

CONNEXIONS Newsletter

InterCONNECTed NEXt-Generated Immersive IoT Platform of Crime and Terrorism
 DetectiON, PrediciON, InvestigatiON, and PreventiON Services

Issue 3, May 2021

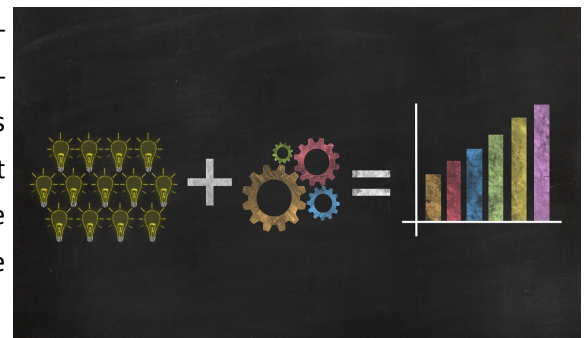


EDITORIAL

Leaving behind 2020, a very challenging year for humanity, we welcomed 2021 with positive thoughts and many promising activities to accomplish. As we are currently on the first semester of 2021 and even though we are still facing the COVID-19 pandemic, all partners in the CONNEXIONS project are working effectively to achieve the targets and goals that were set. In this third year of the project implementation, we are excited to continue our fruitful work and are looking forward to the future, where multiple activities are planned and prosperous results are expected!

PROJECT PROGRESS

During the last few months, the **CONNEXIONS project** has managed to progress successfully towards its goals. A two-day plenary meeting took place on April 20-21, 2021, where the members of the consortium had the **opportunity to discuss** the current status of the project, to showcase the second prototype of the CONNEXIONS platform, and to focus on the preparation for the second iteration of the pilot use cases (PUCs).



The development of the **second prototype** of the CONNEXIONS platform has been recently completed and the completion of this second development cycle has resulted in the integration of **new and updated tools and components in the CONNEXIONS platform** thus concluding another important milestone. These include tools and components related to **(i) multimodal information extraction, understanding, integration, correlation, retrieval, and delivery service; (ii) immersive environments for improving situational awareness, investigation and training capabilities; and (iii) an Operation Command Centre for real-time management of law enforcement operations.**



PROJECT PROGRESS

The **2nd iteration** of the pilot demonstrations is currently being carried out, notwithstanding the limitations and restrictions imposed by the COVID-19 pandemic, starting with the **PUC1 “Counter-terrorism security in large scale public events”** demonstration at **KEMEA** premises in Athens, Greece and the **PUC3 “Crime investigation and training through 3D reconstruction”** demonstration at the premises of **BHP** in Fürstenfeldbruck, Germany, both within **May 2021**. These will be followed by the upcoming **PUC2 “Human trafficking investigations and mitigation”** demonstration that will take place at the premises of **PJ**, in Portugal, towards the end of June 2021. Capitalising on the experience gained from the previous iterations, all technical, training, validation, and ethical aspects have been well prepared.

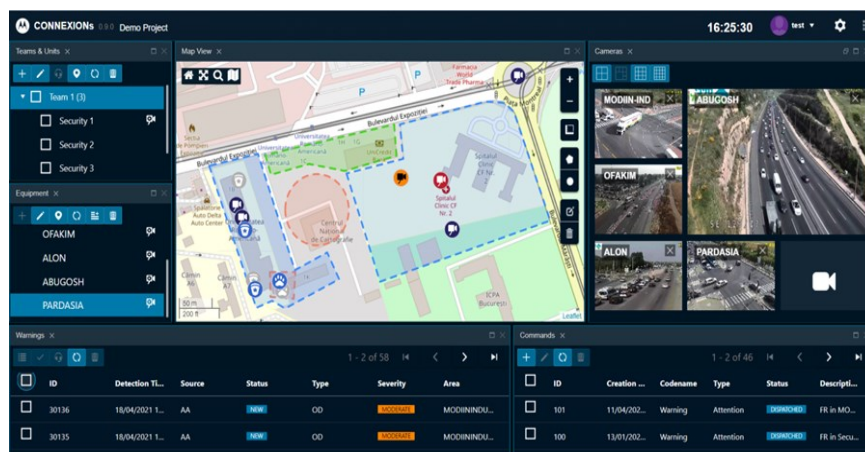


Following the completion of the **pilot demonstrations**, CONNEXIONS will be entering the third development cycle leading to the **final CONNEXIONS system** that will be built with the **goal to fulfill all user requirements** and satisfy user needs by also taking account the feedback of the end users in the consortium and relevant stakeholders in this second iteration of pilot demonstrations that is currently taking place.

CONNEXIONS COMMAND & CONTROL CENTER

As part of the CONNEXIONS platform, the **Command Center (CC)** centralises the planning and real-time management of security operations. The **CC supports defining and assigning the field-units** and teams required to run an operation. In addition, any equipment required (e.g. body-worn or fixed cameras) may also be defined to enable **real-time video** streaming from the field.

During the operation, the **CC receives and presents security-related warning** from components running video and other content analytics. The initial operation plan together with ongoing updates from the field and analytics are then correlated and presented as a **unified operational picture** over a Geographical Information System (GIS) map. Upon identified threats received via warnings, the **CC is also used for command dispatch** to field-units including relevant information to enhance situational awareness on the field.



CONNEXIONS – IMMERSIVE REALITY TECHNOLOGIES

Immersive Reality Technologies have the potential to provide critical **support** to operational units of Law Enforcement Agencies (**LEAs**) by enhancing their situational awareness, as well as to improve their investigation and training capabilities.

Virtual Reality (VR) allows users to intuitively explore real-world environments, represented by realistic **3D reconstructions** obtained from 3D scanners, and can embed information from multiple sources into a single scene, facilitating the intuitive understanding of an event or crime scene. **CONNEXIONS** uses **state-of-the-art VR technology for LEAs** for the purposes of **training and crime scene analysis**, as well as for deployment planning in events.



Within **CONNEXIONS**, **VR** has an advantage in comparison to other visualization methods as it allows LEAs to **virtually visit the scene of a crime**, by means of exploring the virtual environment, and also enables agents to **understand the dimensions of the scene** in a natural way. During an event, different data are recorded by **CONNEXIONS** components, which can be analysed later in an intuitive, interactive **VR-based environment** in the **CONNEXIONS VR Viewer** in order to, e.g., reconstruct certain moments of the event. In addition to a 3D scene reconstruction (typically acquired before the event), camera footage, officer locations, and further information can be seen and explored in context. To facilitate understanding of the process of events, data such as videos and locations, can be played back synchronously and in their spatial context. The analysis can be **further enhanced by adding certain documents** and pieces of evidence (e.g., photos of the event or crime scene) and allows further functionality, such as measuring distances between points in the virtual environment.



Augmented Reality (AR) is used to establish a mutual understanding throughout the collaborative dynamic tasks. In **CONNEXIONS**, **AR interfaces** are proposed to give experts the possibility to spatially collaborate (whether it is between different agents in the field, or a collaboration between a single agent and an operation unit at the Command & Control Center) at any location. During an event, law enforcement officers **are connected to the Command Center using AR glasses** that provide **real-time information**, such as messages to the officer, images, and location information.



CONNEXIONS – DISSEMINATION & COMMUNICATION ACTIVITIES

As the COVID-19 pandemic still affects and restricts face-to-face events and activities, the CONNEXIONS consortium has **managed to adapt in the new reality** and continues to **participate in online events such as webinars, conferences, and workshops** in order to promote the project results and increase the dissemination activities.

To highlight a few that took place during 2021:

- **CERIS workshop on domestic violence (February 23, 2021)**
- **i-LEAD Research Day (March 25, 2021)**
- **MAGNETO Final Event (March 30, 2021)**

In addition, on October 22 and December 7, 2020 our **first two pilots took place**. Even though the COVID-19 situation put some restrictions in their implementation, we managed to organise them effectively and we can happily present you **some photographs** that we took during the first pilot use case. **More details** regarding our first two pilot tests can be found in our second [newsletter](#).



In regard to **scientific publications**, the consortium has already produced **18 publications** and is actively preparing new ones. As soon as the publications become available, they are uploaded on the **CONNEXIONS website**. You can find the complete publications list at: <https://www.connexions-project.eu/documents/publications>

The CONNEXIONS consortium will continue to participate in **online events** to disseminate the project results and outcomes with potential end users, researchers, policy makers, and any external interested parties.





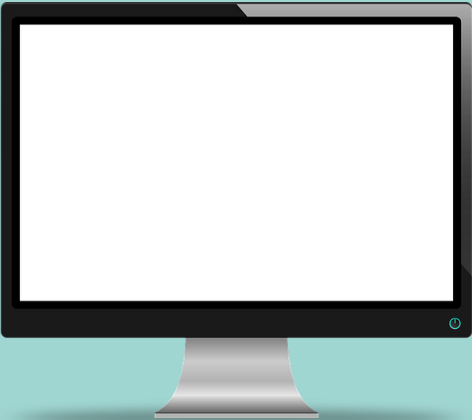
CONNEXIONS – PROJECT NEXT STEPS

The **CONNEXIONS** project is actively continuing its activities and producing results. By implementing the new rules and regulations that the **COVID-19 pandemic** demands, we have organised and are excited to be currently carrying out our **next iteration of pilots** during **May and June 2021**.


We will disseminate further information through our **Social Media channels** and relative material will be published on our [website](#). We will also continue to participate in online **events** and to generate more scientific publications until the completion of the project.




Stay tuned with the **CONNEXIONS project** by following our social media and frequently visiting our [website!](#)



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