



# MODERATE

## MODERATE Interview Series: Andrés García Mangas Software Engineer CTIC



In each **MODERATE** project newsletter, we're interviewing one of the project partners to get to know more about them and their role within the project.

This time we're having an interview with Andrés García Mangas, Software Engineer at CTIC.





**Interviewer : Thank you for taking the time to speak with us. Could you please provide us with some background on your work CTIC and explain your organization’s role within the MODERATE project?**

**Andrés García Mangas:** CTIC Technology Centre (CTIC) is a private non-profit Research and Technology Organization (RTO) specialised in the research and development of cutting-edge and emerging technologies. Its main objective is to promote and foster activities related to the development of Information and Communication Technologies (ICT) in all spheres of economic and social life that may contribute to the development and improvement of society. CTIC is also the headquarters of the World Wide Web Consortium (W3C) for Spain and the Spanish-speaking America and participates in more than 20 working groups for the standardisation of Web standards (i.e. Web of Things, Data on the web, knowledge graphs, Accessibility, Decentralized Identifiers (DIDs)).

CTIC’s activity is focused on enabling technologies for digital transformation that cover the entire data value chain: from data generation and acquisition (focusing on IoT, Edge AI, and Satellite Data) to Artificial Intelligence (Predictive AI and Simulation, Generative AI, and Language technologies). (see Figure 1)

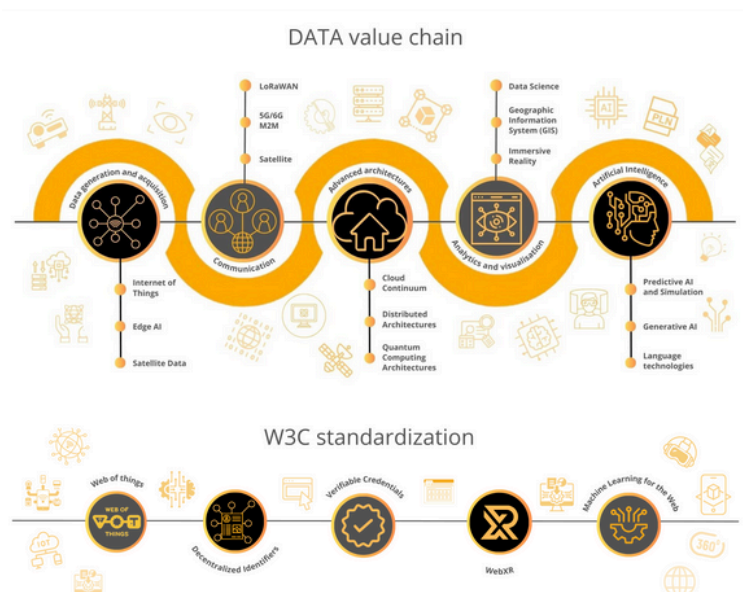


Figure 1: Data Value Chain



The central part of the data value chain is related to scalable and flexible architectures across the different layers of the cloud continuum, which is the area that mainly encompasses the work carried out by CTIC in MODERATE. Specifically, CTIC will focus on the cloud computing layers and will be in charge of the design and implementation of the MODERATE open platform, together with the fundamental services and applications that will serve as the basis for the rest of the services developed. The MODERATE platform serves as the central hub for integrating various services, applications, and models developed across different work packages;

for example, the data synthesization models, which are one of the most impactful results of the project. It acts as the software infrastructure that unifies these components into a cohesive system. To achieve this, the platform requires several key elements, such as data storage solutions, workflow orchestration services, data processing frameworks, a primary web application to function as the end user interface, and automation tools for managing the lifecycle of all MODERATE components. These elements collectively ensure that the MODERATE ecosystem is maintainable, reproducible, and interconnected efficiently.

## **I: Why is MODERATE important for your organization? Which kind of results do you expect?**

**AGC:** MODERATE is an instrumental project for CTIC, as it will enable the design and development of a comprehensive system for managing and processing diverse data assets. This system will leverage a hybrid approach, combining on-premises infrastructure with public cloud computing services. CTIC envisions that the resulting framework will be adaptable beyond building data, serving as a foundation for a long-term, reusable asset across various knowledge domains. The potential impact will also hopefully

extend to the public sphere, as all software services and applications developed by CTIC within MODERATE will be released under permissive open-source licences. Moreover, like most organisations in the Artificial Intelligence sector, CTIC faces the challenge of limited access to high-quality datasets suitable for training purposes. This scarcity is complicated by the need to comply with regulations and ensure privacy guarantees when using these datasets.



For this reason, CTIC is closely monitoring the development of MODERATE's data synthesis models. The organisation anticipates that these results will be a crucial addition to its resource

catalogue, potentially contributing to address both the data quality and compliance challenges.

**I: Could you explain the significance of creating synthetic time series data within the context of the MODERATE project?**

**AGC:** As mentioned in the previous question, several AI projects—CTIC's projects included—face a bottleneck due to the volume, availability, and quality of training data. What can be even more frustrating is that training data is sometimes available in sufficient quantity and quality, but it's usually the case that these datasets refer to variables that are private. This could be because the variables are critical metrics of a business and could be exploited by a competitor, or because the variables describe some private aspect of a group of individuals. It could even be argued that disruptive AI applications tend to belong to domains where privacy is even more critical: finance, health, etc., which complicates matters even further.

and produce actionable and meaningful recommendations without impacting the comfort of the dwellers or their routines. However, energy usage patterns are a highly private matter that can disclose sensitive information about the economic activity of a person, their behaviour, or travel patterns. This holds true even when data is anonymized.

The MODERATE project aims to develop tools to address this challenge. The main objective is to democratise access to meaningful building datasets, making it possible for these datasets to be released publicly to the wider academic and business community while ensuring that they convey the same information—that can be learned by AI models—without the privacy risks.

The building data domain is no different in this regard. For example, having access to energy consumption and environmental data from building systems such as HVAC is a key building block to enable the design and development of AI-based models to optimise energy usage

**I: As a marketplace for building datasets and open-source data-driven services, the MODERATE project offers a unique opportunity for innovation in building performance monitoring through data-driven solutions. From CTIC's perspective, what is the most important innovation the project will offer?**

**AGC:** From CTIC's perspective, MODERATE's true impact stems from its diverse and comprehensive approach to providing tools for the building data domain. While key outputs like data synthesis models for building data are significant by themselves, the project's real value lies in the combination and variety of tools and services it develops.

Many organisations in this field are likely to find valuable resources among MODERATE's results to aid in their project design and implementation phases. The project's planned releases exemplify this approach. For example, MODERATE aims to deliver a high-quality building stock dataset, an application to evaluate the economic feasibility of establishing local energy communities in specific locations, and a web platform for uploading, sharing, and exploring datasets. These examples indicate MODERATE's approach to addressing multiple needs within the building data ecosystem, offering solutions that span from raw data to practical applications and collaborative tools.

In other words, in our opinion, there's no single highly important innovation, but rather a combination of several focused innovations that will potentially combine to have a significant impact on the building data domain.





## OUR TEAM



Università  
Ca'Foscari  
Venezia



Politecnico  
di Torino



vito



TECHNISCHE  
UNIVERSITÄT  
WIEN  
Vienna | Austria



Köhler & Meinzer



Louvain research institute for Landscape,  
Architecture, Built environment



[moderate-project.eu](http://moderate-project.eu)



@MODERATE\_HE



MODERATE

