EuropeaN Cbrn Innovation for the maRket CLustEr

Topic: H2020 – SEC 05 – 2016 CBRN Cluster, Part a

ENCIRCLE NEWSLETTER

MAY 7, 2019
ISSUE 2

WELCOME

Welcome to the the second edition of the Encircle newsletter.

Encircle is a four year H2020 project with the aim of improving competitiveness and procurement of CBRNe technologies for the advantage of both European CBRNe industry and practitioners and, most importantly, the improvement of EU resilience to new CBRNe Threats and attacks.

To improve its resilience to new CBRN attacks and threats, the EU needs a specialized, competitive, efficient and sustainable industry. Capitalizing on its experience in the EDEN Demonstration Project, other CBRN relevant projects, and in the CBRN market and supply chain, the ENCIRCLE consortium proposes an innovative approach to reach this goal in a short to long term perspective.

Once achieved it will allow SMEs and large industries to deliver and invest in the best innovations on the market.

The project results are enabled and promoted in two main channels:

i) via a web portal, the Dynamic Catalogue, of available tools and technologies facilitating technologies integration and standardization for SMEs and industries, various market segments and different categories of users

ii) by providing support to the European Commission in identifying research gaps and proposing means to fill them.

This newsletter brings you updates on the project, CBRN contracts, new tech in CBRN, and where you can see us in 2019.

Meet The Partners

The ENCIRCLE project involves a consortium of fifteen members across seven countries, with Universite Catholique de Louvain as consortium leader.
The consortium is balanced between Industrial partners with expertise in CBRN, universities, RTO's, practitioners and institutions to meet the project objectives.

The Consortium:

ADS/CBRN UK

BAE Systems (BAES)

Environics Oy (EOY)

European Virtual Institute for Integrated Risk Management (EU-VRi)

Falcon Communications Ltd. (FALCON)

Instituto Affari Internazionali (I.A.I)

Mikkeli Development Miksei Ltd (MIKSEI)

OUVRY SAS

Przemysiowy Instytut Automatyki i Pomiaro w (PIAP)

Smiths Detection Watford Ltd. (SMITHS)

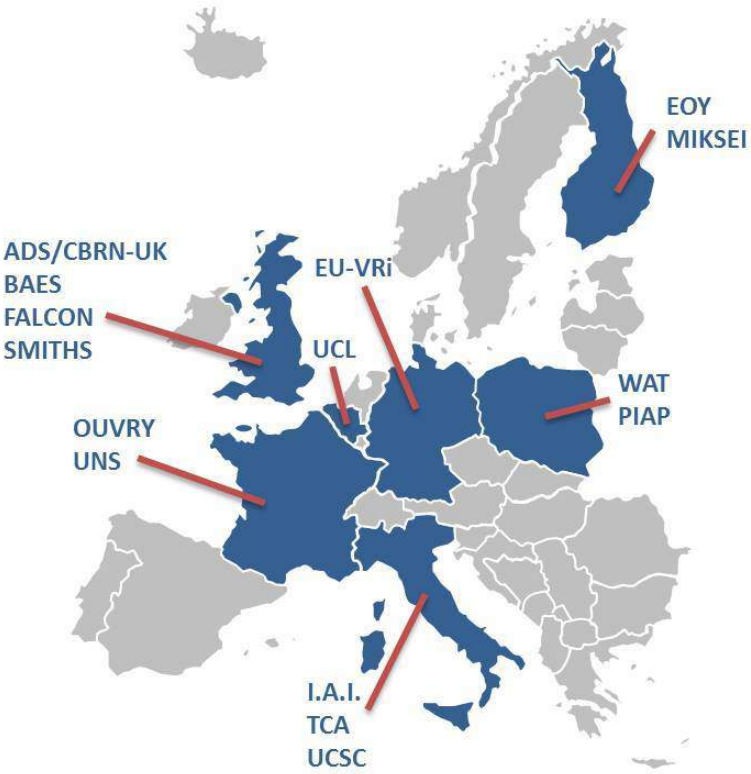
Tecnoalimenti (TCA)

Universita Cattolica del Sacro Cuore (Policlinico Gemelli Hospital) (UCSC)

Universite Catholique de Louvain (UCL)

Universite de Nice-Sophia Antipolis (UNS)

Wojskowa Akademia Techniczna (WAT)



Universities

Université Nice Sophia Antipolis

Wojskowa Akademia Techniczna

Think Tank

IAI Istituto Affari Internazionali

End users

UCL Université catholique de Louvain

UNIVERSITÀ CATTOLICA del Sacro Cuore

TECNOALIMENTI

Trade Association

ADS

CBRNUK GREAT BRITISH INNOVATION

SME

OUVRY Systèmes de protection NRBC

FALCON communications

EEIG (SME)

EU-VRi

Industry

BAE SYSTEMS

Environics

smiths detection

PIAP

MIKSEI Mikkelin kehitysyhtiö Miksei Oy

CONTRACTS & AWARDS

We have outlined some contracts pending and others that were recently awarded.

CONTRACTS PENDING

Gas masks
Document Number: 489517-2018
https://ted.europa.eu/udl?uri=TED:NOTICE:489517-2018:TEXT:EN:HTML&src=0

The objective of the procurement is to cover Forsvaret's [the Norwegian Armed Forces'] need for personal protective masks, including filters, that provide satisfactory protection for all personal that participate in operations where there is a danger for contact with CBRN hazardous materials. This also includes respiratory protective equipment for specialists where normal protective masks do not provide satisfactory protection. The estimated number of personal protective masks for the Norwegian Armed Forces is from approx. 75 000 — 90 000 in total. The number of filters is 2 per mask in addition to filters for 2 years use.

CBRN Protective Gloves and Overboots
Document Number: 97487-2019
https://ted.europa.eu/udl?uri=TED:NOTICE:97487-2019:TEXT:EN:HTML&src=0

This notice concerns the establishment of 2 Framework Agreements in connection with the acquisition of CBRN protective gloves and CBRN protective over boots. The Framework Agreements will have a duration of 4 years. The CBRN protective gloves and over boots are used by soldiers of all branches of the Danish Defence and by personnel of the Civil Defence and are used as part of the complete protective equipment the soldiers and other personnel are equipped with during a CBRN incident as well as in connection with training.
Tenderers shall as a part of this tender deliver test specimens as part of the evaluation.

CONTRACTS PENDING

CBRN Below Neck Protective Clothing System
Contract Number: CBRN/00243 - PATSY BNS
https://www.contractsfinder.service.gov.uk/Notice/c750bcc8-315e-446a-b5ab-1152ca74ead9?p=@FQxUlRRPT0=NjJNT08=U

The CBRN Protection Delivery Team (CBRN DT) is seeking Expressions of Interest from parties wishing to be considered for the supply of a Below Neck CBR Protective Clothing System for Aircrew (Category D). The selected contractor will be responsible for the supply of a Below Neck System (BNS) for approximately 524 aircrew personnel requiring 3 systems per person (approx. 1527), plus additional trials and training sets (approx 50) to be determined at Invitation to Tender (ITT). The first 900 systems are to be delivered at Contract Award (CA) + 23 months with the balance no later than CA + 45 months (earlier delivery is desirable to the Authority but not essential).

FUCHS Sustain
https://www.contractsfinder.service.gov.uk/Notice/5ea2cad2-db0b-4109-80c1-2e04d25d2fc3?p=@FQxUlRRPT0=NjJNT08=U

The Ministry of Defence, ISTAR, Chemical, Biological, Radiological and Nuclear Delivery Team (CBRN DT) are looking for the provision of military vehicles and associated parts, with a contract value of £10m-£20m.
This is an open opportunity - This means that the contract is currently unfulfilled but active, and the buying department is looking for potential suppliers to contact them with bid applications.

Nuclear and radiological protection clothing
Document Number: 179670-2019
https://ted.europa.eu/udl?uri=TED:NOTICE:179670-2019:TEXT:EN:HTML&src=0

CBRNE Protective Suits for the Norwegian Health Service. The protective suit shall be used for circumstances where the personnel at the hospital or in the ambulance service must protect themselves first, before providing adequate treatment of a patient exposed to hazardous agents. This can be all types of CBRN agents (chemical, biological, radioactive and nuclear), for all types of weather, outdoor, indoor and in situation where the patient needs decontamination.

CONTRACTS AWARDED

CBRN Protective Equipment
Awarded to: Avon Polymer Products Limited
Awarded by: West Midlands Police
Contact Award Amount: 20 000 000.00 GBP

Software package and information systems
Awarded to: Bagira Systems/ Van Halteren Defense
Awarded by: Ministerie van Defensie Nederland
Contact Award Amount: Not Provided

CBRN Protected Comms' Containers
Awarded to: Marshall Land Systems Limited
Awarded by: Danish Defence Acquisition and Logistics Organizations
Contact Award Amount: 48 414 428 DKK

CBRN Body Bags
Awarded to: VDP Safety SA
Awarded by: Police fédérale service procurement
Contact Award Amount: 111 000.00 EUR

Breathing Apparatus Set Upgrade inc CBRN Mask
Awarded to: Draeger Safety UK Ltd
Awarded by: Northern Ireland Fire Rescue Service
Contact Award Amount: 151 290.00 GBP

Nuclear Safety Equipment
Awarded to: Bertin Technologies SAS
Awarded by: Ministry of the Armed Forces
Contact Award Amount: 1 414 227,20 EUR

Stainless steel baskets for storage of low-activity radioactive waste
Awarded to: RTI Penta System Srl and Tecnomec Engineering Srl
Awarded by: SOGIN Plant Management Company
Contact Award Amount: 1 014 600.00 EUR **CBRN**

Protective Equipment
Awarded to: NBC-SYS
Awarded by: Ministère des Armées
Contact Award Amount: 30 045 617,36 EUR

What's fresh at the CBRN market? The CBRN Innovation Watch of ENCIRCLE

By A. Jovanovic, B. Caillard, M. Jelic and P. Klimek of the European Virtual Institute for Integrated Risk Management

Introduction

There are many on-going research activities in the field of security, including over 260 SEC/DRS projects and 70 other related EU funded projects providing many tools, standards and guidelines. This leads to practical consequences, such as the repetition or duplication of effort, gaps that are not necessarily identified or addressed, and uncertainty about what we have or need.

Three approaches can be applied to analyse the data about the innovations appearing at the market and in the research:

a) qualitative/human analysis that is not well adapted considering the large amount of data available,

b) conventional statistics that requires standardized data sheets

c) new solutions including web semantics and text-mining based methods.

To overcome the problem of large amount of data related to CBRN technologies and innovation in the different formats of these data, ENCIRCLE is developing two tools:

(a) *CBRN Innovations Watch*

(b) the *CBRN Innovations Radar web semantic analysis* tools.

This paper describes the CBRN Innovation Watch tool (also "the Watch"), which helps to identify and order innovations in the field of CBRN based on big and open data. Twitter-data based analysis is the basis of the Innovation Watch methodology and the tool.

The CBRN Innovation Radar (also "the Radar") analyses data in www (blogs, web-pages, etc.) and by analysing this data (texts) provides insights into CBRN sector innovation performance and challenges across the EU. The analysis delivers better understanding of current sectoral innovation dynamics across Europe by interested bodies.

The two tools cover CBRN specific innovations, as well as underpinning technologies, and key enabling technologies (KET). The tools contribute to overall technology development in the area of CBRN and better structuring of priorities/ recommendations and helps identify new trends.

The problem to be solved

The starting point for the development of the Watch and the Radar in the ENCIRCLE projects are the goals set in the 'Horizon 2020 -Work Programme 2018-2020 Secure societies -Protecting freedom and security of Europe and its citizens,' specifically the part on Technologies for first responders. According to the program, resilience is critical to allow authorities to take proper measures in response to severe

disasters, both natural (including climate-related extreme events) and man-made. Practically, the program calls to analyze the opportunities resulting from innovation for disaster-resilient societies and the benefits that can be drawn from novel technologies, provided that

(a) they are affordable,

(b) accepted by the citizens, and

(c) customized and implemented for the (cross-sectoral) needs of first responders.

An examples would be concepts like victim-detection technologies. These enable quick detection of victims trapped in buildings as a result of either man made or natural disaster. Novel technology should enable them to speedily detect buried victims, enabling more efficient and quicker rescue operations leading to higher chances of saving lives and reducing injuries.

Further examples are communication or smart wearables technologies for first responders and K9 units. These can include light-weight energy sources;,situational awareness and risk mitigation systems for first responders using UAV and robots, drone swarms, systems based on the Internet of Things, augmented or virtual reality, communication systems between first responders and victims, risk anticipation or early warning technologies, mitigation, physical response or counteracting technologies etc.

In principle, any novel technology or methodology sould be tested and validated, not just in laboratories but also in training and through in-situ experimental deployment. They need to be quick to deploy and based on resilient, robust communication infrastructure.

The 3-step approach of ENCIRCLE

The tools offer an easy-to-access interface where topics can be set up for monitoring. Settings can be adjusted to relfect how often the system should report on identified novel trends.

Both tools are based on the same three-step approach but differ in the type and structure of the contents analysed. The Watch screens twitter while the Radar screens web-based online sources .

After setting up the topic, the tools collect information available from relevant web-based online sources. Based on user-defined search queries the tools use this information to perform data analytics in order to rank the relevance or importance of the keywords. Relevance or importance of keywords is defined by a measure called Document Centrality. This is a proposed Natural Language Processing technique to rank documents and their content by their frequency and the source of the information. The technical process explained in detail in a previous publication: Klimek, Jovanovic, Egloff, Schneider. *Scientometrics* 107.3 (2016): 1265-1282.

The tools developed in ENCIRCLE are based on the Emerging Risk Radar developed in the iNTeg-Risk project (www.integrisk.eu-vri.eu/).

Step 1: Identify and monitor novel online content for a certain topic

Based on a simple user-defined search query that defines the topic of interest (for example “CBRN”), the tools search their respective field of sources for relevant content (see Figure 1). The field of sources covers tweets of selected twitter accounts for the Watch tool and different websites for the Radar such as www.cbrneportal.com, www.cbrnecentral.com; www.dailymail.co.uk, www.tandfonline.com... Every month, the tools retrieve and store relevant content based on the user’s query, which can be narrowed or broadened using Boolean combinations of search queries (for instance “CBRN AND (products OR technology OR innovation) AND ("risk assessment" OR reduction OR Protection OR simulation OR

detection)"). The risk radar discriminates novel contents from already retrieved ones, and the user doesn't need to go through "hits" already acknowledged earlier.

Figure 1: Step 1: Defining the topic and of the sources to be considered in the CBRN Innovations Radar web semantic analysis

Step 2: Identify potential high impact trends - evaluating retrieved online content to identify texts and documents that have the highest potential for impact for the insurance industry using an unsupervised, quantitative big data analysis

The tools automatically collating and analyse data (see Figure 2). Once the topic is assigned, the system automatically searches using crawler software in the defined online content, and internally stores the information in the database. The relevant articles are collected in .html file format, which then goes to the next stage of a segmentation process.

Here, an algorithm identifies the articles that contain a large number of relevant terms and/or contains terms that are also relevant for a large number of other documents, that have the highest relevance, frequently repeated in sources, and that are most likely to have a substantial impact in the future. The filtered articles are identified according to their criticality, based on two aspects; (i) how active the topic is currently, and (ii) how fast the trend in the topic is growing.

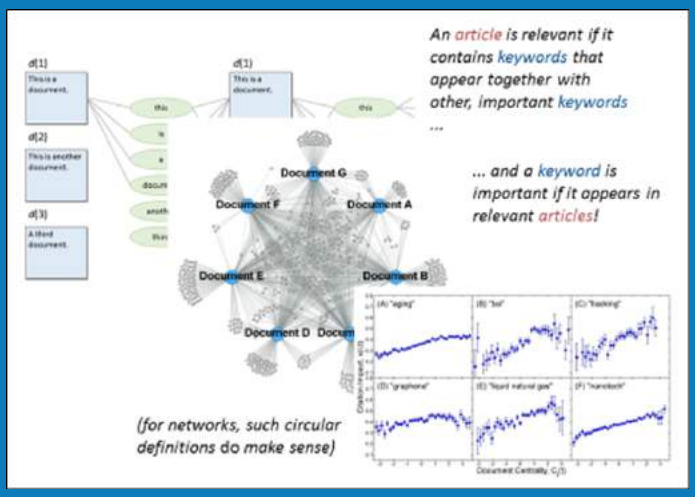


Figure 2: Step 2: Crawling relevant pre-defined internet sources and use natural language processing techniques

Step 3: Visualize recommendations - providing options for new innovations to be included in the ENCIRCLE catalogue by identifying those topics within the high-impact documents that have the highest novelty value

The third step of the methodology provides recommendations for new innovations based on the documents identified in the second step. The topics of the potential high-impact documents are extracted and ranked according to their novelty values.

This can be done by comparing the frequency of a given term in the current month with its frequency in the past months. A strong increase between these two frequencies indicates substantial novelty value within the high-impact documents. We could equally assign a high novelty value to a term, if not its frequency itself, but the words that co-occur in the texts together with the given term change.

To extract topics from these terms we can again consider co-occurrences of terms in the sense that a topic can be described by a "bag of words" that are often used in texts about the given topic. The output of the recommendation system of the tools consists of topics that have, both, (i) potential for high future impact in particular with respect to

insurance industries and (ii) are new issues in the sense that they have not been discussed in the given contexts before. These topics can then be visualized, for example, as tagclouds that show the terms driving the results, together with links to the resources (documents, blog posts) out of which the topics have been extracted.

These will serve as a recommendation for future risk notions on a particular topic.

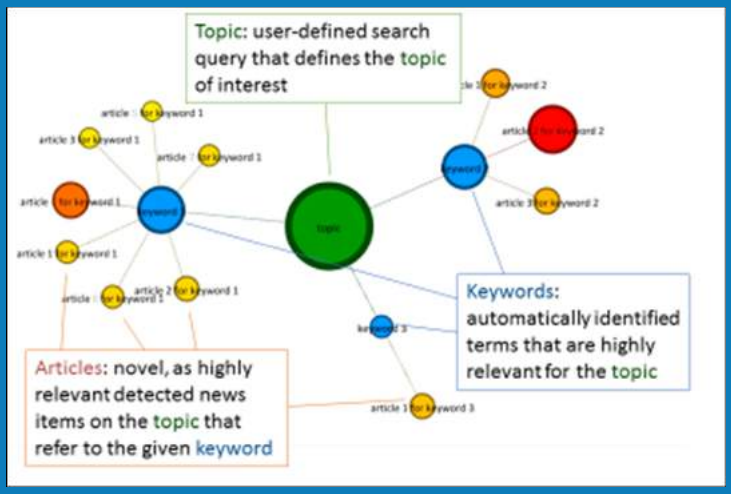


Figure 3: Step 3: Data visualization as Network map onnected to each keyword are the most relevant articles that mention the keyword. Size and redness of the color of the article node is proportional to their estimated relevance

Examples of results of the CBRN Innovation Radar web semantic analysis

Risk Radar offers an easy-to-access interface where topics can be set up for monitoring. Settings can be adjusted depending on how many and how often the system should report on identified novel trends. After setting up the topic, the system will automatically crawl relevant internet sources and use natural language processing techniques in order to identify reports of insurance relevance, high potential impact, and novelty value (with respect to the existing relevant literature on the given topic at the given time). In a third step, these results will be visualized as recommendations for future notions. Such visualizations and reports will be generated automatically by the system on a regular basis (e.g. each week, month). The following figures show an illustration of searched subject and subtopics that have been identified together with relevant sources. Different tone of the colors indicating how important the sources have been ranked.

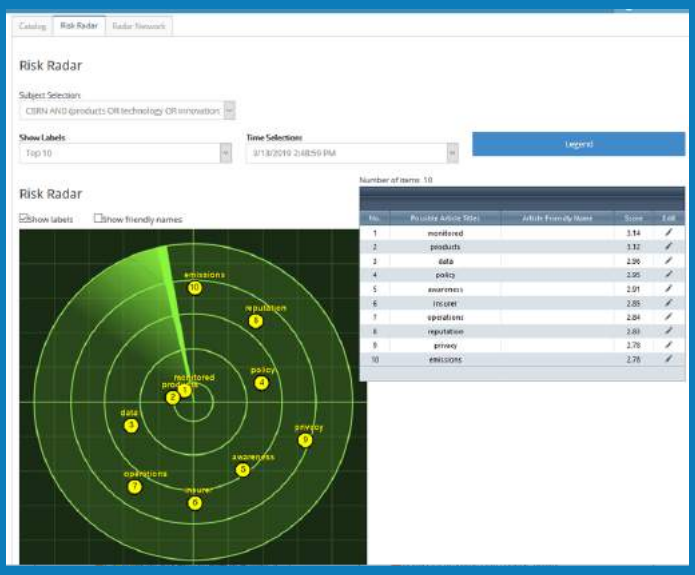


Figure 4: Data visualization as Radar of topics of the CBRN Innovations Radar web semantic analysis

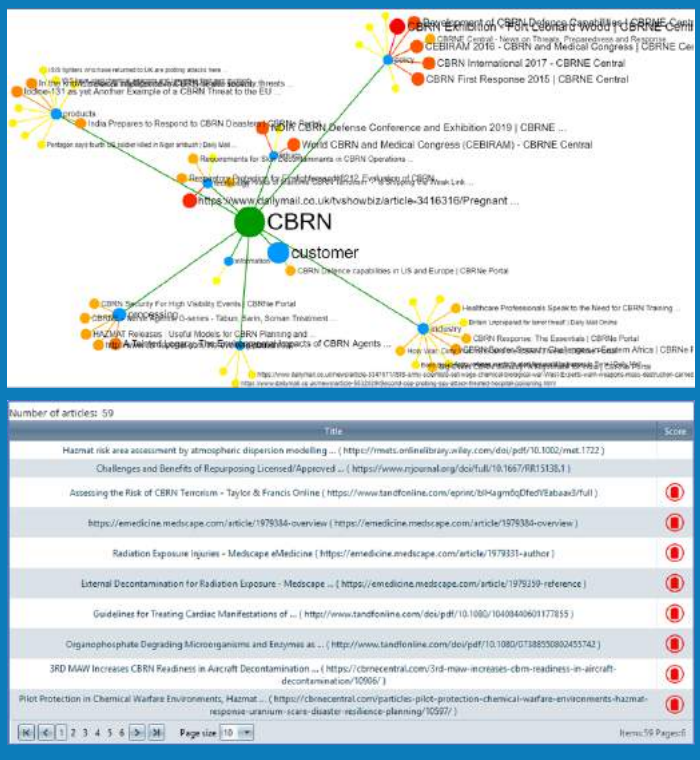


Figure 5: Data visualization as Network map of the CBRN Innovations Radar web semantic analysis

The system allows users to query a Boolean value combinations ways to narrow or expand your search, such as the output of

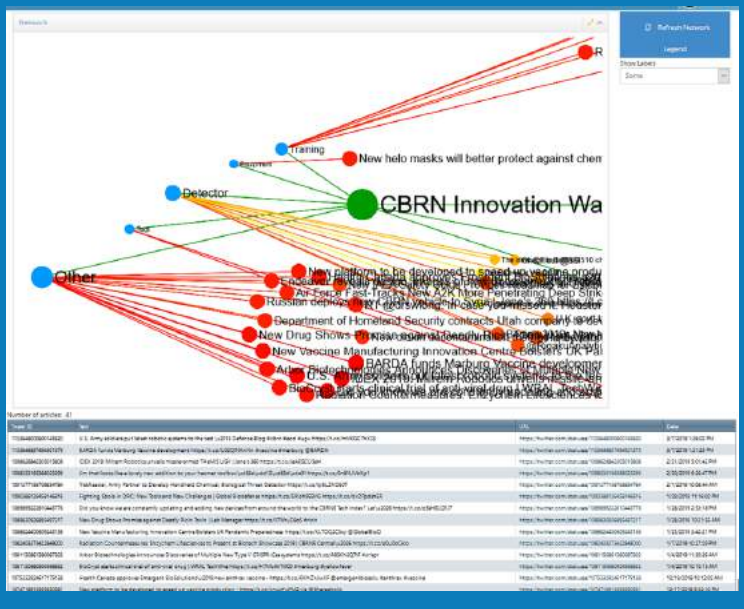
the query conditions: "confined space." We have identified the largest network of online blog platform as the most likely to find relevant content search data sources, namely Wordpress and Blogspot.

The blog content will be crawled and the internal storage system will then classify the document, in preparation for further risk analysis. In general the content is crawled monthly to meet the need to monitor and classify the topic.

The first step is to retrieve the contents of an established term - the Matrix document. A matrix network has two nodes, one corresponding to the document and another corresponding to the term. Network links are always from a document to a term,i f there is a link it indicates that the presence of certain term paper. If there is no link then it does not contain the term.

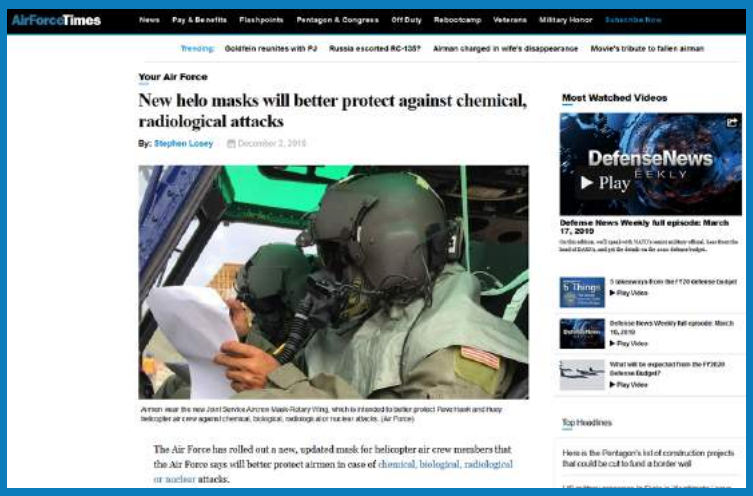
If a document contains a large number of link/terms, or it contains a number of other documents that also have relevance, then the document ranking is high. We can prepare a report of the words and words previously reported known in comparison.

Risk Radar is a communication tool that can visualize and monitor risk according to the criticality of the issue.



(a)

(b)



(c)

Figure 6: Data visualization as Network map of the CBRN Innovation Watch: The node "New helo masks..." in the network (a) leads to the crawled tweet signaling the news about the innovation (new helo maks!) (b), finally bringing the reader to the details on detailed web-page (c)

Conclusion

First responders, badly need all these new technologies (the challenges in the area of CBRN are constantly growing) but cannot maintain a good overview of the complex situation because of lack human resources and exponential growth of the information space.

The amount of irrelevant or even fake information in this space, makes the issue of searching for "right and appropriate innovation" even more complex.

In ENCIRCLE project, the consortium, in the task lead by EU-VRi and supported by all partners, has

provided a solution of this problem in a more systematic manner, and proposed new methods on how to organize information about the CBRN innovation better. In addition, the goal was to improve interaction with researchers when developing, testing, and validating technologies and methods.

Solutions developed

The Radar and the Watch, are in compliance with European societal values, fundamental rights and applicable legislation, including in the area of privacy, personal data protection. They also provide a good basis for extending international cooperation. The technology development in ENCIRCLE benefits from other novel tools, technologies, guidelines and methods aimed at facilitating their operations, as well as from new knowledge about field-validation of different tools.

In terms of the applied methodology, the work in ENCIRCLE has introduced a novel and exclusively content-based method for ranking information sources according to estimates of their potential impact. The method is based on a bipartite network representation of the term-document matrix for a given corpus of documents (by computing bipartite centrality measures that adapt the conventional recursive centrality measures on networks to the bipartite situation).

During the forthcoming phases of the work, the emphasis should be on:

1. Understanding of the features of the tool by the end-users,
2. Embedding of the tool into daily use of Encircle experts, and
3. Providing further inputs for the tool in the future.
4. Future possible comparison of the resilience of the cities different countries or over different branches.

The above should provide basis for possible future use of the tool in both Encircle project and beyond.

Part b Call Topics

Through engagement with end users throughout the project Encircle has been gathering and updating a list of needs and gaps as identified by CBRN practioners.

These needs and gaps are used to identify technologies that are missing in the field and then published by the European Commission (EC) with the aim of finding projects that can create new, or adapt current, technologies to fill said needs and gaps.

The first call for topics was issued by the EC from these needs and gaps in 2018. These were successfully answered, and the EC selected three projects for Encircle to work with and assist in bringing their solutions to market.

A second call was issued by the EC in March 2019 to look for more solutions to the needs and gaps identified by Encircle.

The full list of needs and gaps, entitled DRS04 catalogue, can be viewed here: http://ec.europa.eu/research/participants/portal/doc/call/h2020/su-drs04-2019-2020/1850120-20190318-164822_drs04_2019_02_21_cbrn_call_part_b_en.pdf

Full information including the topic description, documents submissions etc can be found here: https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/su-drs04-2019-2020

Gap		Phase in				Field							
	Description	Prev	Prep	Resp	Rec	C	IB	RN	E	Med	Need	Tool Requirements	Policy and Standards
Risks assessment, modelling and impact reduction	Lack of awareness regarding food defence in the food industry within production processes by food safety authorities and food inspectors. Lack of knowledge, guidelines and training on risk assessment methods adapted to Food Defence (ORM, VACCP, TACCP, CARVER+Shock). Lack of correlation between epidemiological information and foodborne issues.	X				X	X	X		X	There is a need to develop standardised methodology, processes and tools of risk assessment, as well as regulations allowing to set up standards for detection, identification, and monitoring. There is a need for evaluation of risks related to residual contamination levels regarding food defence.	Development of tools to support risk assessment of risks related to residual contamination levels regarding food defence. Development of new targeted and non-targeted sensors and rapid detection methods aimed to detect, to asses, to mitigate and to respond to food malicious contamination from chemical, biological or radionuclear agents, through the entire food supply chain.	CBRN Action Plan: (2) Ensuring a more robust preparedness for and response to CBRN security incidents (2.3, 2.4, 2.7), (3) Building stronger internal-external links and engagement in CBRN Security with key Regional and International EU Partners (3.1), (4) Enhancing our knowledge of CBRN risks. Standards for consideration: Standardised methodologies and protocols for assessing the vulnerabilities along the food supply chain. New standardised methods, processes and tools for risk assessment supported by regulations to set the standards for detection, identification and monitoring. Relevant standards and policy for consideration include: FSMA - Final Rule for Mitigation Strategies to Protect Food Against Intentional Adulteration – USA Regulation – 26 Maggio 2016; GFSI Benchmarking Requirements – GFSI Guidance document Version 7.1; BRC Global Standard for safety issue – V08 (August 2018); FSSC 22000 "Food Safety Systems Certification – v 4.1: July 2017; PAS 96:2017 – "Guide to protecting and defending food and drink from deliberate attack"; IFS Food – Standard for auditing quality and food safety of food products – Version 6.1 – November 2017; FSSC 22000 – Guidance on Food Defense – V1 – 10 April 2018.
Risks assessment, modelling and impact reduction	Lack of capabilities for real time threat assessment.	X				X	X	X		X	There is a lack of capabilities for real-time threats assessment which will be able to: 1. Detect and continuously monitor threats and hazards on the incident scene in real time; 2. Assess threat and hazard data to provide appropriate guidance and decision support to responders and commanders; 3. Provide visualization capability of threat locations and proximity to responders.	Potential solutions should detect, assess, and monitor active threats on the incident scene and should: •detect and identify emerging threats and hazards; •provide information on detected CBRNE agents; •allow responders to identify and designate the location (geolocate) of threats and hazards; •continuously monitor the status of identified threats and hazards on the incident scene; •display threat and hazard data in a manner that is designed to minimize distraction and cognitive failure; •generate an alert when active and passive threats and hazards are detected or evolve, based on agency-configured thresholds or parameters; •transmit threat and hazard data to authorized personnel; •be designed to minimize equipment burdens for the responder, while maintaining interoperability of components; •use a non-proprietary power source that provides sufficient power for an operational period; •be easy to operate, calibrate, and maintain throughout the service life; integrate with existing data sets, model outputs, and emergency response software systems to remotely capture and monitor hazard-related data in multiple topographies; •operate within multiple environments; •be designed to minimize price of system, consumables, and maintenance. •needs to be compatible with PPE and Respirators	CBRN Action Plan: (2) Ensuring a more robust preparedness for and response to CBRN security incidents (2.5 to 2.7), ((4) Enhancing our knowledge of CBRN risks. Standards for consideration: Compliance with Wireless Communications Protocols and Standards (e.g. IEEE 802.11); hardening, ruggedisation and IP design standards (e.g. MIL-STD); safety standards (e.g. CE) and the data format standard IEC 63047. Detection/identification of compounds listed in NATO International Task Force 25 (ITF-25) list TICs and TIMs and in OPCW Scheduled lists of chemical agents. Equipment (tools, devices, platforms or systems) gap as identified by the IFAFRI International Forum to Advance First Responder Innovation study.
Risks assessment, modelling	Lack of common risk assessment processes, general knowledge	X				X	X	X		X	There is a need to prepare methodology and tools of risk assessment, residual risks of the	Development of methodologies and tools to support the fast risk assessment of the residual risks of secondary exposure.	CBRN Action Plan: (2) Ensuring a more robust preparedness for and response to CBRN security incidents (2.4 to 2.5), (3) Building stronger internal - external links in CBRN security with key regional

Where have we been?

2018 has been a busy year for Encircle. Besides working on the project itself, we have been out and about at various events around Europe to inform people about the project and engage with end users and industry in the CBRN field.

In 2018 Encircle attended:

- Calls for Security in H2020 event
- COU event
- The 3rd Conference of the National System of Contamination Detection and Alarm
- H2020 Secure Societies International Info Day and Brokerage Event
- EpiMilitaris
- Cibus 20th International Food Exhibition
- NBC symposium
- CBRN Security Manager' course
- Eurosatory
- E-Notice & Exercise BioGarden
- Fire-In
- 4th International Symposium on Development of CBRN Protection Capabilities
- CBRNe Applied Science and Consequence Management
- IN-PREP 1st TTX
- Encircle Webinar
- IN-PREP 1st TTX
- Encircle Webinar

Where can you see us?

With 2019 upon us the Encircle consortium has made plans to attend more events to share project results and continue to get feedback from our stakeholders.

You can catch us at:

3rd International Conference CBRNE - Research & Innovation, 20-23 May 2019, Nantes.
Encircle consortium members will be attending the CBRNE R&I event and available to discuss the project and answers questions at our booth, as well as participating in the CBRNe Panel discussion being held during the event.

We will also be holding a 2-hour workshop on the Encircle project at 2:45pm on Wednesday May 22nd.

Toxi-Triage Project Field Trials May 22nd, 2019, Mikkeli.
May 22nd we attending the Toxi Triage field trials and be available to discuss Encircle, as well as undertaking some survey work in our aim to improve the CBRN marketplace.

eNOTICE 22-23 May 2019, Gurcy, and 21st September 2019, Dortmund.
Encircle consortium members will be attending two of the eNotice meetings where we will be available to discuss the project, as well as looking to gather input from end users.

ENCIRCLE Robotics workshop, 5th June 2019, Manchester.
We will be hosting a free, half day, workshop on the role of UGVs and UAVs in CBRN. There will be presentations from four EC projects on the work they are conducting in this field. There will also be the opportunity to speak to consortium members about the Encricle project.

CBRN symposium 14th November 2019
Full details TBC but Encircle will be in attendance and participating in the annual CBRN Symposium.

Register in one of the communities

To register for the Dynamic Catalogue visit the website and follow these intructions:

- Click either on “Register in the Practitioner and Customer community” or on “Register in the Technological and Industrial community”,

- Fill in your organization (if not yet registered), points of contact, functions fields,

- For the Technological and Industrial community, fill at leas tone tool or project.

- Download the Letter of Intent to sign and return scanned when filling your profile,

- Submit your request (at the bottom of the questionnaire),

- You will receive an email with a link to activate your account, when the consortium accepts your request, and choose your password

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