



Bi-Annual Newsletter: First Edition

Edition: April 2020

Welcome Message from Project Coordinator

Dear Colleagues,

In our contemporary society, organized crime is the most challenging type of crime to investigate and a substantial threat to national and international security. Substantial financial flows within organized crime networks provide criminals with access to resources and modern technologies that enable the effective planning, executing, and concealing of their criminal activities as well as the extensions of their international networks. Fighting organized crime remains an important but challenging task for Law Enforcement Agencies (LEAs) in all countries. In order to analyse criminal networks, police practitioners have to collect, analyse, and connect information from diverse sources such as eyewitnesses, electronic audio and/or visual monitoring and social media.

ROXANNE (Real time network, text, and speaker analytics for combating organized crime), which is more detailed later in this newsletter, is a collaborative research and innovation project funded under the EU Horizon2020 Programme. Its main goal is to develop new technologies supporting investigators and police practitioners to unmask criminal networks and their members as well as to reveal the true identity of perpetrators by combining the capabilities of speech/language technologies and visual analysis with network analysis. By combining these technologies with the human-supervision approach, the developed ROXANNE platform will support investigators in their daily work especially on large criminal cases, speeding up the investigative processes, as well as reducing the financial impact and burden of organized criminal activities on the society.

The newsletter serves as a dedicated means of communication with you, our international network of experts and stakeholders whom we want to keep informed of the project's status, activities, upcoming events and validate our preliminary findings, wherever possible.

I am thus pleased to welcome you and share with you our first issue of the ROXANNE newsletter, where you will find more information about the ROXANNE project as a whole, its objectives and key milestones, its privacy and ethics concerns, its technical aspirations, latest blogs and related articles, past and upcoming events, and description of the project consortium.

We encourage a two-way communication flow. We welcome your insights on any of the topics of interest by contacting us at info@roxanne-euproject.org. You can also follow our progress on [ROXANNE website](#), and/or on our social media handles. Further, I would like to encourage your active participation in our future dissemination activities, workshops, conferences and security events.

We appreciate your feedback and hope you will enjoy this first issue of our bi-annual ROXANNE newsletter. We look forward to engaging with you!

Yours faithfully,
Dr. Petr Motlicek



Team picture at the kick-off meeting held in Martigny (Sep 2020)

Project at a Glance

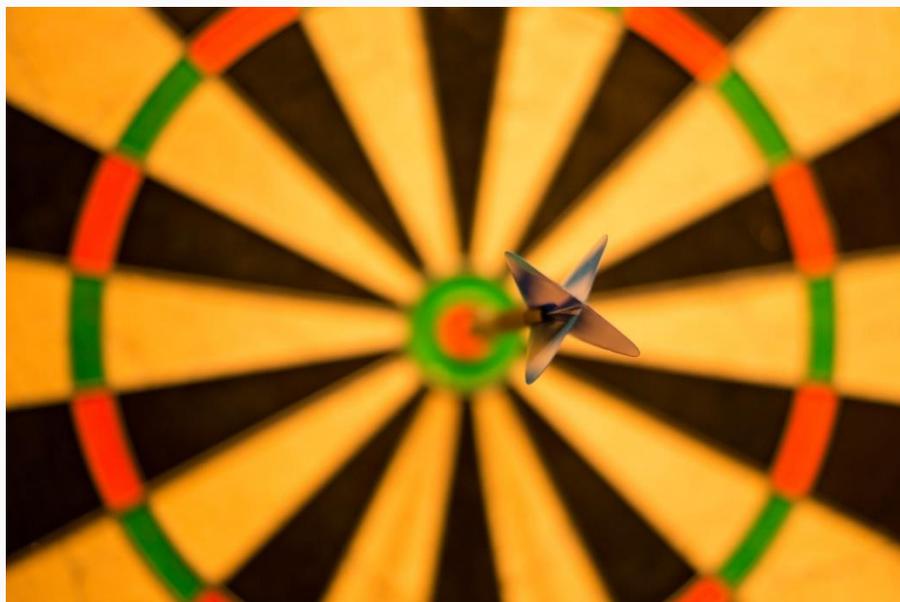
ROXANNE (Real Time Network, Text, And Speaker Analytics For Combating Organized Crime Research & Innovation Action) is a collaborative research and innovation project

under the topic SU-FCT02-2018-2019-2020 (Technologies to enhance the fight against crime and terrorism (Grant number 833635) that contributes to the fight against crime and terrorism through the development of cutting-edge technologies.

The project, funded by the EC with **€7 million**, was officially launched in September 2019 for a three-year period (end date August 2022) and is coordinated by the [IDIAP Research Institute](#). The multidisciplinary consortium with extensive practical experience in crime investigation and monitoring, as well as with excellent research and development abilities, consists of [24 partners](#), including INTERPOL and 10 LEAs, SMEs, industrial high-tech companies and academic institutes from 16 countries.

Title:	Real Time Network, Text, And Speaker Analytics For Combating Organized Crime
Type of Action:	Research & Innovation Action
Topic:	SU-FCT02-2018-2019-2020 (Technologies to enhance the fight against crime and terrorism)
Grant Number:	833635
Total Cost:	7 M €
EC Contribution:	7 M €
Start Date:	September 2019
End Date:	August 2022
Duration:	36 Months
Project Coordinator:	IDIAP, Switzerland
Project Website:	ROXANNE-euproject.org

Objectives & Key Milestones



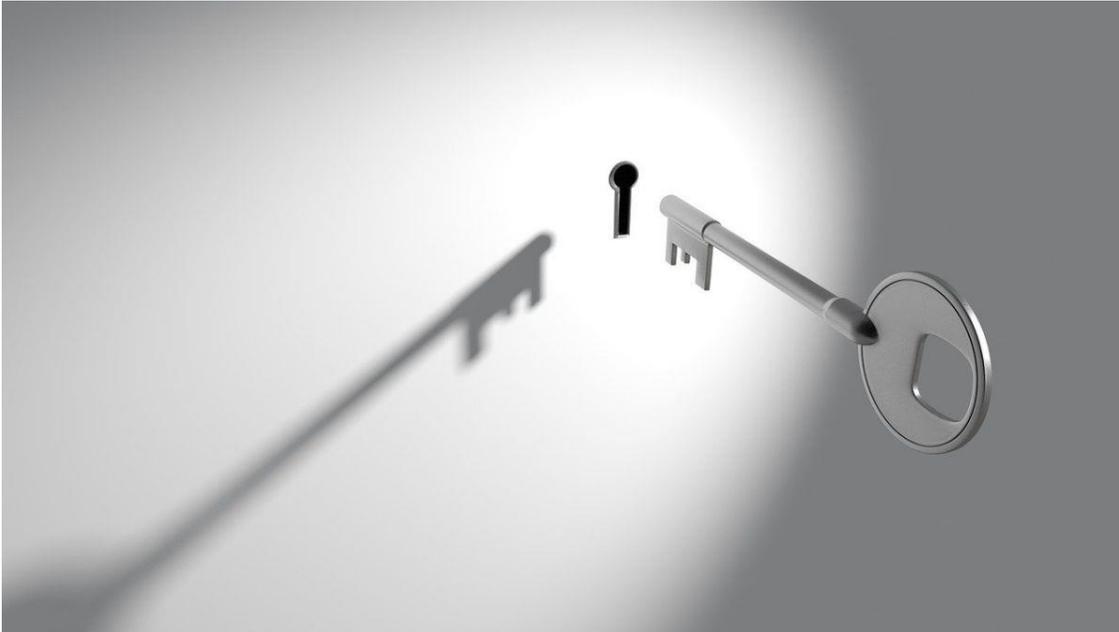
The principal **objectives** of the ROXANNE project are three-fold:

- To improve identification of persons of interest by researching and developing a bi-directional interface between multi-modal (speech/text and video processing) technologies and network analysis;
- Enabling LEAs to leverage cutting-edge technologies through ROXANNE platform to bolster their investigative capabilities;
- Comply with EU and INTERPOL legal and ethical frameworks.

These objectives are split among 10 work packages and the following **key milestones** are planned in the project:

1. First, second and third field-tests to be held annually
2. Collection of end-user requirements as provided by LEAs (April 2020)
3. Report on compliance with legal and ethical requirements (August 2020)
4. Testing of several levels of project technologies (April 2020, May 2021 and March 2022) [Tentative]
5. Exploitation strategy - Covering project results and sustainability efforts (August 2022)

Privacy & Ethics: Cornerstones of ROXANNE



As part of H2020, the ROXANNE project takes ethics, legal compliance, and privacy into account at all stages of its work. This ensures that the work of the consortium and the eventual ROXANNE platform is compliant with applicable ethical and legal standards to maximum possible extent. As a result, when ROXANNE is used by the law enforcement agencies in future, any analysis carried out by the platform would be legally valid and hence any resulting evidence would be admissible in a court of law.

To do this, we have adopted a privacy-by-design and ethics-by-design approach. This means that the project itself, and the envisaged ROXANNE platform, are subject to legal and ethics frameworks, in particular those related to data protection, right from the start. The same can be evidenced by progress made by ROXANNE partners, which is further overseen by an independent ethics board. Ultimately, the ROXANNE consortium intends to assess all possible scenarios to ensure that the research carried out, and the platform, both are consistent with all applicable privacy, ethical and legal standards.



Technical Aspirations of ROXANNE

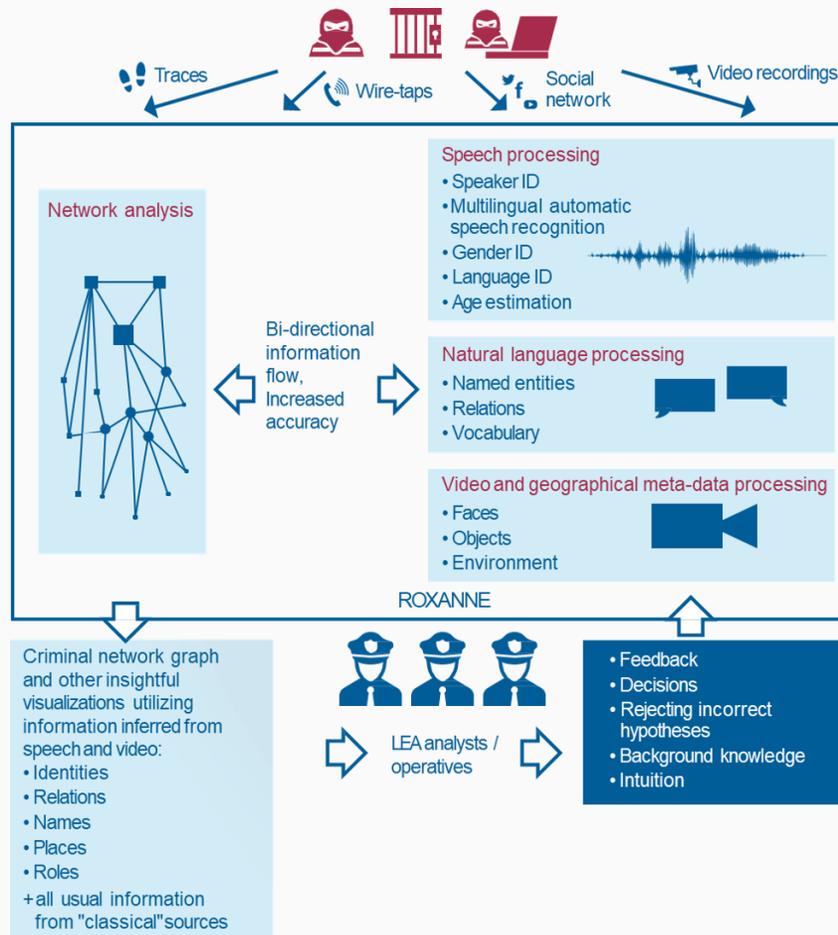


The ROXANNE project has been envisaged with the objective to provide LEAs with a platform comprising advanced technologies that will be used to lawfully uncover criminal networks and terrorist acts thus minimising the investigation time and effort. The unique advantage of this project lies in its technical framework. The proposed platform optimally integrates five components namely: Speaker Identification (SID), multilingual Automatic Speech Recognition (ASR), Natural Language Processing (NLP), video and geographical meta-information processing, and Network (relation) Analysis (NA). This framework will be supported with available technologies provided by the consortium partners.

Tools and services such as media mining systems, speech platforms, information fusion tools, weblabs, forensics visualisation toolkits and learning platforms will support and enhance the tracking and identification of criminals. This will be achieved by analysing individual voices in recordings, text messages and videos (and/or any other related data available) by accounting for all of its unique characteristics. As a result, the current state-of-the-art capabilities of the platform will be further enhanced for more effective analysis thus allowing the unified visualisation of criminal relations. These visualisation capabilities will be combined with the final tools while ensuring integration of the platform with existing tools used by law enforcement and intelligence agencies across Europe.

The complexity and potential of this unique framework is what makes ROXANNE project truly

ingenious and promising in assisting LEA's daily work.



ROXANNE's Overall Framework

Blogs & Articles



Blogs from ROXANNE Website:

- [Web based Training \(WbT\) for the engagement of technology providers and LEAs through EU Funded Projects](#) *[March 2020]*

Web based Training (WbT) provides new opportunities for teaching, learning and a sufficient variety of digital based means for both trainers and trainees. In WbT, the instruction could be either “synchronous”, meaning that the communication between teacher and learner is simultaneous, or “asynchronous” which means that the student is able to interact at any time, without the teacher's presence. A combination of “synchronous” and “asynchronous” modes can also be adopted for WbT instruction. [Read more](#).

- [Artificial intelligence adoption in law enforcement](#) *[Feb 2020]*

The ROXANNE project has a principal objective to enhance the LEAs’ efforts to discover criminal networks and identify their members. It has capitalised on certain aspects of AI technologies. Speech and Language Technologies (SLTs), Visual Analysis (VA) and Network Analysis (NA) will become the basis of ROXANNE platform, which will enhance criminal network analysis capabilities by providing a

framework for extracting evidence and actionable intelligence. [Read more.](#)

- [A generic and flexible platform for ROXANNE systems development \[Jan 2020\]](#)
Airbus has designed its multi-source and multi-media analysis solution through the concept of generic architecture which enables the regrouping of multimedia processing software products and presenting them in different possible configurations, based on one common and generic architecture. [Read more.](#)
- [Dissemination & exploitation aspects of ROXANNE \[Dec 2019\]](#)
Crucial horizontal activities such as communication, dissemination and exploitation form an integral part of EU-funded research projects. This is to ensure that the successful execution of projects garners attention among a large audience in Europe and the rest of the world. This blog discusses various aspects of communication, exploitation and dissemination related to this project. [Read more.](#)
- [Analysis of streaming data for security by ITML \[Nov 2019\]](#)
The field of data streaming analytics as a weapon against organized crime is continuously growing, offering a large number of alternative tools and technologies. The ROXANNE platform, the cornerstone of technical development, will develop and provide criminal network analysis based on speech, language and video technologies. [Read more.](#)

Related Articles:

- [Fraudsters use AI to mimic CEO's voice in unusual cyber-crime case](#)
- [Korean University develops an AI tool to prevent domestic violence and child abuse](#)
- [How machine learning and AI can be used to predict crime in the US](#)
- [Artificial intelligence and high-risk scenarios for security applications](#)
- [Leveraging technology to fight COVID-19](#)

Events



Due to the ongoing pandemic of COVID-19, physical gatherings of the ROXANNE consortium as well as the academic/industrial communities which are related to the technologies and topics associated with ROXANNE, have either been called off, postponed, or restructured to take place as a virtual meeting.

Past Events:

- The project **kick-off meeting** was held at the Idiap Research Institute, in Martigny Switzerland, on 3-4 September 2019.
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- The first **ROXANNE consortium meeting** which was originally supposed to take place in Hannover, Germany was organised virtually on 1-2 April 2020. It allowed all partners to discuss the latest developments in their respective work packages, feedback from end-users, legal & ethical issues, and exploitation aspects of the project results.



- Since its inception, the ROXANNE project has been represented in several academic/industrial events and newsletters, including [Interspeech 2019](#), the Analyst & Advisor Day at Capgemini, the [Germany International Symposium on Text-mining for Police Analysts](#), and the [DefTech event at Armausisse](#). The project is also cited by [Süddeutsche Zeitung](#), [Interpol News](#), Deutschlandfunk and [ARD](#)

Upcoming Events:

The first **field test event**, which will bring together all the stakeholders of ROXANNE, was planned to take place in Athens, Greece on 9-10 June 2020. However, in light of the recent pandemic breakout, we intend to take necessary steps and reschedule the event in near future.

Many scientific events, which are of interest to the ROXANNE partners, are also affected by the outbreak. The 2020 editions of the [LREC](#), [SLTU](#), [ICMR](#), [Odyssey](#), [EUSIPCO](#), [ISS World Europe](#) and [IFCIS](#) conferences/workshops are postponed to a later date.

The following table contains events of the upcoming months, which are confirmed to be held virtually, together with their dates and the originally planned locations:

Event	Current Date	Original Location
International Conference on Learning Representations (ICLR)	26-30.04.2020	Addis Ababa, Ethiopia
International Conference on Acoustics, Speech, and Signal Processing (ICASSP)	04-08.05.2020	Barcelona, Spain
International Conference on Web and Social Media (ICWSM)	08-11.06.2020	Atlanta, GA, USA
Annual Meeting of the Association for Computational Linguistics (ACL)	05-10.07.2020	Seattle, WA, USA
International Conference on Machine Learning (ICML)	14-16.07.2020	Vienna, Austria



The Consortium



Keeping People Safe



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