

Self Assessment Towards Optimization of Building Energy

Deliverable 8.5

Periodic Stakeholders Engagement Report

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Revision history

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1.0	Pedro Ferreira (FC.ID)	Initial version	03/08/2021
2.0	Silvia Erba (POLIMI- eERG) Alessandra Barbieri (POLIMI- eERG)	Definition of deliverable structure and document development	19/09/2021
3.0	Pedro Ferreira (FC.ID)	Final revision and formatting.	01/10/2021

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EXECUTIVE SUMMARY / ABSTRACT / SCOPE

The present document constitutes Deliverable 8.5 *Periodic Stakeholders Engagement Report* in the framework of WP8 - Market Actors Engagement through Communication and Dissemination, *Task 8.4* - Engaging relevant (market) actors and stakeholders through webinars, workshops, events, and a final conference.

The document provides an overview of the identified stakeholders and the relative engagement strategy and reports the activities of public engagement developed by the Partners during the first year of SATO project (M1-M12).

1. Introduction

The SATO project aims to improve the assessment of real-life building energy use and optimize the energy performance of the whole building and its energy consuming equipment through the development of a new energy platform that uses data analysis and machine learning to report energy performance, building behaviour, occupancy, and equipment faults. The SATO platform will be tested in different pilot buildings to show and demonstrate how the self-assessment and optimization contributes to lower energy consumption, increase energy flexibility, efficiency, and user satisfaction. The project includes communication with and feedback from building occupants as one of the central elements for dynamically adapting controls to user needs. Additionally, the project also addresses the engagement of other actors that can have a direct role in the SATO platform, such as building managers, grid operators and aggregators, or policy makers (Figure 1), and other actor profiles within the energy business.



Figure 1 - SATO Platform architecture

Stakeholders engagement is fundamental not only to develop a correct communication about the project but also to listen and interpret the needs and desiderata of the different stakeholders and develop a winning, high-profile solution that is consistent with both the expectations and the environmental and social context.

In Horizon 2020, the process of bringing together researchers, policy makers, industry, civil society, organisations, NGOs, and citizens, to discuss on matters of research and innovation is called *Public Engagement*. This allows establishing a common language between different groups, learning from each other, exploring different perspectives, and thus improving creativity in the process and outcomes, co-



creating new solutions. Consequently, the projects outcomes are more likely to be relevant to society and aligned with the demands of the market.

To fully express this potential, the stakeholders engagement should be designed as a series of studied and structured actions, which considers the heterogeneity of the involved subjects and be conceived as a two-way process where feedbacks are used to shape the research and innovation process.

The first step to reach the greatest impact is to map correctly all the stakeholders and to develop tailored strategies and activities to involve them actively. Communication and dissemination activities become paramount for an effective actors' engagement. The first aims to inform and reach out to society about the project and results from the beginning of the project, while the second enables the use and uptake of the results involving audiences that may use the results in their own work (e.g., peers and scientists, industries and other commercial actors, policy makers).

The purpose of this deliverable is twofold:

- to provide an overview of the identified stakeholders and the type of activity planned for each segment;
- to report the activities of public engagement (webinars, workshops, surveys, events, etc.), which have been developed by the Consortium during the first year of SATO project (M1-M12).

2. SATO actors and engagement strategy

2.1. Types of stakeholders

The Consortium has identified different stakeholder segments, which will be involved throughout the SATO project. In the following, a brief description of the actors is presented highlighting the benefits of their involvement for the project.

Consumers

They can be <u>building owners</u> and/or <u>occupants</u>. They will be involved to understand user needs, desired level of interaction with the SATO platform, get feedback on the user friendliness and preferences about the interfaces, assess user satisfaction, and to evaluate the energy assessment and optimization services that will be developed in the project.

Grid operators

They include: energy providers, aggregators, transmission system operators, distribution system operators, retailers and balance responsible party. They will be involved to design and provide feedback on the flexibility management services that will be developed in the project.

- Energy providers offer energy management and energy commercialization services.
- The <u>aggregator</u> is a new type of energy service provider, which is accountable for purchasing flexibility from prosumers, aggregating it into a portfolio, designing services that rely on the



accumulated flexibility, proposing these flexibility services to different markets, and assisting several market players.

- The <u>Transmission System Operator</u> (TSO) is responsible for the energy grid infrastructures, mainly the high-voltage grid. TSOs need to coordinate the supply and demand for energy, avoiding fluctuations in frequency and supply interruption.
- The <u>Distribution System Operator</u> (DSO) is responsible for the final stage of the electric power delivery to the customer premises, i.e. the medium- and low-voltage grid, carrying electricity from the TSOs to the consumers.
- <u>Retailers</u> are the first contact for the household customer regarding billing, house moves, retailer switching requests and energy supply. They are also the last value adding party before energy is delivered. Retailers could also aggregate some flexibility from multiple consumers or building groups participating in DR programmes to offer to DSO/TSO.
- <u>Balance Responsible Party</u> (BRP) in the electricity market is a market participant or its chosen representative responsible for its imbalances.

Medium and large-sized corporation or real estate owners

They include a growing number of enterprises that are either forced by always-stricter regulations to implement energy sustainability or adopt Corporate Social Responsibility policies.

Building industry

Building industry involves building construction companies, building designers, manufacturers, architects, and managers. Building construction companies and architects that are embracing a Green Building approach, through SATO they can bring down their carbon footprint in the long term. Building and facility managers can use the SATO platform to achieve higher management efficiency and better optimization of the building energy.

Energy Service Companies

They provide a broad range of energy solutions and services, including designs and implementation of energy savings projects, retrofitting, energy conservation, in such a way as to reduce the energy cost of a building or to manage specific aspects of the building energy. They will contribute to evaluate the ability of the SATO platform to provide an open and competitive environment for the development of energy assessment and optimization services.

Policymakers and Municipalities

- A <u>policymaker</u> is a person with power to influence or determine policies and practices at an international, national, regional, or local level. One goal of SATO project is to give policy feedback to the relevant EC policy officers of both EPBD and the Ecodesign Directive/ Energy Labelling Regulation.
- <u>Municipalities</u> are embracing novel sustainable technologies to make their cities more liveable.



Involving policymakers and municipalities increases the impact of the project results to a bigger scale.

2.2. Engagement actions

Stakeholders engagement is currently taking place via webinars, workshops, conferences, events, scientific/ technical publications, articles, deliverables, website, social media accounts, newsletters/ press releases. Table 1 reports specification for each type of stakeholder.

Target stakeholders	How to reach them
Consumers (building owners and occupants)	Invitations to key project events. Web Platform; Social Media; Communication materials.
Grid operators: TSOs, DSOs, retailers, aggregators, BRPs.	Training programs, webinars, invitations to key events.
Policymakers	Invitations to key project events. Information letters. Publications on policy-oriented publications. Participation in standards.
Medium and large-sized corporation / real estate owners (growing enterprises that are forced by always stricter regulations).	Professional networks. Associations. Partner networks. Associations and trade fairs. Social media. Sustainability consulting.
Building industry: building construction companies, building designers and appliance manufacturers, architects, managers.	Targeted literature. Training programs, webinars, invitations to key events. Professional networks. Associations. Partner networks. Associations and trade fairs. Social media. Sustainability consulting.
Municipalities	Invitations to key project events. Information letters. Publications on policy-oriented publications.
General Public and Media	Web Platform; Social Media; Communication materials.
SATO Consortium and Advisory Board	Key project events.
SMEs and start-ups	Professional networks. Associations. Partner networks. Associations and trade fairs. Social media. Sustainability consulting.
Academia, the scientific community.	Academic publications; Targeted literature. Demonstration cases; Training courses; Website.

Table 1 - SA	TO stakeholders	engagement	strategy
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To collect a higher number of feedback from public engagement, we are developing a simple online form that can be distributed during events to all participating stakeholders. This tool consists of a survey to assess the level of satisfaction about SATO project and gather suggestions for improvement. A draft is proposed below: (1) How satisfied were you with the event/presentation/workshop "NAME"?

	• Very dissatisfied	• Dissatisfied	Neutral	• Satisfied	• Very satisfied
(2)	Did vou alreadv know	the topics discus	ssed?		
()	•	•	•		
	Yes	Somewhat	No		
(3)	Overall, how useful di	id you find this e	vent/presentation/wor	kshop?	
	•	•	•	•	•
	Very useful	Useful	Somewhat useful	Not very useful	Not at all useful
(4)	What was the best pa Please, fill the field:	nt of the event/p	resentation/workshop	for you?	
(5)	Are you interested in	SATO project? Th	ne project topics are re	anorted below:	
(5)	Are you interested in			eported below.	
	 Create a new energy s devices in the building 	elf-assessment and o _l	ptimization SATO platform th	at integrates all energy o	consuming equipment and
	 Develop and integratin learning to report ener the structure of the sn Develop a BIM-based various applicable scal 	, ng into the SATO plati gy performance, build nart readiness indicato 1 interface for aggreg les and defining locati	form a self-assessment fram ling behaviour, occupancy an or (SRI); lated and disaggregated and ions and specifications of end	nework (SAF) that uses of ad equipment faults. This alysis and visualization of ergy consuming equipme	lata analysis and machine framework is aligned with of the assessments in the ent, sensors and actuators
	into a BIM building mo — Develop and demonstr optimization contribute	del; ate energy managem es to lower energy cor	ent services that use the SAT nsumption, increased energy	O platform and show how	<i>w the self-assessment and</i> <i>I user satisfaction.</i>
	· · · · · · · · · · · · · · · · · · ·	,		,,,	
	Yes	Somewhat	• No		
(6)	Was this event/prese	ntation/workshop	at an appropriate lev	el?	
	•	•	•		
	Too easy	Just right	Too difficult		
(7)	Select the item that b	est describes you	u/ your organization:		
	 Consumers (I Grid operator Policymakers 	ouilding owners a s	nd occupants)		
	Medium and I	arge-sized corpo	ration / real estate ow	ners	
	Building cons Building design	truction company	/ se manufacturer		
	Architect/eng	ineer			
	Facility/ build	ing manager			
	Municipality Constal Public	a and Madia			
	General Publi SMEs and sta	rt-uns			
	Academia, th	e scientific comm	unity		
	• Other, please	specify:			

(8) Do you have any suggestions?

Please, fill the field:

3. Stakeholders engagement per communication/dissemination activity

This chapter reports all the events conducted from October 2020 up to September 2021 to communicate about SATO project, disseminate results and engage stakeholders. For each case we report the name of the event, its date and place, location, description of activity, lead partners, number of attendees, coverage level, and target stakeholders.

To collect this information in a structured way, POLIMI and CORE have developed an online form, which is reported in annex A.

3.1. Events carried out up to month 12

	Energy Transition Seminar " Optimization of Building Energ	'Using AI fo IY″	r Self A	Assessm	ent Towards
Date and place	13/11/20 – Instituto Dom Luiz, Fa	3/11/20 – Instituto Dom Luiz, Faculty of Sciences, University of Lisbon			
Type of event	Online event (live on Facebook)				
Description of Activity	Prof. Pedro Ferreira (FC.ID) and Prof. Guilherme Graça (FC.ID) held a seminar discussing the use of AI for the self-assessment and optimization of building energy performance.				
Lead partners	FC.ID				
N° of attendees	N/A				
Coverage level	International				
Target stakeholders	 Academia, the scientific co General public 	ommunity			
Pictures event	vent	November 13, 2020 @ 12:00 pm - 1:00 pm			Google Map
		Speaker: Pedro M. Ferreira (LA measurements of equipment a consumption often exceeds d between designed and measu energy efficiency. [] Find out more >	ASIGE), Guilherme Ca and building energy esign predictions by ired energy use has l	rrilho da Graça (IDL) use paint a bleak im: more than 100%. As become central in cu	Abstract: Existing age: real-life energy a result, reducing the gap rrent efforts to increase
Reference	http://idl.campus.ciencias.ulisboa for-self-assessment-towards-optin	.pt/event/ener nization-of-bui	gy-transi Iding-ene	<u>tion-semi</u> ergy/	inar-using-ai-



Project presentation to high school students

Date and place	14/11/20
Type of event	Online event
Description of Activity	During a lecture for high school students, Prof. Lorenzo Pagliano (POLIMI) introduced the SATO project to the audience.
Lead partners	POLIMI - eERG
<i>N° of attendees</i>	25
Coverage level	National - Italy
Target stakeholders	– General public
Pictures event	VOCE ALLA Palinsesto Palinsesto Palinsesto Palinsesto Palinsesto Palinsesto Palinsesto Palinsesto Palinsesto Palinsesto Palinsesto Palinsesto Palinae Palinae Palinsesto Palinae



Launch Master RIDEF2.0 XVI edition

Date and place	16/11/20		
Type of event	Inline event		
Description of Activity	During the launch of the XVI edition of the Master RIDEF2.0 (Politecnico di Milano), Prof. Lorenzo Pagliano (POLIMI) introduced the SATO project to the audience		
Lead partners	POLIMI - eERG		
<i>N° of attendees</i>	30		
Coverage level	National - Italy		
Target stakeholders	 General Public and Media Academia, the scientific community Building construction industry 		



MEET me TONIGHT - Notte dei Ricercatori

Date and place	28/11/20		
Type of event	Open science event - online		
Description of Activity	The event aims to make science and the work of scientists familiar to the general public. Dr. Silvia Erba (POLIMI) has managed the event participation and presentation, Prof. Lorenzo Pagliano (POLIMI) has presented the SATO project during the talk - Buildings with very low energy "consumption" and high comfort: experiences in Europe and Africa - discussing the topic of energy flexibility and introducing the concept of Building as a Battery.		
Lead partners	POLIMI - eERG		
N° of attendees	> 100 (available online)		
Coverage level	National - Italy		
Target stakeholders	 General Public and Media Academia, the scientific community Building construction industry 		
Pictures event	<image/>		
Reference	The video of the presentation (in Italian) is available here:		
	inception in the deader configuration of the deader of the		

Ciências Presentation to the Data Science MSc students from the Faculty of ULisboa Sciences of the University of Lisbon

Date and place	11/12/20		
Type of event	Online event		
Description of Activity	Talk given by Prof. Pedro Ferreira (FC.ID). The event aimed at presenting the project, highlighting challenges in buildings energy management and possible contributions from Data Science.		
Lead partners	FC.ID		
N° of attendees	20+		
Coverage level	National - Portugal		
Target stakeholders	 General Public and Media Academia, the scientific community 		
Pictures event			



AGENZIA MOBILITÀ AMBIENTE TERRITORIO AGENZIA ABRIENTE Agency of Milan) and the Head of Environmental Transition AMAT

Date and place	30/12/20			
Type of event	Online event			
Description of Activity	Prof. Lorenzo Pagliano (POLIMI) presented the results of the previous project EU-GUGLE in which PoliMi and the Municipality of Milan were involved and introduced the new project SATO to Eng. Gloria Zavatta, President of AMAT (Mobility and Environmental Agency of Milan) and Eng. Manuela Ojan, Head of Environmental Transition in AMAT.			
Lead partners	POLIMI - eERG			
N° of attendees	4			
Coverage level	National - Italy			
Target stakeholders	 Policy makers Municipalities Building construction industry 			
Pictures event	Interventi di riqualificazione profonda degli edifici del Comune di Milano svolti in collaborazione con eERG- Politecnico di Milano			
	Prof. Pagliano Lorenzo Corso Advanced Building Physics Coordinatore di eERG – gruppo di ricerca sull'uso finale efficiente dell'energia www.ergz.it Direttore del Master RIDEF (Rinnovabili, Decentramento, Efficienza, Sostenibilità forte) Milano			
	Sia EU-GUGLE che SATO vedono: Currente di Milano Currente di Progetto			

Piano AriaClima	IL PIANO ARIA E CLIMA: linee di azione e progetti		
Date and place	11/06/21		
Type of event	Online event		
Description of Activity	Prof. Lorenzo Pagliano (POLIMI) presented the case study of SATO project as deep retrofit of social housing building in the municipality of Milan.		
Lead partners	POLIMI- eERG		
N° of attendees	> 60 (available online)		
Coverage level	National - Italy		
Target stakeholders	 Medium and large-sized corporation / real estate owners Building construction industry Municipalities 		



- General Public and Media
 - Academia, the scientific community

Pictures event

	Programma:		
	Ore 09.00-09.10 Saluti e introduzione al seminario : Bruno Finzi, Presidente Ordine Ingegneri di Milano Ore 09.10-09.40 I I Piano Aria e Clima : Caterina Padovani, Responsabile Unità Aria e Clima, Comune di Milano Ore 09.40-09.50 Gli aspetti energetici del Piano : Pierluigi Bellinzona, Energy Manager, Comune di Milano Ore 09.50-10.05 I CAM e l'innovazione nella riqualificazione edilizia: Alessandro Zichi, Progettista, AMAT Ore 10.05-10.20 Clean Construction per un'economia circolare: Manuela Ojan, Head of Environmental Transition, AMAT		
	Ore 10.20-10.30 Pausa		
	Ore 10.30-11.00 Innesto Scalo Greco-Breda: social housing Zero Carbon: Roberto Reale, REDO, Mario Motta, Politecnico di Milano, Marco Filippi, Politecnico di Torino Ore 11.00-11.30 Il nuovo Campus Bocconi: Giuseppe Sinatra, Infrastructures, Sustaniability & General Services, Università Bocconi Ore 11.30-11.50 L'asilo di City Life: Ettore Bergamasco e Andrea Starr Stabile, Studio 02Arch, Giuseppe Dibari e Matia Mariani, Società Deerns Ore 11.50-12.10 Foody Milano: il nuovo mercato agroalimentare, Matteo Ghia e Andrea Costa, Divisione Ingegneria, MM spa Ore 12.10-12.25 Un esempio di rigualificazione edifici ERP – Via Feltrinelli: Lorenzo Pagliano, Professore al Dipartimento di Energia, Politecnico di Milano Ore 12.25-12.40 Un esempio di rigualificazione di edificio privato con il bando BE2: Vincenzo Procopio, Ingegnere, AMAT Ore 12.40-13.00 Domande e Risposte		
	Modalità: webinar, on line in diretta (il link verrà inviato qualche giorno prima dell'evento)		
	Progetto a cura di: ing.Bruno Finzi, Ordine Ingegneri Milano archh. Vito Redaelli e Filomena Pomilio, Ordine Architetti Milano ing. Massimiliano Papetti, arch. Filippo Salucci, arch. Paolo Simonetti, arch. Giovanni Oggioni, Comune di Milano		
	Interventi di rigualificazione profonda di edifici di Edilizia		
	Residenziale Popolare del Comune di Milano Prof. Lorenzo Pagliano (trava andrestandonico) Cons Advenze Buding Physic Conschanze & della – unificazione constanti in stratione analgen a recei and finanza constituiti in receivante della manta della		
	Andreas Sangelli, Silvia Erke Admand, etilis Politicnica di Milano		
Reference	The video of the presentation (in Italian) is available here:		
	https://www.youtube.com/watch?v=TnKUkQG6H4g		
	Additional information:		

https://my.foim.org/ISFormazione-Milano/odi-corso-1152.xhtml

Date and place	16/06/21		
Type of event	Webinar		
Description of Activity	During a technical webinar for architects and engineers in Italy (about renovation of existing buildings incentives called "Superbonus"), Dr. Francesco Cavicchioli (KNAUF) took the chance to communicate about the participation of KI IT to innovative projects and briefly presented the SATO project (contents, purpose, targets, Partners, etc.), the dedicated page on KNAUF website with the links to the project website for additional details.		
Lead partners	KNAUF INSULATION		
<i>N° of attendees</i>	200-500		
Coverage level	National - Italy		
Target stakeholders	 Building industry: building construction companies building designers architects/engineers managers (multi-family buildings managers) 		
Pictures event	<image/> <text><text></text></text>		
Reference	https://www.elearningonweb.com/en/-/superbonus-e-involucro-edilizio-le- opportunita-attuali-e-le-sfide-del-domani-giugno-2021		

elearningonweb Elearning on web_Superbonus e involucro edilizio: le opportunità attuali e le sfide del domani

edp

EDP NEW R&D sessions - Smart Buildings

Date and place	08/09/21			
Type of event	Webinar			
Description of Activity	The SATO project was presented by Eng. Filipe Neves da Silva (EDP) and Prof. Pedro Ferreira (FC.ID) during the 13th R&D session hosted by EDP NEW. The session focused on smart buildings and at the end, a discussion panel took place.			
Lead partners	EDP CNET			
<i>N° of attendees</i>	80			
Coverage level	International			
Target stakeholders	 Grid operators: Transmission System Operators (TSOs) – REN, EDA Distribution System Operators (DSOs) - EDP, EDA Retailers - EDP, GALP Aggregators - EDP Balance Response Parties (BRPs) – EDP 			

- Policymakers ADENE
- SATO Consortium and Advisory Board EDP NEW, FC.ID
- SMEs and start-ups GRID BEYHOND
- Academia, the scientific community Lisbon University, INESCTEC, ISQ

Pictures event



https://www.youtube.com/watch?v=IHgtT4iJlhU



Kyoto Club "Ricerca, sviluppo, università" - Highly insulated buildings as a crucial element for smart cities, grid balancing and energy storage for renewables

Date and place	15/09/21			
Type of event	Online event			
Description of Activity	The event aims to promote projects for environmental, social and economic development. Prof. Lorenzo Pagliano (POLIMI) presented the case study of SATO project focusing on the theme of highly insulated buildings as a crucial element for smart cities, grid balancing and energy storage for renewables.			
Lead partners	POLIMI - eERG			
<i>N° of attendees</i>	30			
Coverage level	Italy/ national			
Target stakeholders	 Medium and large-sized corporation / real estate owners Building construction industry Municipalities General Public and Media Academia, the scientific community 			
Pictures event	Edificic esistenti altamente isolati come elemento indispensabile per smart cities, bilanciamento della rete e potenziale accumulo per fonti di energia rinnovabile PROF. INSURVO PARILARO Deceme di Avances Multidi esimulation and avances Multidi esimulati			



Reference https://www.kyotoclub.org/it/appuntamenti/riunione-del-gruppo-di-lavororicerca-sviluppo-universita-di-kyoto-club-sessionepubblica/#contents_default_anchor

MLBEM 2021

1st workshop on Machine Learning for Buildings Energy Management, sponsored by the SATO project

Co-located with European Conference on Machine Learning and Principle	5
and Practice of Knowledge Discovery in Databases (ECMLPKDD'2021)	

Date and place	17/09/21			
Type of event	Online workshop			
Description of Activity	The workshop aimed at filling a gap in the EU workshop panorama, providing researchers with a forum to exchange and discuss scientific contributions and open challenges, both theoretical and practical, related to the use of machine-learning approaches in building energy management. The event, sponsored by the SATO project, is part of the European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECMLPKDD). Two papers were presented regarding the SATO project: 'Building appliances energy performance assessment' by Zygimantas Jasiunas, Pedro M. Ferreira and José Cecílio, and 'Buildings occupancy estimation: preliminary results using Bluetooth signals and artificial neural networks' by Frederico Apolónia, Pedro Ferreira and José Cecílio.			
	The organizing Committee expects this to become a yearly Workshop series on Machine Learning for Buildings Energy Management.			
Lead partners	FC.ID			
N° of attendees	Varied from 15 to 20 during the event			
Coverage level	International			
Target stakeholders	 Academia, the scientific community 			

Pictures event



Reference



Towards a European PED definition - Workshop of PED initiatives on preliminary results.

Date and place	17/09/21		
Type of event	Workshop		
Description of Activity	During the workshop on Positive Energy Districts hosted by EERA JPSC, Prof. Silvia Erba (POLIMI) and Prof. Lorenzo Pagliano (POLIMI) discussed briefly the paper "Combining Sufficiency, Efficiency and Flexibility to Achieve Positive Energy Districts Targets" which has been partly developed in the framework of SATO and presents one of the case studies of the project (Chiaravalle buildings).		
Lead partners	POLIMI - eERG		
N° of attendees	N/A		
Coverage level	International		
Target stakeholders	 Academia, the scientific community Policy makers Minicipalities Building construction industry Smart Cities Marketplace coordinators 		
Pictures event	For the spect of monitoring could be strengthened. What are useful dimensions to be monitored, in order to assess to be monitored, in order to assess the quality of a PED/climate-neutral neighbourhood Image: Specific assess to be assess to be monitored to a specific assess to be monitored. Image: Specific assess to be monitored to a DED/climate-neutral neighbourhood Image: Specific assess to be monitored to assess to be monitored. Image: Specific assess to be specific ass		
Reference			





Le Comunita' energetiche in Italia: un nuovo modello energetico per la citta' del futuro

Date and place	24-25/09/21		
Type of event	Online (September 24 th) and physical event (September 25 th)		
Description of Activity	The event was organized by the Municipality of Milan and NRG2peers, a H2020 project funded by the European Union that aims to support the development of European peer-to-peer, peer-to community and peer-to-market energy communities.		
	The event took place over two days:		
	 September 24th, online event that included the workshop "Towards Resilient Cities Milan Pilot Projects". During the workshop five EU projects in which Comune di Milano is involved were presented. Prof. Pagliano presented slides and key elements of SATO such as: reduction of energy needs, flexibility and its use via SATO services. September 25th, physical event held in the Chiaravalle district. Prof. Pagliano presented key elements of SATO such as: strong reduction of energy needs via envelope retrofit; flexibility and its use via SATO services. 		
Lead partners	POLIMI - eERG		
N° of attendees	September 24 th : 10 participants		
	September 25 th : 20 participants		
Coverage level	National - Italy		
Target stakeholders	 Consumers Medium and large-sized corporation / real estate owners Building construction industry Municipalities General Public and Media Academia, the scientific community 		
Pictures event	<section-header><section-header><section-header><section-header><section-header><text><text><text><text><text><text><text></text></text></text></text></text></text></text></section-header></section-header></section-header></section-header></section-header>		



3.2. Future events

Table 2 provides a list of future events and related target stakeholders. The first three activities have already been established and the available information are reported in the following. The other events will be further planned and developed to be organised in the coming months.

The first event in the list named "Salute del pianeta e salute umana attraverso sufficienza ed efficienza energetica e fonti rinnovabili" is a webinar under the patronage of the Italian National Institute of Health (Istituto Superiore di Sanità) that will be held on October, 1st and transmitted live on Facebook and YouTube. Prof. Pagliano (POLIMI-eERG) will give a talk on the theme of the reduction of final energy use introducing SATO project.

The second event in Table 2 named "**AI² for self-assessment of building energy performance**" is organised in the framework of the *EU Sustainable Energy Week 2021 – Towards 2030: Reshaping the European Energy System*. It will be held in collaboration with the EU H2020 project Auto-DAN (Deploying Augmented intelligence solutions in EU buildings using Data analytics, an interoperable hardware/software Architecture and a Novel self-energy assessment methodology). Figure 2 reports the programme of the event.





20/10/2021

Time	Торіс	Speaker Name
	Introduction - Relation to H2020 call topic and Link to EUSEW	Pedro Ferreira Niall Byrne
13.00 - 14.20	AutoDAN project overview & Q&A	Niall Byrne
	SATO Project overview & Q&A	Pedro Ferreira, Guilherme Graça
14.20 - 14.50	Coffee Break	
	AutoDAN live workshop	Niall Byrne
14.50 - 15.50	SATO live demo	Pedro Ferreira, Guilherme Graça, Pablo Gilabert

Figure 2 - Agenda of the event "AI² for self-assessment of building energy performance" which will be held on October 20th



Table 2 – Future events

Event	Target stakeholders	Date	Partners
Webinar "Salute del pianeta e salute umana attraverso sufficienza ed efficienza energetica e fonti rinnovabili"	 Policy makers Academia, the scientific community General Public and Media 	01/10/21	POLIMI- eERG
https://www.isde.it/evento/webinar- salute-del-pianeta-e-salute-umana- attraverso-sufficienza-ed-efficienza- energetica-e-fonti-rinnovabili/			
AI ² for self-assessment of building energy performance <u>https://eusew.eu/energy-</u> <u>days/ai%C2%B2-self-assessment-</u> <u>building-energy-performance</u>	 Policy makers Grid operators Building construction industry 	20/10/21	FC.ID, CYPE supported by: POLIMI- eERG, CORE
Enlit Europe 2021 – Formerly European Utility Week and POWERGEN Europe	 grid operators Medium and large-sized corporation / real estate owners SMEs and start-ups Building construction industry General Public and Media 	30/11- 02/12/2021	FC.ID, EDP, CNET supported by: POLIMI- eERG, CYPE, AMES, MIL
European workshops on nZEB for the revision of the directive	 Policy makers 	ТВА	POLIMI- eERG
A meeting with DG ENEGY and with members of the European Parliament	 Policy makers 	ТВА	POLIMI- eERG
Swissbau 2022	ТВА	18- 21/01/2022	EKAG
ТВА	 Building construction industry (appliance manufacture) SATO Consortium and Advisory Board 	2022	SONAE
The second Workshop on Machine Learning for Buildings Energy Management. Proposal to be submitted to the Workshops competitive call of ECMLPKDD'2022 (https://2022.ecmlpkdd.org/).	– Academia, the scientific community	September 2022, Grenoble, France	FC.ID, AAU, POLIMI
Option1: 14 th REHVA World Congress CLIMA 2022	 Building construction industry (HVAC manufacture) SATO Consortium and Advisory Board 	15- 18/05/2022	VL
Option 2: Eurovent Association	 Building construction industry (HVAC manufacture) SATO Consortium and Advisory Board 	2022	VL

<i>Option 3:</i> Eurovent Certita	 Building construction industry (HVAC manufacture) SATO Consortium and Advisory Board 	2022	VL
Enlit Europe 2022 – Formerly European Utility Week	 grid operators Medium and large-sized corporation / real estate owners SMEs and start-ups Building construction industry General Public and Media Academia, the scientific community 	2022	FC.ID, EDP, CNET POLIMI- eERG, CYPE, AMES, MIL
eceee (uropean council for an energy efficient economy) events	– TBA	ТВА	POLIMI- eERG

Additionally, SATO has already committed to a presence in Enlit Europe 2021 – Formerly European Utility Week. As SATO is currently starting its second year, we opted for a package including the listing of the project profile in the event website, including a 5-minute video pitch of the project. In future Enlit events we are planning participation in the live event.

4. Feedback from stakeholders engagement

4.1. Policy feedback

Throughout the entire project, the Partners will organise meetings, which have as target audience policy makers, to maximise the project impact, discuss the outcomes of the project and policy feedback into EPBD and the Ecodesign Directive/Energy Labelling Regulation.

In the meetings organized during the first year (see section 3.1 and annex B), the following aspects have been highlighted:

- importance of using proper and consistent set of physical concepts and definitions based on the nomenclature proposed by EU standards to allow effective communications among the different countries;
- the concept of "Building as Batteries";
- the work carried out in the framework of the SATO project on utilising the flexibility produced by envelope improvement for better integration of variable RES;
- the good agreement between calculated and actual performance in buildings labelled Casaclima,
 PassivHaus and Minergie;
- the future energy performance scenario in terms of energy need for heating of new and retrofitted buildings which needs to be set around values of 15 kWh/(m² y).

In several meetings, the stakeholders have recognised the effectiveness of our contributions in bringing clarity of concepts and sound data based on real cases and physical insights. For example, the concepts and nomenclature from EN 52000 will be used throughout the reports of ECF and EUASE in their report



on "Decarbonizing heating". Also, the concept of increasing flexibility by envelope improvements and its importance for better integration of variable RES received great interest in all the meetings.

4.2. Events feedback

Although event feedback was not collected in a systematic manner during the first year, good acceptance of the project concept was observed, as well as recognition of the potential impacts the project can create. In one case there was a specific interest on the concept of using the thermal mass of the building for increased flexibility in connection with night summer natural ventilation, that might result in a joint experiment under the scope of SATO.

In future events the partners will use the online form proposed in section 2.2 to collect information using a systematic approach.

4.3. Relation with other WPs

WP 1 (Specifications and Requirements for SATO – D1.1 Role of Actors and Design of Stakeholder Framework) has developed a questionnaire, to understand the needs of different types of stakeholder in terms of needs and desired level of interaction with the energy systems. It has been distributed in all the countries involved: Portugal, Spain, Germany, Italy and Denmark.

Through the questionnaire and interviews different actors such as occupants, building owners/managers, facility manager, energy service companies and grid operators have been informed about the project and, on the other hand, the Consortium was able to receive important feedbacks for the project development.

Grid operators, for instance, highlighted the need of various flexibility services such as: load shifting, flexibility forecast, flexibility dispatch, data acquisition lower than 5 minutes, energy systems available for flexibility app-based (complemented with web-based). The SATO platform responds exactly to these needs by offering greater flexibility and dynamism with the grid. The solutions offered by the SATO project appeared also compatible with the needs exposed by all the actors inherent in the building construction field such as building construction companies, building designers, architects, engineers and manager. To date, greater flexibility is also required in the field of appliance and a real-time connection is required to better manage all the devices and minimize their impact. As for the stakeholders involved in the design and construction of a building, i.e. designers, architects and engineers, they have expressed their consent confirming that the BIM 3D based interface is an appropriate tool to convey the capabilities of SATO to users who will manage the building. Obviously, to meet the needs of consumers, the platform must be equipped with a simplified and easy-to-read interface. SATO objectives have proved to be extremely useful for energy managers of large buildings but also end users have shown a high degree of curiosity and receptivity to the capabilities of AI for controlling the energy system. The involvement of these figures is extremely necessary, especially to ensure the continuity of the project after the end of the four years.

5. Cluster with related European projects

Clustering with other projects is very important to maximize the H2020 programme impact, extend the stakeholders network and share knowledge and achievement in research and innovation.

The SATO project has identified several relevant European projects, for potential collaboration. The relation with one of these projects has already been established.

Auto-DAN project (GA: 101000169) Deploying Augmented intelligence solutions in EU buildings using Data analytics, an interoperable hardware/software Architecture and a Novel self-energy assessment methodology.

Program: <u>H2020-EU.3.3.1. – Reducing energy consumption and carbon footprint by smart and</u> <u>sustainable use</u>

Topic: <u>LC-SC3-B4E-10-2020 – Self-assessment and self-optimisation of buildings and appliances</u> for a better energy performance.

This collaboration resulted already in one activity: the joint organisation of an event under the scope of the *EU Sustainable Energy Week 2021*.

Since both projects have pilot sites in the city of Milan, we are planning a demonstration joint event.

6. Stakeholders engagement through scientific publications and online articles

Stakeholders engagement took place also through online articles and scientific publications. Table 3 and Table 443 report the communication and dissemination activities from M6 to M12. The report of digital activities until M6 was carried out in deliverable D8.4 "Periodic Digital Dissemination Activities Report".

Reference	Title	Authors	Partner	Date
https://www.mdpi.com/	Combining Sufficiency,	Silvia Erba,	POLIMI	03/08/2021
<u>1996-1073/14/15/4697</u>	Efficiency and Flexibility to	Lorenzo		
Open access	Achieve Positive Energy	Pagliano		
<u>open decess</u>	Districts Targets			
https://mlbem.lasige.di	Buildings Occupancy	Frederico	Fciências.ID	05/08/2021
<u>.fc.ul.pt/</u>	Estimation: Preliminary	Apolónia,		
Future publication in	results using Bluetooth	Pedro M.		
Proceedings volume	signals and Artificial Neural	Ferreira, José		
riocecangs volume.	Networks	Cecílio		

Table 3 –	SATO	scientific	publications
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https://mlbem.lasige.di	Building appliances energy	Zygimantas	Fciências.ID	05/08/2021
<u>.fc.ul.pt/</u>	performance assessment	Jasiunas,		
Future publication in Proceedings volume.		Pedro M.		
		Ferreira, José		
		Cecílio		

Table 4 - SATC) Press	release	and	other	online	materials

Extract	Reference	Partner	Date
<image/> <text><text><text><text><text><text><text><text></text></text></text></text></text></text></text></text>	https://www.casadomo.com/2021/07 /09/proyecto-sato-aplicara- tecnologias-ia-visualizacion-3d-apis- mejorar-eficiencia-energetica- edificios-inteligentes.	CYPE	09/07/2021
<section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header>	https://plataformaptec.es/el- proyecto-sato-aplicara-tecnologias- de-ia-visualizacion-3d-y-apis-para- mejorar-la-eficiencia-energetica-de- los-edificios-inteligentes/	CYPE	N/A
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<section-header><section-header><section-header><section-header><section-header><section-header></section-header></section-header></section-header></section-header></section-header></section-header>	https://domosistemas.com/?p=14334	CYPE	09/07/2021

·····	Knauf Insulation Italy 2021 Products	KNAUF	10/06/2021
NOT STATE AND ADDRESS	Catalogue -		
	https://it.knaufinsulation.com/scarica		
	-catalogo-prodotti-2021 -		
	https://secureshare.knaufgroup.com/		
	<u>#/public/shares-</u>		
	downloads/igKbXYExv3ClIMvcttxpGCA		
	IftJ6OC9i		
4 In 10 Annual Control New Con	https://www.luppufingulation.it/inpour		01/04/2021
	https://www.knaufinsulation.it/innova	KNAUF	01/04/2021
If it is the second sec	https://www.knaufinsulation.it/innova zione/progetto-sato	KNAUF	01/04/2021
	https://www.knaufinsulation.it/innova zione/progetto-sato	KNAUF	01/04/2021
	https://www.knaufinsulation.it/innova zione/progetto-sato	KNAUF	01/04/2021
<text><text><text><text><text><text></text></text></text></text></text></text>	https://www.knaufinsulation.it/innova zione/progetto-sato	KNAUF	01/04/2021

7. Conclusions

Stakeholders engagement is fundamental since it:

- (1) creates public awareness and scientific interest generation,
- (2) directly involves actors that could help bridging the gap between the SATO concept and its market application,
- (3) leads the maximization of the impacts of the project achievements.

The SATO platform will be developed to respond to the needs of the users and the grid; consequently, a constant feedback-based process is necessary to ensure project outcomes are relevant to society and aligned with the demands of the market.

Dring the first year the SATO project participated in a significant number of diverse types of dissemination and stakeholder events, from the publication of scientific articles, the presentation of talks and seminars, to the organization of a conference workshop, and the participation in energy-related events.

8. ANNEX A

POLIMI and CORE have developed the following online form to collect relevant information regarding the events proposed by the Consortium to communicate about the project, disseminate the results and engage stakeholders.

A SATO		
SATO Events Report		
Dear SATO partners,		
This form will be used for reporting all events attended/participated by any of SATO consortium members. After		
your attendance to an event, please fill in this form with the relevant information requested. This will enable an effective dissemination activity keeping track of all actions.		
Estimated time to complete 3 mins.		
	••••	
* Required		
1. email *		
Enter vour answer		
2. Name and Surname *	í	
Enter your answer	ç.	
3. Partner *		
◯ FCiências.ID		
O POLIMI- eERG		
Comune di Milano		
⊖ CYPE		
○ CORE		
C EDP CNET		
○ WORTEN		
○ AMESEIXAL		
Siemens Portugal (SIP)		
O VL		
О FB		
○ XTEL		
C EKAG		

4. Other partners involved *	
FCiências.ID	
POLIMI- eERG	
Comune di Milano	
CYPE	
CORE	
EDP CNET	
WORTEN	
AMESEIXAL	
Siemens Portugal (SIP)	
Siemens Austria (SAGOE)	
KNAUF INSULATION	
□ VL	
П ГВ	
XTEL	
EKAG	
None None	
5. Name and Place of event *	
Enter your answer	
6. Date of event *	
Please input date (M/d/yyyy)	
7. Type of event *	
) Webinar	
O Fair	
Other	
8. Type of Activity (e.g. presenter, participant, booth exhibition, coordinator etc.) *	
Presentation	
Participation	
Exhibition Booth	
Coordination	
Other	

 Description of Activity (including event link) and specification of SATO topics that have been covered (e.g. overall project, case studies, platform, specific WPs, etc.) 	
Upload related material such as photos, presentation in the Repository > 04-Events & Publications > Material from Events $$	
Enter your answer	
10. Size of the Audience (e.g. people that attended the event, number of people the activity has reached) *	
Under 50	
50-200	
200-500	
Over 500	
Online Event	
Other	······································
11. Coverage level *	
○ Local	
Regional	
National	
⊖ EU	
International	
12. Stakeholders involved/target audience *	
Consumers (building owners and occupants)	
Grid operators (Transmission System Operators (TSOs), Distribution System Operators (DSOs), retailers, aggregators, Balance Response Parties (BRPs)	
Policymakers	
Medium and large-sized corporation/ real estate owners - growing enterprises that are forced by always stricter regulations	
Building industry: building construction companies, building designers and appliance manufacturers, architects and managers	
Municipalities	
General Public and Media	
SATO Consortium and Advisory Board	
SMEs and start-ups	
Academia, the scientific community	
Other	
13. If other, please specify	
Enter your answer	

9. ANNEX B



Brussels, 29 September 2021

To Whom It May Concern,

With the present letter, I acknowledge that Prof. Lorenzo Pagliano and Prof. Silvia Erba, have prepared documentation materials and attended 3 workshops of the research project carried out by Cambridge Econometrics on the macroeconomic impact of decarbonizing the building stock by 2050. The study is supported by the European Climate Foundation and project-managed by the European Alliance to Save Energy.

Lorenzo and Silvia - as part of an expert panel including 15-20 experts representing different industrial sectors, academia, research centres and environmental NGOs - provided a decisive contribution to the initial phases of the project development including data gathering and definitions of assumptions and modelling scenarios.

The contribution provided by sharing recent findings on:

- the concept of "Buildings as Batteries"
- the work carried out in the framework of the SATO project on utilising the flexibility produced by envelope improvement for better integration of variable RES
- the good agreement between calculated and actual performance in buildings labelled Casaclima, PassivHaus and Minergie

has added value to the discussion and introduced interesting new elements of reflection.

The project foresees the organisation of two more workshops and the final launch of the study in Brussels, at the beginning of 2022. We look forward to continuing the fruitful collaboration.

Yours sincerely,

Monica Juanani

Monica Frassoni President European Alliance to Save Energy