



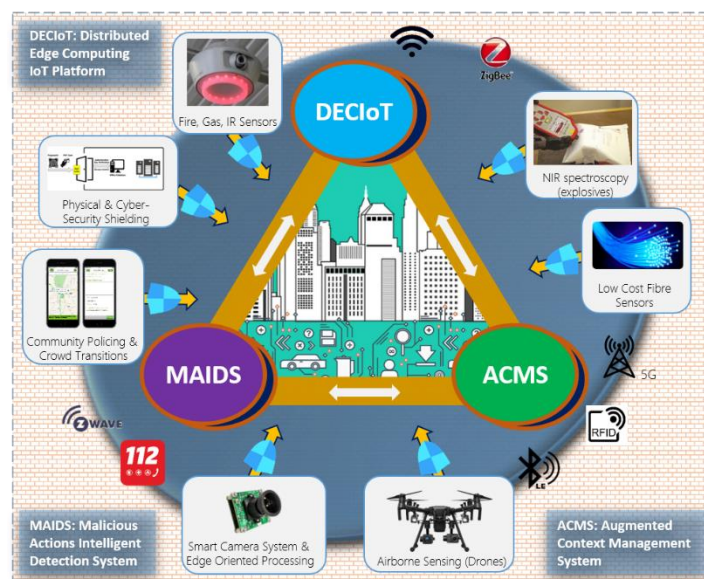
## Smart Spaces Safety and Security for All Cities

Public city spaces, such as malls, open gathering areas, and transport infrastructures are vulnerable to terrorist attacks strongly impacting the safety, prosperity and wellbeing of citizens. The digital transformation we are undergoing, despite its countless benefits, leaves us exposed to cyber-attacks. Several European cities have recently experienced both physical and cyber-attacks, and unfortunately these events are likely to continue in the foreseeable future.

The Smart Spaces Safety and Security for All Cities project (S4AllCities) is a large-scale project funded by the European Commission's Horizon 2020 Research and Innovation Programme, with the aim of revolutionizing the way smart cities become more prepared for and resilient against physical and cyber-attacks on their soft targets, smart spaces and critical infrastructure. This is achieved through augmenting situation awareness in city spaces with greater intelligence, machine-encoded context knowledge, and real-time evaluation of cyber and physical security threat levels.

With a total budget of €9.7 Million and a duration of 24 months (from 1 September 2020 to 31 August 2022), the project brings together a consortium of 28 partners from nine EU countries, comprising leading European research and academic institutions, SMEs from the software and security domains, and end-users, including City authorities, Law Enforcement Agencies and Transport Operators.

The S4AllCities approach centers around three modular yet interconnected digital twin sub-systems designed to ingest large amounts of data from edge-computing sensors (such as a portable near-infrared spectrometer for detection of chemical precursors to explosives, or fiber Bragg-grating based sensors for real time monitoring of city infrastructure) deployed around the Smart Cities and which appropriately fuse the information received to establish recommended courses of action and present timely, concise, actionable information to the relevant operators. For example, real time traffic information and simulations run on the digital twins can yield recommendations on evacuation routes in the event of a fire in a train station.



The S4AllCities functionality is achieved by means of a large array of AI-based tools operating on the massive amounts of data received from the sensor networks, as illustrated in the figure. These networks comprise multiple innovative sensors further advanced through the project activities and complemented by smart city legacy sensor networks. The S4AllCities System of Systems (SoS) is completed by both physical- and cyber-security shielding using appropriate safety and anonymization standard methods.

The integrated S4AllCities SoS will meet the following project objectives:

- To complement legacy monitoring systems by adapting state-of-the-art, low-cost technologies and solutions that enhance Smart City preparedness and response capacity in both the cyber and physical space.

- To design and develop an open platform for sharing and managing information, while providing intelligence with unprecedented situation awareness and decision support and enhancing European city resilience in full compliance with citizens' fundamental rights and privacy.
- To design and develop an intelligent communications architecture that ensures the interconnection and integration of city smart systems, while supporting security operators.
- To significantly impact collaboration among smart cities' stakeholders while engaging citizens in the move towards more secure and safer cities.

The S4AllCities SoS will be validated in three European Smart Cities: Trikala (GR), Bilbao (ES) and Pilsen (CZ), where the system will be installed on a pilot/demonstration basis and run continuously for three months. The effectiveness and advantages of the S4AllCities SoS will be demonstrated to a larger audience of stakeholders using different scenarios involving physical and cyber-attacks on the smart cities' soft targets (such as government buildings, public spaces, crowds or transport infrastructure). The demonstration events will show-case the monitoring of key assets and measurements for the smart city's infrastructure (traffic, access to restricted areas, ground and airborne video streams, evacuation routes etc.); the detection of explosives, cyber-attacks, suspicious objects or activities; and the smart alerting mechanism based on context-specific criticality levels – all with a comprehensive user interface. It is expected that the system will achieve a TRL-7 by the end of the project, and that the pilot activities will showcase the S4AllCities functionality to the relevant end-users and stakeholders.

 <p>The <b>Trikala</b> (GR) pilot revolves around the protection of an autonomous bus infrastructure, the park hosting the Trikala Christmas Festival, and municipal buildings.</p>	<p>The <b>Bilbao</b> (ES) pilot focuses on the protection of crowds during massive gatherings for festivities (such as the “Great Week” Festival) in the city center and the metro station.</p> 	 <p>The <b>Pilsen</b> (CZ) pilot simulates a bomb attack followed by the evacuation of the FC Viktoria Plzeň stadium.</p>
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To know more about S4AllCities, please sign up for our newsletter on <https://www.s4allcities.eu> or email [info-s4allcities@exus.co.uk](mailto:info-s4allcities@exus.co.uk). You can also follow the project's latest news on social media:



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