.2017)
	End date (e.g. 11.30.2018)
	Web page (e.g. www.cbrneportal)

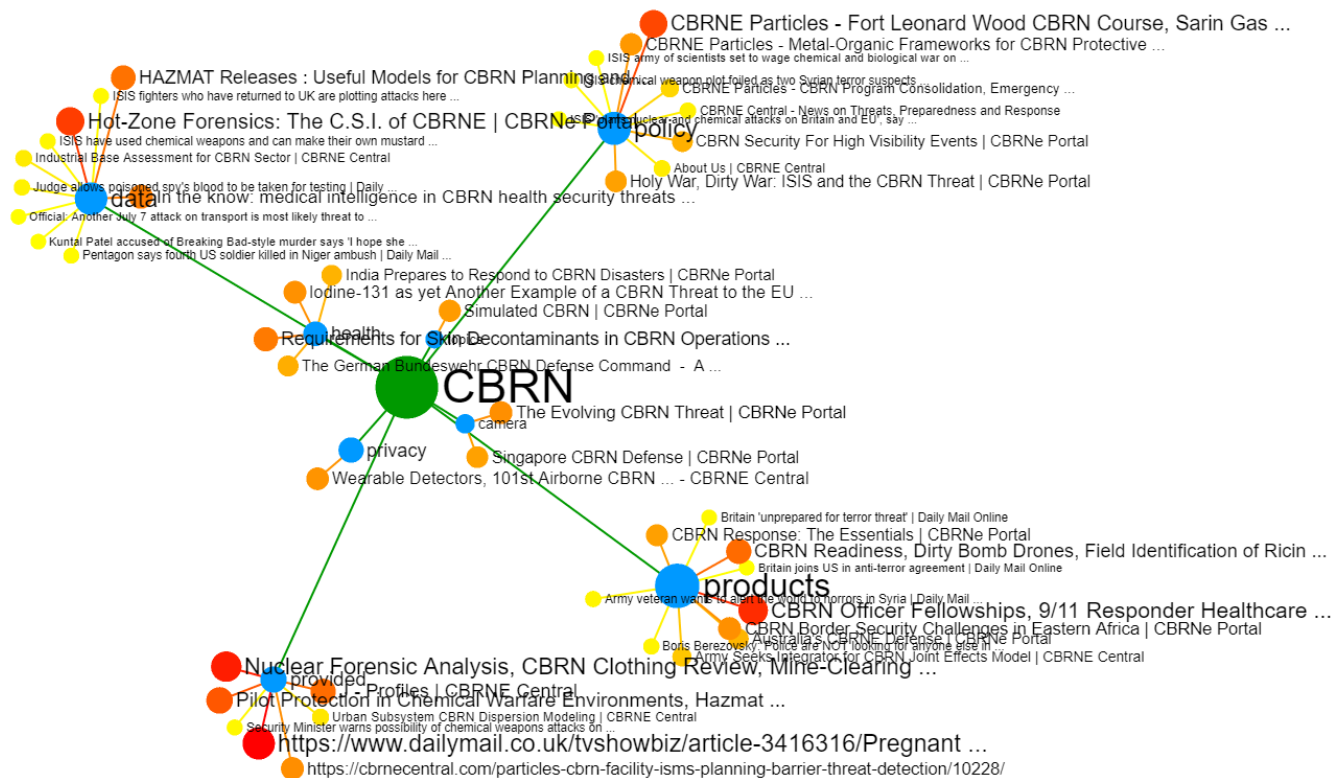



[All](#)
[Images](#)
[News](#)
[Videos](#)
[Maps](#)
[More](#)
[Settings](#)
[Tools](#)

30 Nov 2017 – 30 Nov 2018 ▼
Sorted by relevance ▼
All results ▼
Clear

4. Results on 27.11.2018 for subject <"CBRN"> (searched since 08.03.2018)

4.1. Radar network



Title
Britain joins US in anti-terror agreement Daily Mail Online (https://www.dailymail.co.uk/news/article-330239/Britain-joins-US-anti-terror-agreement.html)
ISIS 'plans nuclear and chemical attacks on Britain and EU', say ... (https://www.dailymail.co.uk/news/article-3547840/EU-Nato-say-justified-concern-ISIS-carrying-chemical-nuclear-attack-Britain-Europe.html)
Official: Another July 7 attack on transport is most likely threat to ... (https://www.dailymail.co.uk/news/article-1042880/Official-Another-July-7-attack-transport-likely-threat-Britain.html)
Kuntal Patel accused of Breaking Bad-style murder says 'I hope she ... (https://www.dailymail.co.uk/news/article-2766557/Barclays-worker-accused-plotting-poison-mother-Breaking-Bad-style-plot-forbade-marry-told-friend-I-hope-dies-soon-I-hate.html)
ISIS army of scientists set to wage chemical and biological war on ... (https://www.dailymail.co.uk/news/article-3347671/ISIS-army-scientists-set-wage-chemical-biological-war-West-Experts-warn-weapons-mass-destruction-carried-undetected-Europe-Union.html)
Pentagon says fourth US soldier killed in Niger ambush Daily Mail ... (https://www.dailymail.co.uk/news/article-4956892/Pentagon-says-fourth-U-S-soldier-killed-Niger-ambush.html)
Britain 'unprepared for terror threat' Daily Mail Online (https://www.dailymail.co.uk/news/article-129601/Britain-unprepared-terror-threat.html)
ISIS fighters who have returned to UK are plotting attacks here ... (https://www.dailymail.co.uk/news/article-3551333/Britain-threat-70-jihadists-returned-fighting-ISIS-plotting-attacks-officials-warn.html)
ISIS chemical weapon plot foiled as two Syrian terror suspects ... (https://www.dailymail.co.uk/news/article-3357320/Two-Syrian-men-arrested-Geneva-amid-fear-plotting-chemical-bomb-terror-attack-Swiss-city.html)
Security Minister warns possibility of chemical weapons attacks on ... (https://www.dailymail.co.uk/news/article-6258743/Security-Minister-warns-possibility-chemical-weapons-attacks-British-soil-getting-closer.html)
ISIS have used chemical weapons and can make their own mustard ... (https://www.dailymail.co.uk/news/article-3443721/ISIS-used-chemical-weapons-make-mustard-gas-chlorine-warns-CIA-director.html)

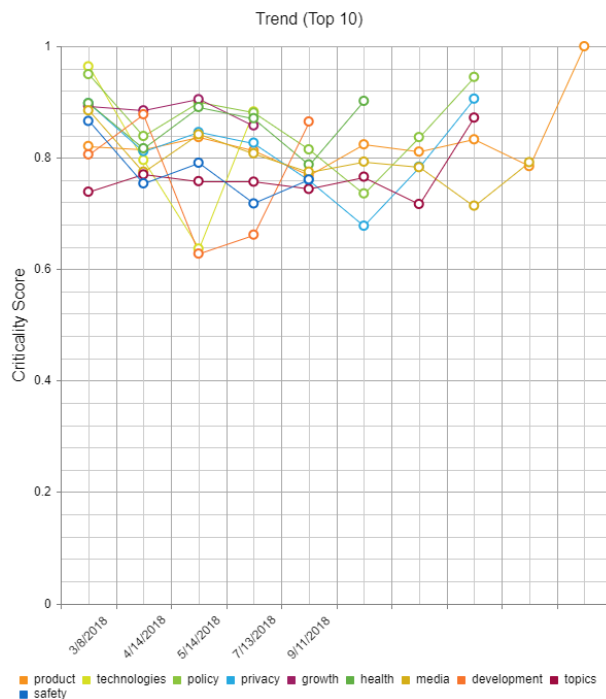
Army veteran wants to alert the world to horrors in Syria Daily Mail ... (https://www.dailymail.co.uk/news/article-5244821/Army-veteran-wants-alert-world-horrors-Syria.html)
Boris Berezovsky: Police are NOT looking for anyone else in ... (https://www.dailymail.co.uk/news/article-2298076/Boris-Berezovsky-Police-NOT-looking-connection-death.html)
Judge allows poisoned spy's blood to be taken for testing Daily ... (https://www.dailymail.co.uk/news/article-5532029/Second-cop-probing-spy-attack-treated-hospital-poisoning.html)
CBRNE Central - News on Threats, Preparedness and Response (https://cbrnecentral.com/)
About Us CBRNE Central (https://cbrnecentral.com/about-us/)
Industrial Base Assessment for CBRN Sector CBRNE Central (https://cbrnecentral.com/industrial-base-assessment-for-cbrn-sector/3253/)
Urban Subsystem CBRN Dispersion Modeling CBRNE Central (https://cbrnecentral.com/urban-indoor-threat-agent-dispersion-methods/4422/)
CBRNE Particles - CBRN Program Consolidation, Emergency ... (https://cbrnecentral.com/particles-dhs-cbrn-programs-fbi-emergency-management/10014/)
Army Seeks Integrator for CBRN Joint Effects Model CBRNE Central (https://cbrnecentral.com/joint-effects-model-jem-cbrn/4285/)
Australia's CBRNE Defense CBRNe Portal (https://www.cbrneportal.com/australias-cbrne-defense/)
India Prepares to Respond to CBRN Disasters CBRNe Portal (https://www.cbrneportal.com/india-prepares-to-respond-to-cbrn-disasters/)
CBRN Security For High Visibility Events CBRNe Portal (https://www.cbrneportal.com/cbrn-security-for-high-visibility-events/)
The German Bundeswehr CBRN Defense Command - A ... (https://www.cbrneportal.com/the-german-bundeswehr-cbrn-defense-command-a-traditionally-strong-capability-in-a-new-type-of-organization/)
Singapore CBRN Defense CBRNe Portal (https://www.cbrneportal.com/singapore-cbrn-defence/)
Holy War, Dirty War: ISIS and the CBRN Threat CBRNe Portal (https://www.cbrneportal.com/holy-war-dirty-war-isis-and-the-cbrn-threat/)
CBRN Response: The Essentials CBRNe Portal (https://www.cbrneportal.com/cbrn-response-the-essentials/)
Simulated CBRN CBRNe Portal (https://www.cbrneportal.com/simulated-cbrn/)
CBRNE Particles - Metal-Organic Frameworks for CBRN Protective ... (https://cbrnecentral.com/cbrne-particles-wearable-cbrn-sensors-gas-mask-filtration-materials/936/)
Wearable Detectors, 101st Airborne CBRN ... - CBRNE Central (https://cbrnecentral.com/cbrne-particles-wearable-nuclear-detectors-101st-airborne-cbrn/9767/)
Iodine-131 as yet Another Example of a CBRN Threat to the EU ... (https://www.cbrneportal.com/iodine-131-as-yet-another-example-of-a-cbrn-threat-to-the-eu/)
CBRN Border Security Challenges in Eastern Africa CBRNe Portal (https://www.cbrneportal.com/cbrn-border-security-challenges-in-eastern-africa/)
The Evolving CBRN Threat CBRNe Portal (https://www.cbrneportal.com/the-evolving-cbrn-threat/)
https://cbrnecentral.com/particles-cbrn-facility-isms-planning-barrier-threat-detection/10228/ (https://cbrnecentral.com/particles-cbrn-facility-isms-planning-barrier-threat-detection/10228/)
In the know: medical intelligence in CBRN health security threats ... (https://www.cbrneportal.com/in-the-know-medical-intelligence-in-cbrn-health-security-threats/)
Requirements for Skin Decontaminants in CBRN Operations ... (https://www.cbrneportal.com/requirements-for-skin-decontaminants-in-cbrn-operations/)
HAZMAT Releases : Useful Models for CBRN Planning and ... (https://www.cbrneportal.com/hazmat-releases-useful-models-for-cbrn-planning-and-response/)
J - Profiles CBRNE Central (https://cbrnecentral.com/profiles/char/J/)
CBRN Readiness, Dirty Bomb Drones, Field Identification of Ricin ... (https://cbrnecentral.com/particles-cbrn-readiness-dirty-bomb-drones-field-identification-of-ricin/10912/)
Pilot Protection in Chemical Warfare Environments, Hazmat ... (https://cbrnecentral.com/particles-pilot-protection-chemical-warfare-environments-hazmat-response-uranium-scare-disaster-resilience-planning/10597/)
CBRNE Particles - Fort Leonard Wood CBRN Course, Sarin Gas ... (https://cbrnecentral.com/cbrne-particles-fort-leonard-wood-sarin-gas-vaccine-nuclear-waste-transport/4882/)

[Hot-Zone Forensics: The C.S.I. of CBRNE | CBRNe Portal \(https://www.cbrneportal.com/hot-zone-forensics-the-c-s-i-of-cbrne/ \)](https://www.cbrneportal.com/hot-zone-forensics-the-c-s-i-of-cbrne/)

[CBRN Officer Fellowships, 9/11 Responder Healthcare ... \(https://cbrnecentral.com/particles-cbrn-officer-fellowships-911-responder-healthcare-preparedness-report-card/10330/ \)](https://cbrnecentral.com/particles-cbrn-officer-fellowships-911-responder-healthcare-preparedness-report-card/10330/)








[Nuclear Forensic Analysis, CBRN Clothing Review, Mine-Clearing ... \(https://cbrnecentral.com/particles-nuclear-forensic-analysis-cbrn-protective-clothing/10448/ \)](https://cbrnecentral.com/particles-nuclear-forensic-analysis-cbrn-protective-clothing/10448/)

[https://www.dailymail.co.uk/tvshowbiz/article-3416316/Pregnant ... \(https://www.dailymail.co.uk/sitemap-articles-day~2016-01-25.xml \)](https://www.dailymail.co.uk/tvshowbiz/article-3416316/Pregnant ... (https://www.dailymail.co.uk/sitemap-articles-day~2016-01-25.xml))



4.2. Risk Radar



No.	Possible Article Titles	Article Friendly Name	Score	Edit
1	products		2.87	
2	policy		2.71	
3	data		2.7	
4	provided		2.62	
5	privacy		2.6	
6	health		2.59	
7	breakdown		2.53	
8	camera		2.52	
9	communications		2.52	
10	topics		2.5	

4.3. Twitter Data

Tweet ID	Text	URL	Date
1055027605039160000	IAEA Launches International Training Course on Protecting Nuclear Facilities from Cyber-Attacks https://t.co/TlgbYI349f #rad/nuke #feedly	https://twitter.com/statuses/1055027605039169536	10/24/2018 9:25
1052481395644350000	Japan developing vehicle-mounted IED detection system Jane's 360 https://t.co/zGpVDOTdYu	https://twitter.com/statuses/1052481395644358656	10/17/2018 8:48
1050757896726890000	A new wearable to detect chemical weapons - Bulletin of the Atomic Scientists https://t.co/YqIGABBLwt via @BulletinAtomic	https://twitter.com/statuses/1050757896726896640	10/12/2018 14:39
1050084683189340000	Starting now! -- Active IR Spectroscopy for Chemical Detection - presentation by @IARPAnews Kristy DeWitt, PhD host\u2026 https://t.co/KMbgnwsthp	https://twitter.com/statuses/1050084683189346309	10/10/2018 18:04
1046687800278630000	New dioxin decontamination method to be piloted at Bi\u00ean H\u00f2a Airport #agentorange https://t.co/wlu5E7Xjqf	https://twitter.com/statuses/1046687800278634496	10/1/2018 9:06
1024667108188310000	New IAEA Safety Guide Provides Roadmap for Establishing Radiation Safety Infrastructure https://t.co/oyfBSP1Wil #rad/nuke #feedly	https://twitter.com/statuses/1024667108188319744	8/1/2018 14:44

1022478262365230000	Researchers at Univ. of Texas at Austin have designed a new nerve gas detector made of a smartphone and Lego bricks https://t.co/JWCLhPACgk	https://twitter.com/statuses/1022478262365237249	7/26/2018 13:46
1012059283746440000	Bertin's New Multiprobe Military Radiation Survey Meter https://t.co/miVxAUU5cR #cbrn #cbrne https://t.co/OZZDUIxsBd	https://twitter.com/statuses/1012059283746447360	6/27/2018 19:45
1006161144338430000	@RigakuAnalytic Announces addition of new trace analysis capabilities to Progeny ResQ 1064nm Raman. https://t.co/LRx7YPpuZb	https://twitter.com/statuses/1006161144338436096	6/11/2018 13:08
1001889367814750000	Honeywell's New Connected, Wearable Detector Enhances Safety For Workers In Dangerous Confined Spaces https://t.co/47TZfrKWWD	https://twitter.com/statuses/1001889367814754305	5/30/2018 18:13
974195046378549000	RT @UKFireandRescue: To complete our #hazmat guidance suite we also have a new foundation document. Take a look here: https://t.co/e3TlroZS	https://twitter.com/statuses/974195046378549248	3/15/2018 8:06
953632885868609000	U.K. gov't launches competition for innovative airport bomb detection https://t.co/FFAUBsWCB4 https://t.co/CkVvWSrrZv	https://twitter.com/statuses/953632885868609536	1/17/2018 14:19
925382226266738000	The new @flir identiFINDER R440 is now live on the CBRNE Tech Index! https://t.co/BmEkB5pjM7 https://t.co/Ax97DBXBHD	https://twitter.com/statuses/925382226266738688	10/31/2017 15:21
895230039280799000	Check out @BBI_Detection @Ouvry_NRBCE new DEC'POL Emergency Decon Mitt on the CBRNE Tech Index #CBRNE #CBRN https://t.co/BpxoiTtiNs	https://twitter.com/statuses/895230039280799744	8/9/2017 10:27
872103581272477000	The new @Flir Griffin G510 chem/explosive detector is now available! #CBRNE https://t.co/7esl1xioqD https://t.co/QTmG2VLtqk	https://twitter.com/statuses/872103581272477698	6/6/2017 14:51
821681218588700000	Take a look at the @BBI_Detection 2 new Explosive Test Kits on the CBRNE Tech Index!	https://twitter.com/statuses/821681218588700679	1/18/2017 11:30

	https://t.co/hKUTth1Og9 https://t.co/g0o6ABaUKP		
793857584734220000	RT @RigakuAnalytic: #CBRNeConvergence2016 Booth 40 Progeny ResQ #handheldRaman X+Y =Z New 4C helps you find Z https://t.co/eewdHnJL6k http\u2026	https://twitter.com/statuses/793857584734220288	11/2/2016 16:49
788357758680727000	U.S. Marine Corps Needs New Technology, Vehicle Armor, Ammunition https://t.co/3IzpBfbSp2 https://t.co/2H7kAkbqwe	https://twitter.com/statuses/788357758680727552	10/18/2016 12:35