Auto-DAN

4th Periodic Newsletter

A Word From the Coordinator (Niall Byrne, IES R&D)

March 2022 marks a very important time in the project as we reach the end of the first reporting period of Auto-DAN. It is a good time to pause and look back at everything we have achieved over the first 18 months of the project, despite the unforeseen challengesand risks we encountered arising from the Covid-19 pandemic. The efforts of all partners of the consortium over the preceding period and the resiliency and adaptability they have shown in continuing to make progress on the project is commendable.

At this point in the project we are preparing the final specification of our hardware and metering strategy for implementation in the demonstration sites. In support of this, several conversations as well as some important site visits have taken place over the last number of months. With this process approaching completion, the focus now turns to the development of the project's software infrastructure. Initial efforts on this have focused on addressing potential issues relating to interoperability between the different software solutions that will contribute towards developing the Auto-DAN software platform. In support of this, we have adopted the BRICK data model for use in the project while also discussing the communication protocols that will communicate across each component of the software platform. These important discussion and decisions are key in informing the design and implementation of the Auto-DAN platform, providing key connections between the Digital Twin Platform, the Self-Assessment Methodology and the Augmented Intelligence Dashboards.

In this issue of the Auto-DAN project newsletter we will introduce you to another of our project partners, CiviESCo while also presenting one of our demonstration sites, the historic Palazzo Terragni in Lissone, Italy. I hope you enjoy the newsletter and thank you for your interest in the Auto-DAN project.

Let's Meet the Project Partners!

We are delighted to introduce you to Alessandra Cassisi and Simone Buffa who are representing **CiviESCo** in the Auto-DAN project. Based in Italy, the company are centrally involved in the development of the business and exploitation plans for the technologies arising through the project as well as acting as a pilot partner on behalf of the Palazzo Terragni demonstration site.

How did you come to know about the opportunity to join Auto-DAN Project's Consortium?

AC: CiviESCo used to collaborate with IES for R&D&I projects as the respective experiences, knowledge and positioning into the market are complementary. CiviESCo is growing as Energy Service Company as well as a financial advisor for energy efficiencyoperations and is very interested in testing the tech solutions developed by IES into research projects. When IES presented to CiviESCo the opportunity of collaborating for the development of the Auto-DAN Project, CiviESCo immediately started to look for an ideal demonstration that could allow IES and all partners of Auto-DAN to test the respective tech solutions as well as allowing CiviESCo to design an ad hoc business model for the retrofit operation of a historic building, finally identifying Palazzo Terragni in Lissone.

Why did you decide to join the Auto-DAN project's consortium?

AC: CiviESCo decided to join IES in the definition of the project Auto-DAN since the first phase of the proposal preparation as the project was perfectly in line with the objectives that the company was pursuing for applied research in the area of energy efficiency and financial engineering. CiviESCo, within the project definition, gave a strong accent to the importance of the business model construction and of the contractual framework definition, especially for R&D&I initiatives, where new techs are developed for being introduced into the market.

In your opinion, what are the most interesting innovations and future impacts of the Auto-DAN project?

SB: From my point of view, both the Auto-DAN hardware and interoperable software are advanced solutions that are going beyond the state of the art. However, what I found really innovative for this sector is the augmented intelligence approach combining artificial intelligence with human knowledge and intuition. This will be mainly applied in the self-energy assessment framework that will provide a "live" Audit: here it is required that the user proactively interacts through the Auto-DAN dashboard, understand how his HVAC system and other appliances works and try to maximise their efficiency or set up their schedule to save money. This is something that usually is done in large tertiary buildings by high-qualified energy managers but not in small and medium-size buildings where Building Management Systems are almost absent. Auto-DAN will show how it is possible to provide an important contribution to the energy efficiency of the building stock via digitalization and end-user engagement. This is a solution that is less visible than classic envelope refurbishment but probably it has a faster implementation and can speed up the renovationwave that is becoming a priority considering also the energy and climate crises we are facing nowadays.

Is it the first time working for a H2020 research project? If no, was your previous experience useful for the development ofAuto-DAN?

SB: No, I've been working on H2020 research projects for the past 7 years in the field of advanced control strategies for the Fifth Generation of District Heating and Cooling systems. As the new project manager of Auto-DAN for CiviESCo, I'm bringing the expertise acquired in the digitalization of the building sector and in grid-interactive buildings having a complete view from the technical conceptualization to the practical implementation in our demo case.

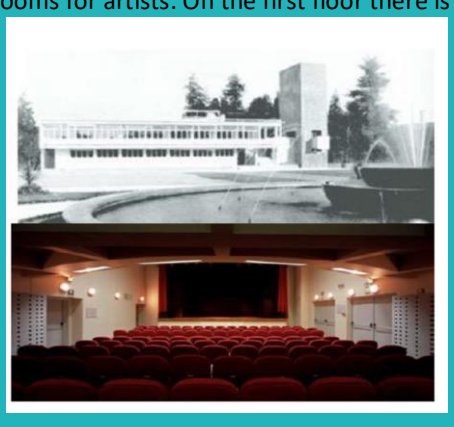
Which is the contribution that your company/institute provides within the Auto-DAN project?

SB: CiviESCo is providing contributions mainly to two aspects of this project. Firstly, as demo partner, we are in charge ofdemonstrating the non-invasiveness of the Auto-DAN technologies in Palazzo Terragni. This is a historical building located in Lissone that is an example of Italian rationalist architecture thus subject to the law for architectural heritage protection. The goal is to make this building a reference case study of how historic buildings can increase their energy efficiency thanks to digital technologies. Secondly, CiviESCo is coordinating the activities in the Work Package dealing with Exploitation, Business Models and Replication of the Auto-DAN technology. Here our main contribution will be in identifying the route to market for the Auto-DAN products and services investigating all the aspects of the value chain for the business model development with also dedicated interviews and workshops.

In Focus: Palazzo Terragni – Historic Public Building in Lissone, Italy

The Auto-DAN project focuses on live energy performance of buildings; its objective is to assess and optimize buildings energy consumption, analyzing the quality of appliances and systems installed, user operational habits and the smart readiness of a building. To enable this, the Auto-DAN project has implemented an advanced monitoring and evaluation system in six main use cases to ensure that Auto-DAN solution meets the needs of some representative of the wider EU building sector. Palazzo Terragni, in Lissone (Italy) isone of the demonstration sites selected through CIVIESCO to achieve its goals.Palazzo Terragni is a historic building in Lissone, built between 1938 and 1940, initially as the Casa del Fascio (a public recreational space) and later as the Casa del Popolo. The building is a remarkable example of rationalist architecture designed by the architect Giuseppe Terragni.

Today the Palazzo is used by the Municipality, owner since 1968, which has carried out restoration works to host art exhibitions and theatre performances. The building is now used as the Municipal Art Gallery for art events, conferences and for theatre performances. The theatre hall holds about 300 seats arranged between stalls and gallery, a bar, a cloakroom for spectators, toilets and dressing rooms for artists. On the first floor there is a room for art exhibitions and the *Missaglia* room for meetings.



The museum currently has a renovation strategy in place. Energy systems already existing in Palazzo Lissone consist of the following:

- Automated Control Systems
- Onsite Heating and Mechanical System
- Solar PV Systems.

The current energy system does not allow the building managers to have a good understanding of the building consumption in terms of both quantity and timing.

Moreover, the building operation in terms of HVAC systems and appliances is crucial for the poor energy efficiency of the building. The Auto-DAN project is going to face this challenge by observing and analyzing the building energy use with the aim of providing relevant guidance and technical infrastructures towards a more efficient operation. To achieve this goal. Auto-DAN will provide the building monitoring equipment and several technologies to optimize the final energy uses.

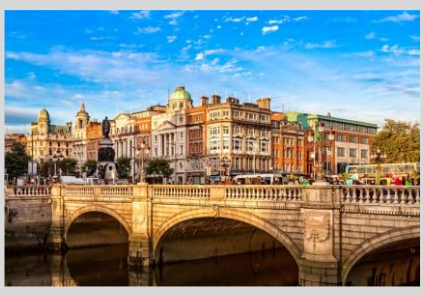
A further interesting aspect concerns the auditorium that during events have a high occupancy rate at certain times; in this context, periods of high occupancy will be considered in the scheduling of the building systems, by implementing a smart calendar.

This demonstration site, being an historic building, will highlight the applicability of the Auto-DAN solution to heritage buildings across Europe together with its non-invasiveness while adopting a strategy that will suit them, showing this potential also to citizens (as this property is a public building).

Auto-DAN project will allow to test, verify and demonstrate its solutions by synchronizing them with the particular characteristics of this demo site, but also to develop and integrate self-optimization and self-assessment capabilities for a better and more energy-efficient environment.

Events

The Auto-DAN consortium are delighted to finally our first in person General Assembly meeting to be held in Dublin on March 30th and 31st. Please be sure to follow our social media outlets to stay up to date with the outcomes of this important meeting.



Did you miss our online workshop with our sister project SATO. If so you can catch up at the link below: https://vimeo.com/638688100/977e0877a4

Please be sure to visit the Auto-DAN website to stay up to date with developments from the project.

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