

# CALLISTO

## Bridging the gap between Copernicus data providers and end users through Artificial Intelligence solutions

Title	Project description
<p><b>CALLISTO</b> - Copernicus Artificial Intelligence Services and data fusion with other distributed data sources and processing at the edge to support DIAS and HPC infrastructures</p>	<p><a href="#">Copernicus</a> is the European Union's Earth observation programme that provides data on a free, full and open basis. These data are often numerous and highly heterogeneous, and thus cannot be easily used by stakeholders. To facilitate and standardize access to these data, the European Commission has funded the deployment of five platforms, known as the <a href="#">DIAS</a> or Data and Information Access Services, that index, store and exchange these tremendous amounts of data and provide cloud-based computational resources.</p> <p>CALLISTO aims to bridge the gap between DIAS providers and application end users through dedicated Artificial Intelligence (AI) solutions in order to enable <i>virtual presence</i> and <i>situational awareness</i> in any desired area of interest, through Virtual, Augmented and Mixed Reality solutions. Earth Observation data from <a href="#">ONDA DIAS</a> will be combined with data from heterogeneous distributed sources (including crowdsourced data, videos from Unmanned Aerial Vehicles and data from in situ sensors) through <i>machine learning</i> and <i>data fusion technologies</i>. The outcomes are <i>semantically-enriched</i> and served to the public in interactive interfaces, mobile and <i>Mixed Reality</i> apps, creating a novel and innovative immersive environment for the Copernicus market.</p>
<p><b>Project information</b></p>	<p><b>Technologies used</b></p>
<p><b>Call identifier:</b> H2020-SPACE-2020  <b>Topic:</b> DT-SPACE-25-EO-2020  <b>Total Budget:</b> 3.999.953,75 €  <b>Duration:</b> 36 months  <b>Start date:</b> January 1<sup>st</sup>, 2021  <b>Project coordinator:</b> Guido Vingione (SERCO Italia S.p.A)</p>	<ul style="list-style-type: none"> <li>● <b>Artificial Intelligence:</b> Machine Learning and Deep Learning techniques</li> <li>● <b>Distributed computing:</b> High Performance Computing for the application of AI-based techniques for modelling performance, neural network-based methods for detecting &amp; predicting behaviour patterns</li> <li>● <b>Unmanned Aerial Vehicles:</b> Alert-driven path planning</li> <li>● <b>Data fusion</b> using satellite data and in-situ hyperspectral measurements</li> <li>● <b>3D models:</b> Reconstruction of models using satellite data</li> <li>● <b>Semantic Image Segmentation &amp; Ontologies:</b> Representation of interlinked data in machine-readable data resources in graph structure</li> <li>● <b>Named Entity Recognition:</b> AI-based extraction of knowledge from unstructured texts</li> </ul>
<p><b>Consortium</b></p>	<p><b>Pilot implementations</b></p>
<ul style="list-style-type: none"> <li>● Serco Italia S.p.A. (<a href="#">SERCO</a>)</li> <li>● Ethniko Kentro Erevnas kai Technologikis Anptyxis (<a href="#">CERTH</a>)</li> <li>● Fraunhofer Gesellschaft zur Förderung der angewandten Forschung e.V. (<a href="#">Fraunhofer</a>)</li> <li>● CS GROUP (<a href="#">CS</a>)</li> <li>● Barcelona Supercomputing Center (<a href="#">BSC</a>)</li> <li>● Institut für Angewandte Informatik (<a href="#">InfAI</a>)</li> <li>● ACCELIGENCE LTD (<a href="#">ACCELL</a>)</li> <li>● Ethniko Asteroskopeio Athinon (<a href="#">NOA</a>)</li> <li>● Deutsche Welle (<a href="#">DW</a>)</li> <li>● <a href="#">De Watergroep</a></li> <li>● Institut royal des Sciences naturelles de Belgique (<a href="#">RBINS</a>)</li> <li>● Società Metropolitana Acque Torino S.p.A (<a href="#">SMAT S.p.A</a>)</li> <li>● Nurogames GmbH (<a href="#">NURO</a>)</li> <li>● European Union Satellite Centre (<a href="#">SATCHEN</a>)</li> <li>● DRAXIS Environmental S.A. (<a href="#">DRAXIS</a>)</li> <li>● Korea University (<a href="#">KU</a>)</li> </ul>	<p>CALLISTO will be pilot-tested in different operational environments with the support of the partners. Public broadcaster Deutsche Welle will focus on satellite journalism. De Watergroup (public drinking water company in Flanders) and SMAT Group (water utility managing authority in Turin) will evaluate the project's results in water quality monitoring and design improved water quality monitoring strategies. The European Union Satellite Centre will focus on Common Security and develop a Defence Policy, while the National Observatory of Athens will be responsible for the monitoring of the implementation of the Common Agricultural Policy (CAP).</p>
<p><b>Project pages</b></p>	
<p><b>Project website:</b> <a href="http://callisto-h2020.eu/">http://callisto-h2020.eu/</a>  <b>Twitter:</b> <a href="https://twitter.com/CALLISTO_H2020">https://twitter.com/CALLISTO_H2020</a>  <b>LinkedIn:</b> <a href="https://www.linkedin.com/company/callisto-h2020">https://www.linkedin.com/company/callisto-h2020</a></p>	