

The Urban Book Series

Eugenio Arbizzani · Eliana Cangelli ·
Carola Clemente · Fabrizio Cumo ·
Francesca Giofrè · Anna Maria Giovenale ·
Massimo Palme · Spartaco Paris *Editors*

Technological Imagination in the Green and Digital Transition

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Editors

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Editors

Eugenio Arbizzani
Dipartimento di Architettura e Progetto
Sapienza University of Rome
Rome, Italy

Eliana Cangelli
Dipartimento di Architettura e Progetto
Sapienza University of Rome
Rome, Italy

Carola Clemente
Dipartimento di Architettura e Progetto
Sapienza University of Rome
Rome, Italy

Fabrizio Cumo
Dipartimento Pianificazione, Design,
Tecnologia dell'Architettura
Sapienza University of Rome
Rome, Italy

Francesca Giofrè
Dipartimento di Architettura e Progetto
Sapienza University of Rome
Rome, Italy

Anna Maria Giovenale
Dipartimento di Architettura e Progetto
Sapienza University of Rome
Rome, Italy

Massimo Palme
Departamento de Arquitectura
Universidad Técnica Federico Santa María
Antofagasta, Chile

Spartaco Paris
Dipartimento di Ingegneria Strutturale e
Geotecnica
Sapienza University of Rome
Rome, Italy



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Contributors

Sofia Agostinelli Sapienza University of Rome, Rome, Italy

Hosam Al-Siah Sapienza University of Rome, Rome, Italy

Davide Allegri Polytechnic University of Milan, Milan, Italy

Maria Beatrice Andreucci Sapienza University of Rome, Rome, Italy

Eugenio Arbizzani Sapienza University of Rome, Rome, Italy

Marianna Arcieri Polytechnic University of Milan, Milan, Italy

Maria Vittoria Arnetoli University of Florence, Florence, Italy

Stefano Arruzzoli Polytechnic University of Milan, Milan, Italy

Davide Astiaso Garcia Sapienza University of Rome, Rome, Italy

Nazly Atta Polytechnic University of Milan, Milan, Italy

Gigliola Ausiello University of Naples Federico II, Naples, Italy

Maria Azzalin Mediterranean University of Reggio Calabria, Reggio Calabria, Italy

Meri Batakoja Ss. Cyril and Methodius University, Skopje, North Macedonia

Silvia Battaglia Polytechnic University of Milan, Milan, Italy

Oscar Eugenio Bellini Polytechnic University of Milan, Milan, Italy

Carla Álvarez Benito European University Foundation (EUF), Brussels, Belgium

Roberto Bianchi Mercatorum University, Rome, Italy

Leonardo Binni Polytechnic University of Marche, Ancona, Italy

Martina Bocci Polytechnic University of Turin, Turin, Italy

Andrea Bocco Polytechnic University of Turin, Turin, Italy

- Arthur Bohn** Polytechnic University of Turin, Turin, Italy
- Roberto Bologna** University of Florence, Florence, Italy
- Steven Boon** Housing Anywhere, Rotterdam, Netherlands
- Martina Bosone** Research Institute on Innovation and Services for Development of the Italian National Research Council (CNR-IRISS), Naples, Italy
- Andrea Brambilla** Polytechnic University of Milan, Milan, Italy
- Timothy Daniel Brownlee** University of Camerino, Camerino, Italy
- Erica Brusamolin** Polytechnic University of Milan, Milan, Italy
- Maddalena Buffoli** Polytechnic University of Milan, Milan, Italy
- Francesca Caffari** ENEA, Rome, Italy
- Nicolandrea Calabrese** ENEA, Rome, Italy
- Gisella Calcagno** University of Florence, Florence, Italy
- Guido Callegari** Polytechnic University of Turin, Turin, Italy
- Maria Canepa** University of Genoa, Genoa, Italy
- Eliana Cangelli** Sapienza University of Rome, Rome, Italy
- Monica Cannaviello** University of Campania “L. Vanvitelli”, Aversa, Italy
- Stefano Capolongo** Polytechnic University of Milan, Milan, Italy
- Cheren Cappello** University of Sassari, Sassari, Italy
- Barbara Cardone** University of Roma Tre, Rome, Italy
- Tecla Caroli** Polytechnic University of Milan, Milan, Italy
- Giovanni Castaldo** Polytechnic University of Milan, Milan, Italy
- Giulia Centi** ENEA, Rome, Italy
- Francesca Ciampa** University of Naples Federico II, Naples, Italy
- Andrea Ciaramella** Polytechnic University of Milan, Milan, Italy
- Adriana Ciardiello** Sapienza University of Rome, Rome, Italy
- Federico Cinquepalmi** Sapienza University of Rome, Rome, Italy
- Carola Clemente** Sapienza University of Rome, Rome, Italy
- Marta Cognigni** Polytechnic University of Milan, Milan, Italy
- Raffaella Colombo** Istituto Comprensivo Rinnovata Pizzigoni, Milan, Italy
- Alessandra Corneli** Polytechnic University of Marche, Ancona, Italy

- Nataša Ćuković-Ignjatović** University of Belgrade, Belgrade, Serbia
- Fabrizio Cumo** Sapienza University of Rome, Rome, Italy
- Laura Daglio** Polytechnic University of Milan, Milan, Italy
- Anna Dalla Valle** Polytechnic University of Milan, Milan, Italy
- Francesca Daprà** Polytechnic University of Milan, Milan, Italy
- Roberto D’Autilia** University of Roma Tre, Rome, Italy
- Alberto De Capua** Mediterranea University of Reggio Calabria, Reggio Calabria, Italy
- Jacopo Dell’Olmo** Sapienza University of Rome, Rome, Italy
- Valentina Dessì** Polytechnic University of Milan, Milan, Italy
- Raffaella De Martino** University of Campania L. Vanvitelli, Aversa, Italy
- Stefania De Medici** University of Catania, Catania, Italy
- Maria Giovanna Di Bitonto** Polytechnic University of Milan, Milan, Italy
- Marco Di Ludovico** University of Naples Federico II, Naples, Italy
- Mohamed Eledeisy** Sapienza University of Rome, Rome, Italy
- Lidia Errante** Mediterranea University of Reggio Calabria, Reggio Calabria, Italy
- Daniele Fanzini** Polytechnic University of Milan, Milan, Italy
- Emilio Faroldi** Polytechnic University of Milan, Milan, Italy
- Marco Ferrero** Sapienza University of Rome, Rome, Italy
- Maria Fianchini** Polytechnic University of Milan, Milan, Italy
- Irene Fiesoli** University of Florence, Florence, Italy
- Maria F. Figueira** International Union of Property Owners (UIPI), Brussels, Belgium
- Antonio Fioravanti** Sapienza University of Rome, Rome, Italy
- Rossella Franchino** University of Campania L. Vanvitelli, Aversa, Italy
- Caterina Frettoloso** University of Campania L. Vanvitelli, Aversa, Italy
- Valentina Frighi** University of Ferrara, Ferrara, Italy
- Matteo Gambaro** Polytechnic University of Milan, Milan, Italy
- Pablo Garrido Torres** Universitat Politècnica de Catalunya, Barcelona, Spain
- Vincenzo Gattulli** Sapienza University of Rome, Rome, Italy
- Marko Gavrilović** University of Belgrade, Belgrade, Serbia

- Emanuela Giancola** UiE3-CIEMAT, Madrid, Spain
- Francesca Giglio** Mediterranea University of Reggio Calabria, Reggio Calabria, Italy
- Elisabetta Ginelli** Polytechnic University of Milan, Milan, Italy
- Francesca Giofrè** Sapienza University of Rome, Rome, Italy
- Serena Giorgi** Polytechnic University of Milan, Milan, Italy
- Matteo Giovanardi** Polytechnic University of Turin, Turin, Italy
- Anna Maria Giovenale** Sapienza University of Rome, Rome, Italy
- Salvatore Giuffrida** University of Catania, Catania, Italy
- Evelyn Grillo** Mediterranea University of Reggio Calabria, Reggio Calabria, Italy
- Daniele Groppi** Sapienza University of Rome, Rome, Italy
- Maria Teresa Gullace** Polytechnic University of Milan, Milan, Italy
- Guillaume Habert** ETH Zürich, Zürich, Switzerland
- Sam Haghdamy** Islamic Azad University, Mashhad, Iran
- Zakia Hammouni** CRIR (Centre for Interdisciplinary Rehabilitation Research of Greater Montréal), Université de Montréal, Montréal, Canada;
Université McGill, Montréal, Canada;
Université du Québec à Trois-Rivière, Trois-Rivière, Canada
- Giulio Hasanaj** University of Florence, Florence, Italy
- Mohammad Hassani** Islamic Azad University, Kerman Branch, Iran
- Tihana Hrastar** University of Zagreb, Zagreb, Croatia
- Azim Heydari** Sapienza University of Rome, Rome, Italy;
Graduate University of Advanced Technology, Kerman, Iran
- Dušan Ignjatović** University of Belgrade – Faculty of Architecture, Belgrade, Serbia
- Nataša Ćuković Ignjatović** University of Belgrade – Faculty of Architecture, Belgrade, Serbia
- Alexander Achille Johnson** Vagelos College of Physicians and Surgeons, Columbia University, New York, USA
- Fuat Emre Kaya** University of Sassari, Sassari, Italy
- Farshid Keynia** Graduate University of Advanced Technology, Kerman, Iran
- Alara Kutlu** Polytechnic University of Milan, Milan, Italy
- Adel Lakzadeh** Islamic Azad University, Kerman Branch, Iran

- Mario Lamagna** Sapienza University of Rome, Rome, Italy
- Massimo Lauria** Mediterranean University of Reggio Calabria, Reggio Calabria, Italy
- Francesco Leali** UNIMORE, Modena, Italy
- Adriano Magliocco** University of Genoa, Genoa, Italy
- Camilla Maitan** Polytechnic University of Milan, Milan, Italy
- Mariateresa Mandaglio** Mediterranea University of Reggio Calabria, Reggio Calabria, Italy
- Silvia Mangili** Polytechnic University of Milan, Milan, Italy
- Paola Marrone** University of Roma Tre, Rome, Italy
- Riccardo Marzo** NCLAB, Rome, Italy
- Luciana Mastrodonato** University G. d'Annunzio, Pescara, Italy
- Redina Mazelli** Polytechnic University of Turin, Turin, Italy
- Eleonora Merolla** Polytechnic University of Turin, Turin, Italy
- Marco Migliore** Polytechnic University of Milan, Milan, Italy
- Martino Milardi** Mediterranea University of Reggio Calabria, Reggio Calabria, Italy
- Nikola Miletić** University of Belgrade – Faculty of Architecture, Belgrade, Serbia
- Jelena Milošević** University of Belgrade, Belgrade, Serbia
- Pietro Montani** Honorary Professor of Aesthetics, Sapienza University of Rome, Rome, Italy
- Ilaria Montella** University of Roma Tre, Rome, Italy
- Carol Monticelli** Polytechnic University of Milan, Milan, Italy
- Lucia Montoni** University of Florence, Florence, Italy
- Michele Morganti** Sapienza University of Rome, Rome, Italy
- Marco Morini** ENEA, Rome, Italy
- Noemi Morrone** Istituto Comprensivo Rinnovata Pizzigoni, Milan, Italy
- Erica Isa Mosca** Polytechnic University of Milan, Milan, Italy
- Elena Mussinelli** Polytechnic University of Milan, Milan, Italy
- Francesco Muzi** Sapienza University of Rome, Rome, Italy
- Francesco Nardi** NCLAB, Rome, Italy

- Giuliana Nardi** University of Roma Tre, Rome, Italy
- Ludovica Nasca** University of Catania, Catania, Italy
- Benedetto Nastasi** Sapienza University of Rome, Rome, Italy
- Berardo Naticchia** Polytechnic University of Marche, Ancona, Italy
- Maicol Negrello** Polytechnic University of Turin, Turin, Italy
- Aleksandra Nenadović** University of Belgrade, Belgrade, Serbia
- Antonio Novellino** ETT SpA, Genoa, Italy
- Filippo Orsini** Polytechnic University of Milan, Milan, Italy
- Giuseppe Orsini** Sapienza University of Rome, Rome, Italy
- Maria Giovanna Pacifico** University of Naples Federico II, Naples, Italy
- Giancarlo Paganin** Polytechnic University of Milan, Milan, Italy
- Massimo Palme** Universidad Técnica Federico Santa María, Valparaíso, Chile
- Elisabetta Palumbo** University of Bergamo, Bergamo, Italy
- Giulio Paparella** Sapienza University of Rome, Rome, Italy
- Spartaco Paris** Sapienza University of Rome, Rome, Italy
- Francesco Pasquale** UNIMORE, Modena, Italy
- Lorenzo Mario Pastore** Sapienza University of Rome, Rome, Italy
- Jelena Pavlović** University of Belgrade, Belgrade, Serbia
- Maura Percoco** Sapienza University of Rome, Rome, Italy
- Giacomo Pierucci** University of Florence, Florence, Italy
- Claudio Piferi** University of Florence, Florence, Italy
- Maria Rita Pinto** University of Naples Federico II, Naples, Italy
- Anna Pirani** Centre for Theoretical Physics, Trieste, Italy
- Giuseppe Piras** Sapienza University of Rome, Rome, Italy
- Nicola Pisani** Colouree S.r.l., Genoa, Italy
- Matteo Poli** Polytechnic University of Milan, Milan, Italy
- Riccardo Pollo** Polytechnic University of Turin, Turin, Italy
- Alice Paola Pomè** Polytechnic University of Milan, Milan, Italy
- Gianluca Pozzi** Polytechnic University of Milan, Milan, Italy
- Giulia Procaccini** Polytechnic University of Milan, Milan, Italy

Donatella Radogna University “G. D’Annunzio” of Chieti-Pescara, Pescara, Italy

Alberto Raimondi University of Roma Tre, Rome, Italy

Andrea Rebecchi Polytechnic University of Milan, Milan, Italy

Rosaria Revellini IUAV University of Venice, Venice, Italy

Diletta Ricci Sapienza University of Rome, Rome, Italy;
Delft University of Technology, Delft, Netherlands

Guglielmo Ricciardi Polytechnic University of Turin, Turin, Italy

Alessandro Rogora Polytechnic University of Milan, Milan, Italy

Manuela Romano Polytechnic University of Milan, Milan, Italy

Rosa Romano University of Florence, Florence, Italy

Sabri Ben Rommane Erasmus Student Network AISBL (ESN), Brussels, Belgium

Laura Rosini University of Roma Tre, Rome, Italy

Massimo Rossetti IUAV University of Venice, Venice, Italy

Federica Rosso Sapienza University of Rome, Rome, Italy

Irina Rotaru Saint Germain-en-Laye, France

Helena Coch Roura Universitat Politècnica de Catalunya, Barcelona, Spain

Ana Šabanović University of Belgrade, Belgrade, Serbia

Samaneh Safaei Graduate University of Advanced Technology, Kerman, Iran

Ferdinando Salata Sapienza University of Rome, Rome, Italy

Sara Sansotta Mediterranea University of Reggio Calabria, Reggio Calabria, Italy

Antonello Monsù Scolaro University of Sassari, Sassari, Italy

Paolo Simeone Polytechnic University of Turin, Turin, Italy

Francesco Sommese University of Naples Federico II, Naples, Italy

Tianzhi Sun Polytechnic University of Milan, Milan, Italy

Chiara Tagliaro Polytechnic University of Milan, Milan, Italy

Maurizio Talamo Tor Vergata University of Rome, Rome, Italy

Andrea Tartaglia Polytechnic University of Milan, Milan, Italy

Chiara Tonelli University of Roma Tre, Rome, Italy

Agata Tonetti IUAV University of Venice, Venice, Italy

Matteo Trane Polytechnic University of Turin, Turin, Italy

- Antonella Trombadore** University of Florence, Florence, Italy
- Maria Rosa Trovato** University of Catania, Catania, Italy
- Massimo Vaccarini** Polytechnic University of Marche, Ancona, Italy
- Carlo Vannini** Sapienza University of Rome, Rome, Italy
- Konstantinos Venis** Polytechnic University of Milan, Milan, Italy
- Maria Pilar Vettori** Polytechnic University of Milan, Milan, Italy
- Giulia Vignati** Polytechnic University of Milan, Milan, Italy
- Serena Viola** University of Naples Federico II, Naples, Italy
- Antonella Violano** University of Campania “L. Vanvitelli”, Aversa, Italy
- Walter Wittich** CRIR (Centre for Interdisciplinary Rehabilitation Research of Greater Montréal), Université de Montréal, Montréal, Canada
- Alessandra Zanelli** Polytechnic University of Milan, Milan, Italy
- Edwin Zea Escamilla** ETH Zürich, Zürich, Switzerland
- Bojana Zeković** University of Belgrade – Faculty of Architecture, Belgrade, Serbia
- Alberto Zinno** Stress Scarl, Naples, Italy
- Nour Zreika** Polytechnic University of Milan, Milan, Italy
- Franca Zuccoli** University of Milano-Bicocca, Milan, Italy
- Milijana Živković** University of Belgrade, Belgrade, Serbia
- Maša Žujović** University of Belgrade, Belgrade, Serbia

Chapter 23

Digital Infrastructure for Student Accommodation in European University Cities: The “HOME” Project



Oscar Eugenio Bellini, Matteo Gambaro, Maria Teresa Gullace, Marianna Arcieri, Carla Álvarez Benito, Sabri Ben Rommane, Steven Boon, and Maria F. Figueira

Abstract Finding reliable and safe accommodation is a key obstacle to students’ international mobility. While the European Commission plans a tri-fold increase of Erasmus+ participants by 2027, allowing international students to get suitable accommodation remains one of the main difficulties encountered during the mobility experience. European Higher Education Institutions (HEIs) are unable to cover the majority of student accommodation demand. Indeed, as stated by Eurostudent VII Report, only 17% of students in Europe find home abroad in student accommodation facilities. Moreover, in accordance with the Erasmus+ Impact Study 2019, 23% of the students involved in the survey considered very important to have support in finding accommodation abroad during mobility along with insurance and other practical aspects. This contribution explores the first results of the European project *HOME (Home of Mobile Europeans)*. The project, currently ongoing, is funded by the 2019 Key Action 2 Erasmus+ call and developed by six European partners. According to the digital transition planned by the Erasmus+ Programme, HOME supports EU

O. E. Bellini · M. Gambaro · M. T. Gullace (✉) · M. Arcieri
Polytechnic University of Milan, Milan, Italy
e-mail: mariateresa.gullace@polimi.it

O. E. Bellini
e-mail: oscar.bellini@polimi.it

M. Gambaro
e-mail: matteo.gambaro@polimi.it

M. Arcieri
e-mail: marianna.arcieri@polimi.it

C. Á. Benito
European University Foundation (EUF), Brussels, Belgium

S. B. Rommane
Erasmus Student Network AISBL (ESN), Brussels, Belgium

S. Boon
Housing Anywhere, Rotterdam, Netherlands

M. F. Figueira
International Union of Property Owners (UIPI), Brussels, Belgium

mobility by providing students and trainees with a digitalized infrastructure that integrates the search for accommodation within existing European digital mobility initiatives, such as the Erasmus+ App. Moreover the project defines a set of living “quality labels” to increase the transparency of information about accommodation offer at the European level. Furthermore, educational resources and a training toolkit will be available, in the HOME website, to spread and replicate the project’s learnings results. Once operational, HOME will represent an essential digital solution for a more accessible and quality student accommodation offer.

Keywords Digital infrastructure · Erasmus+ programme · European learning mobility · Student accommodation quality labels · Home of Mobile Europeans (HOME)

23.1 Context of the Research

Supporting international education and mobility opportunities, for students, academics, and trainers, is one of the high priorities of the European Commission.

Since its establishment in 1987, the Erasmus Programme (European Community Action Scheme for the Mobility of University Students) has significantly increased. Until 2020, the Programme reached more than 11.7 million participants (Fig. 23.1a), becoming one of the most important mobility programs in the world.

Despite the mobility restrictions imposed by the Covid-19 pandemic during 2020, the Erasmus+ Programme 2014–2020 closed with a positive record of participants. New social behaviors, the growth of digital environments for teaching and learning, and blended mobility opportunities highlighted the importance of digitalization in processes, tools, and services for education and mobility.

The new Erasmus+ Programme 2021–2027 has been extended and enriched in four strategic areas: digital transition, social cohesion, sustainable growth, strengthening European identity, and active citizenship. Its budget has almost doubled to over €28 billion (compared to €14.7 billion for 2014–2020) (Fig. 23.1b) to further support the mobility opportunities according to the strategic priorities of the *Inclusion and Diversity Plan*, the *Digital Education Plan*, the *Youth Participation Strategy*, and the *European Green Deal* (European Commission 2019, 2021a, b, c, 2022). Another key step in the digitalization of the Programme is a series of important projects supported by the EU, such as the *Erasmus Without Paper (EWP)*¹ and the *European Student Card*.²

¹ <https://www.erasmuswithoutpaper.eu>.

² <https://education.ec.europa.eu/levels/higher-education/european-student-card-initiative>.

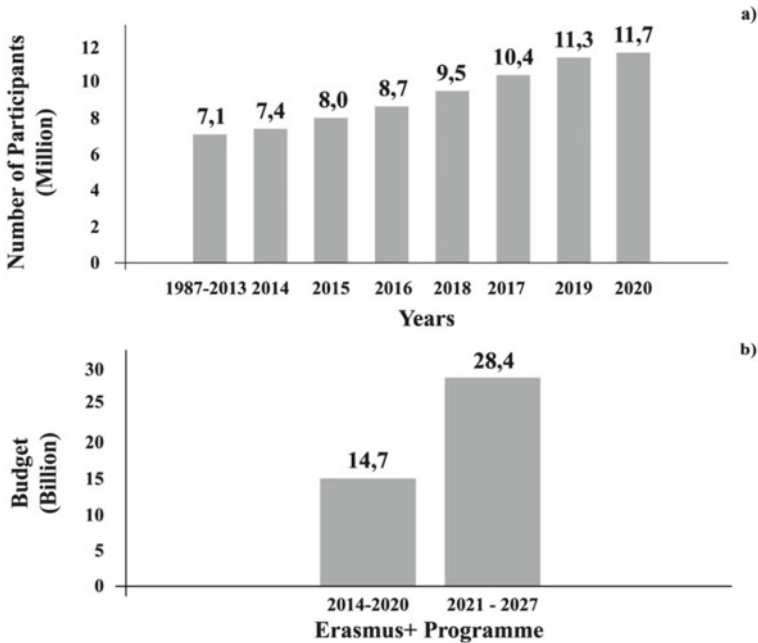


Fig. 23.1 **a** Erasmus mobility programme period 1987–2020, number of participants. *Source* Erasmus+ Annual report 2020. **b** Budget of Erasmus+ programmes. *Source* European Commission Erasmus+ Call 2021

Moreover, the *Erasmus+ App* allows students in mobility to identify themselves, access services connected to the Erasmus+ Programme such as the Online Learning Agreement, and manage all administrative steps related to their mobility period.

In the face of this significant effort for the *digital transformation* of Erasmus mobility and the internationalization of European HEIs, finding reliable and affordable accommodation is one of the main obstacles to student mobility (Kuzmane et al. 2017; Hauschildt et al. 2021). Complying with quality requirements and finding flexible rental conditions for students, particularly in the private market, is tangible challenges for those that decide to spend a period abroad for study or traineeship purposes.

Furthermore, with the Covid-19 pandemic, students’ preferences concerning accommodation changed significantly. The Erasmus Student Network’s 2020 survey with around 22,000 respondents and focusing on the impact of Covid-19 on mobility students shows that student accommodation has been one area with major issues, along with transportation and other basic needs (Gabriels and Benke-Aberg 2020).

In response to this framework, the HOME (Home of Mobile Europeans) project provides a digitalized infrastructure that integrates the search for accommodation with the European student mobility initiatives. Through this interface, mobility students can find more easily an accommodation, assess, and compare it through different groups of quality labels. Therefore, the project connects the

Fig. 23.2 HOME project's logo



different stakeholders that gravitate within the world of student accommodation: students, (HEIs), housing providers, markets intermediaries, governmental (GOs) and non-governmental organizations (NGOs).

The relevance of mobility digital services strongly rose during and after the pandemic. In this framework, the Erasmus+ App is a pivotal step forward. Furthermore, the future integration of the HOME project within the Erasmus+ App, and more in general, to the Erasmus+ Programme could represent a significant contribution at the European and potentially global level.

23.2 The HOME Project—Home of Mobile Europeans

HOME (Fig. 23.2) facilitates students in finding the most suitable accommodation to their preferences and guides the private and public housing providers in showcasing their online offers, highlighting their accommodation's features and strengths. The project is carried out by six partners from five EU countries, selected from six groups of relevant stakeholders: *Universities* (Politecnico di Milano), *European Foundations* (European University Foundation—EUF³), *International Students organizations* (Erasmus Student Network—ESN),⁴ *Accommodation Providers*, (Housing Anywhere⁵ and International Union of Property Owners—UIPI),⁶ and an experienced trainer (Confia International).⁷

HOME provides an univocal reading of private and public accommodation physical and digital characteristics pursues three main key objectives:

- a common understanding of student accommodation quality standards in Europe, defining how accessible and qualitative accommodation looks like;
- an univocal form of data collection, agreeing on how information about quality accommodation is compared and stored;
- defining how this information is accessed and shared between the various stakeholder, i.e., HEIs, students, market intermediaries, GOs, NGOs, etc.

³ <https://uni-foundation.eu>.

⁴ <https://www.esn.org>.

⁵ <https://housinganywhere.com>.

⁶ <https://www.uipi.com>.

⁷ <https://www.confiainternational.eu>.

The project develops:

- A set of European Student Accommodation Quality Labels (EAQLs) to increase the quality and transparency of information about student accommodation.
- A Digital Data Standard (DDS) to ensure that information about student accommodation is seamlessly shared at the European level;
- A public Application Programming Interface (API) that integrates with other EU initiatives for the digitization of HEIs;
- Seven multiplier events for the validation and dissemination of ESQs, DDSs, and API.
- A digital toolkit to share the HOME results and services with the industry and HEIs.

To achieve such objectives, HOME fosters four working groups (Fig. 23.3), five intellectual outputs (IOs), seven multiplier events (E), and four key results (Fig. 23.4).





WORKING GROUP	DESCRIPTION	MEMBER
Steering Committee	Responsible for supporting the IO leaders and monitoring of the overall progress and management of the project to ensure the timely delivery of the results.	
Quality Assurance Group	Responsible for monitoring the project progress and effective management, as well as the quality and the impact of the activities carried out within the consortium.	
Dissemination Group	In charge of the dissemination and communication strategy of the project to mainstream its results.	
Sustainability Group	In charge of ensuring the continuity of the project after the project lifetime through a thorough evaluation of resources needed.	

Fig. 23.3 HOME's working groups

IO	CONTENT	RESULT	LEADER
IO1	Research of (national) accommodation standards and establishment of European Student Accommodation Quality Labels.	R1 Student Accommodation Quality Labels	 <p>with the contribution</p>   
IO2	Map relevant data and various digital standards for student accommodation in Europe.	R2 Digital Data Standard for student accommodation and develops the HOME public API to ensure that data about accommodation is shared in a univocal and seamless way all over Europe.	
IO3	Create a major use-case for the API by integrating and displaying all quality accommodation of supported housing providers and intermediaries; Connecting HOME API to the Erasmus+App.	R3 HOME integrates with the Erasmus+App	
IO4	Set up an online competence centre on HOME website; Development of educational resources to be available on both homeproject.eu and the Erasmus+ App.	R4 Educational resources to make results freely accessible and easily replicable (IO4 & IO5). Indeed, HOME develops a Multiplier Toolkit for housing providers.	
IO5	Develop the HOME Multiplier Toolkit to help educating the industry and the HEIs about the HOME results.		

Fig. 23.4 HOME’s, IOs, contents, and results

23.3 Project Advancement

23.3.1 *The European Student Accommodation Quality Labels (IOI)*

The initial phase of the research focused on investigating national standards and practices in the student accommodation sector and the feasibility assessment of the ensuing labeling exercise. By analyzing national legal frameworks, an examination of minimum legal requirements for the private rental sector and, where existing, for student accommodation in the countries involved in the project—Belgium, France, Germany, Italy, Luxembourg, and the Netherlands—has been conducted. The information was mainly found on governments’ databases, official Ministries’ Web sites, and legal handbooks. In addition, to overcome language barriers in the research on some EU countries’ legal requirements, a questionnaire on national legal frameworks for the private rental sector has been designed and distributed within the UIPI network. The questionnaire aimed to build a clearer comparative picture of legal requirements for private accommodation while verifying the research outcome.

Subsequently, the second part of the research examined existing labels or assessment methods for student accommodation in Europe and related best practices, such as “Lokaviz label” in France.⁸ After screening, identifying, and evaluating all services, needs, and features that might be relevant for devising the labels, a set of six EAQLs have been designed to embrace three main factors: (1) be welcoming to an international target market; (2) be accessible to people with disabilities; (3) be univocal in terms of identification of the accommodation features. The EAQLs certify some of the most relevant quality aspects of the student accommodation: (1) international friendliness, (2) wheelchair-accessible, (3) room quality, (4) super-secure, (5) well-equipped, and (6) premium accommodation. Each label is identified through an icon, a criterion, and a list of indicators (Fig. 23.5). Each icon has a different number of indicators conceived to identify the specific needs of the students and associated with the defined criteria. The goal of providing the students with a selected, comprehensive, but not excessively detailed list of choices during their accommodation search guided the identification of this limited group of icons and indicators.

Through a bottom-up process, housing providers were involved in the EAQLs validation actively participating to multiplier events (E1 and E2), focus groups, and surveys.

⁸ https://www.lokaviz.fr/data/logement_etudiant_crous_charte_20120604_1.pdf.







LABEL	CRITERION	CHECK-LIST'S INDICATORS
 International Friendliness	Accommodation adequate to the needs of international students	<ul style="list-style-type: none"> ○ Wi-fi ○ Communication in English ○ Contract in English ○ Short-term contract available (min. 3 months) ○ Basic furniture ○ International guarantor allowed ○ Online booking available
 Wheelchair-accessible	Accommodation entirely accessible for persons with reduced mobility and/or using a wheelchair	<ul style="list-style-type: none"> ○ Accessible elevator (if not ground floor) ○ Accessible doors ○ Accessible WC ○ Accessible shower/bathtub ○ Possibility to adapt to individual needs
 Room quality	Room provided with all necessary furniture	<ul style="list-style-type: none"> ○ Single bed ○ Pillows ○ Bed linen ○ Bath towels ○ Desk and chair ○ Closet/drawers
 Super-secure	Accommodation providing above-average safety features including against fire accidents	<ul style="list-style-type: none"> ○ Lock on room door ○ Security (armoured) door ○ Surveillance of the building (either video or 24/7 concierge)
 Well-equipped	Well-equipped accommodation, displaying above-average household appliances (either kitchen appliances or laundry)	<ul style="list-style-type: none"> ○ Dishwasher ○ Oven ○ Microwave ○ Stove ○ Kitchenware ○ Washing machine ○ Iron ○ Iron board ○ Drying rack
 Premium accommodation	Accommodation providing exclusive features	<ul style="list-style-type: none"> ○ At least two of the following luxury facilities or services: gym, pool, game room, 24/7 concierge, cleaning services

Fig. 23.5 HOME’s European Accommodation Quality Labels (EAQLs)

23.3.2 Digital Data Standard (DDS) for Student Accommodation (IO2) and Public Application Programming Interface (API) Public (IO3)

A DDS for student housing-related data has been developed to achieve a univocal way of gathering and structuring the accommodation information of all European-wide housing providers and intermediaries. By making housing providers and intermediaries adhere to the created data standard, the HOME application can ensure the correct entitlement of EAQLs to the accommodations and smooth integration to the HOME interface.

A first version of the DDS has been created by mapping all the student housing data of sixteen large student housing providers or intermediaries across Europe. This process allowed identifying the most important and widespread data used within the student housing sector in Europe, which, together with the necessary data elements to identify and entitle the quality labels, formed the first version of this DDS. The student housing data have been delivered univocally according to the DDS. The project set up a structured database containing all the accommodation data from all connected housing providers and intermediaries. On top of this database, an API is created; it will enable applications within the Erasmus environment to pull the data from this database and use it to present the accommodations' information, including the EAQLs. All the elements within the HOME application are open-sourced, ensuring a wide future dissemination within the Erasmus environment.

Both private and public housing providers validate the DDS and the technical systems. To ensure that the technical system developed under IO2 is consistent with students' and housing providers' expectations, as well as the European Commission's requirements. The partners involved in that IO embarked on an informal *validation process* which consisted of consulting private housing providers and market intermediaries as well as public housing providers (i.e., universities with student accommodation facilities) on the validity of the DDS and the technical feasibility of the API requirements. HousingAnywhere and EUF have carried out this validation process. The former contacted six of Europe's largest private housing providers, and eight public universities across Europe and one national network of student service providers.

Currently, the vetting process results are being internally discussed, analyzed, and validated. The main purpose of this process focused on: ensure that the system is aligned with the reality of the student accommodation field and gather a qualitative first validation of IO2's technical results.

23.3.3 Multiplier Events (E) and Dissemination Activities

In 2020, the Multiplier Event E1 introduced the promotion of the EAQLs to 25 European stakeholders (Fig. 23.6). HOME was also presented during the Erasmus+ App major conference of March 2022 by EUF with the cooperation of ESN reaching 50 stakeholders in the field of international mobility in Europe. In 2021, the dissemination was scaled up using the first deliverables produced and focusing on the scope of HOME in light of the pandemic to connect with potential end-users and student housing representatives with a specific focus on IO1, while on Spring 2022 communications started focusing on the DDS under IO2.

In the HOME web site,⁹ which obtained 7,200 views, news items were produced concerning the project's key developments, events, and webinars. Moreover, to foster

⁹ <https://thehomeproject.eu/>.

EVENT	COUNTRY OF VENUE	EVENT TITLE
E1	Belgium	Quality Labels First Validation
E2	Online	Roundtable on Student Accommodation in Times of Covid-19
E3	Netherlands	Presenting the Student Accommodation Quality Labels, the European Student Accommodation Digital Standard & API
E4	Spain	HOME Pilot session
E5	Italy	HOME Multiplier event for students NGOs
E6	Italy	HOME Multiplier event for HEIs
E7	Italy	HOME Multiplier event for housing providers and market intermediaries

Fig. 23.6 HOME's project multiplier events

the visibility of the results of IO1 as well as comprehension of the quality labels a total of nine videos have been developed.

Dissemination activities include social media communication saw the launch of the first campaign on IO1's results, created and managed by ESN, creating one video per quality label, and launching it throughout the duration of a few months. The campaign reached 40,000 people, and recently, a second campaign was launched focusing on the DDS (IO2). Partners have also cooperated to apply to relevant conferences like EAIE on a yearly basis. The next conference will be hosted by the Politecnico di Milano where HOME project final results will be presented to about 60 European entities such as HEIs, students' representatives and NGOs, and housing providers.

23.4 Preliminary Results

The project's outreach activities reached around 50,000 stakeholders by webinars, multiplier events, and communication campaigns. As a result, key European stakeholders involved in student accommodation sector provide positive feedback and a high level of interest. HOME's outreach results are to be considered in the context of niche targeting communication to ensure that the involved stakeholders engage more actively with the project during its lifecycle and after it. Moreover, synergies with the Erasmus+ App team are being implemented to further boost the project integration beyond the engagement phase once the technical solutions will be fully functional. During outreach activities, one of the main challenges has been: translating the

technical project's contents into accessible information for a broad audience; summarizing the HOME's solutions clearly and accurately; upgrading HOME's solutions to the European student housing has already been achieved successfully.

The achieved preliminary results can be summarized as below: (1) Definition six targeted European Accommodation Quality Labels (EAQLs) to support and simplify the choice of online student accommodation; (2) The setup of the EAQLs; (3) Successful dissemination of the EAQLs; (4) First version of the Digital Data Standard (DDS); (5) Groundwork for the technical architecture needed to gather, store, and export housing data; (6) Validation of the DDS and a public Application Programming Interface (API) requirements by private and public student housing providers across Europe.

The consequent project activities will focus on integrating HOME's accommodation module interface with the Erasmus+ App, developing the educational materials and the multiplier toolkit for housing providers, universities, and students.

The Covid-19 pandemic strongly impacted the project's development. Due to the several emergency conditions in the countries involved in the project, all activities stopped for six months. Therefore, the HOME project has obtained an extension, and will be completed by the end of 2022.

23.5 Final Remarks

The HOME project is a preliminary attempt to identify, standardize, and systematize different aspects of European student mobility.

Based on the difficulties and challenges encountered during its development, the research has also allowed focusing on a knowledge overview of some critical aspects of temporary housing for students in Europe concerning accommodation adequacy. Nevertheless, an effective strategy to tackle this phenomenon at the European level still needs to be addressed.

Three factors are particularly evident:

- First, housing and habitability standards, provided by national building codes or health rules, vary substantially from one country to another. As a result, the housing sector is far from evenly regulated across Europe. Moreover, even fewer European Countries have specific regulations regarding student accommodation.
- The need to consider and define the quality of student accommodation in European university cities to help students find appropriate housing from a trustworthy source more systemically way is becoming fundamental. As mentioned in the Research Report from HousErasmus+ (Kuzman et al. 2017), some countries and cities have already created a quality standard to provide students with suitable accommodation. Centralizing a reliable and trustworthy supply on a public body's Web site would facilitate the flow of information. However, it would also require public policies developed by local authorities to monitor the prices and quality of the properties rented.

- In addition to the difficulties of integration with local languages and rental procedures or regulations in the countries of the Union, finding an understandable rental contract, also in English, might be complicated and untrustworthy for both parties involved, students and landlords. The lack of institutional support in administrative and legal aspects and the provision of a recognized international rent contract for mobile students' accommodation remains one of the most uncovered topics at the local and European levels. Intercultural awareness is an essential precondition for smooth integration and mutual growth in all the European countries involved in the Erasmus+ Programme.

The HOME project's experimentation and innovation contribution to the digitalization and standardization of advanced accommodation services in support of international mobility is just one of the possible examples of the *digital transition* to pursue the strategic objectives of the Erasmus+ Programme. Once operational, HOME will also contribute to achieving the following macro-strategic project goals:

1. Supporting dialogue between the HEIs and their users and connecting stakeholders which gravitate toward mobility and education at the European level.
2. Promoting a system of transnational accommodation where students can move easily for short periods and between different European institutions.
3. Fostering transparency and accessibility to quality accommodation by simply connecting the HOME interface within the Erasmus+ App, where all students' mobility activities are *digitally centralized*.

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