NewTREND
NEW Integrated Methodology and Tools for Retrofit Design Towards a Next Generation of ENergy Efficient and Sustainable Buildings and Districts

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NEW INTEGRATED METHODOLOGY AND TOOLS FOR RETROFIT DESIGN TOWARDS A NEXT GENERATION OF ENERGY EFFICIENT AND SUSTAINABLE BUILDINGS AND DISTRICTS

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DELIVERABLE D7.8: SHORT DESCRIPTION
This deliverable is a living document reporting on the activities of the Local Advisory Teams established in each of the NewTREND project countries, to ensure constant exchange of information between the project and target users.
Keywords: local; advisory; teams; feedback; working groups

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ABBREVIATIONS AND ACRONYMS

ACRONYM	DEFINITION
CDP	Collaboration and Design Platform
DM	Data Manager
EeB	Energy-efficient buildings
GA	Grant Agreement
IA	Innovation Action
LAT	Local Advisory Team
NewTREND	NEW integrated methodology and Tools for Retrofit design towards a next generation of ENergy efficient and sustainable buildings and Districts
TL	Technology Library
WP	Work Package

EXECUTIVE SUMMARY

The present deliverable documents the activities of the Local Advisory Teams (LATs).

A LAT is established in each NewTREND project country, under WP7 Dissemination and Exploitation activities, to ensure a robust exchange of information between target user groups and the NewTREND project.

The main tasks of a LAT are:

- to provide advice from the end user's point of view regarding the project results
- to support the organization of local dissemination events
- to act as multiplier and aggregation system for stakeholders
- to help the project results to reach the market
- to secure development of the project results beyond the project's lifetime

LATs are informal collective working groups established by leveraging previously existing networks, representative of all key target user groups, such as:

- Technical organizations
- Financial organizations
- Administration and policy makers
- Occupants

LAT meetings are held at key moments of the project life. This report is a living document collecting all information on LATs, such as the participants, the dates of the meetings, and the key outcomes.

1. INTRODUCTION

According to the NewTREND Dissemination Plan, the dissemination activities are targeted to the exchange of information between the target groups and the NewTREND project. WP7 activities enable the transfer of knowledge and know-how between the Target Groups and the NewTREND work packages.

Through several meetings, important market inputs are transferred into the NewTREND Project; at the same time, the collected knowledge of the project is transmitted to the local stakeholders that are the potential end users of the main NewTREND results.

To achieve this objective, in each country project partners form a Local Advisory Team (LAT), an informal working group formed by representatives of the target groups both from the public and private side. The LATs meet to assess and discuss the status of the project and offer advice. The intent is to ensure the development of project results that really meets the needs of the target groups by providing actionable feedback to the NewTREND consortium.

1.1. ROLE OF LATS

Project partners MUAS (Germany), ABUD (Hungary), UCC (Ireland), iiSBE Italia R&D (Italy), Sant Cugat (Spain) IES (United Kingdom), Go (Finland) have established LATs involving local target groups. LATs act as the link to the local market of the project partners and aim to provide professional support and monitoring for the project.

The LATs are formed by representatives of the target groups, i.e. the potential end users of the projects results, by introducing either expert knowledge or a market perspective. The combination of the experts, in principle, remains constant over the project period, with stakeholders covering the whole spectrum of the subjects addressed in NewTREND. Each LAT is led and moderated by a representative of the local PP. The local PP can also invite other experts to the meetings, according to the requirements of the current specific issues and questions. **LATs are informal, collective working groups**.

The target groups have been reached through existing networks and direct contacts within the different LATs, meetings and regional conferences. The LATs are potentially an important multiplier and shall act as aggregation system.

The main tasks of a LAT are:

- to provide advice from the end user's point of view regarding the project results
- to support the organization of local dissemination events
- to act as multiplier and aggregation system for stakeholders
- to help the project results to reach the market
- to secure development of the project results beyond the project's lifetime

1.2. SETTING UP A LAT

In principle, LATs are composed by a minimum of 8 members, two for each target group. The members of LATs have an advisory role only, and do not directly participate as members of the NewTREND Consortium.

The target groups are:

- Technical organizations
- Financial organizations
- Administration and policy makers
- Occupants

1.3. LATS MEETINGS

One LAT meeting shall take place at each critical stage of the project, and focus on a specific aspect as agreed by the NewTREND partners.

The WP7 Leader provides the agenda for the meeting and the necessary material (slides, documents, etc.) to support it, in accordance with other partners involved. A template for the minutes is also provided to guarantee homogeneous reporting.

PPs that organize the meeting (LAT leaders) deliver the minutes at most two weeks after the meeting. The minutes are collected to prepare the present living document, i.e. an overall report of the LATs meeting outcomes.

2. LOCAL ADVISORY TEAMS MEMBERS

The current breakdown of the LAT members by profile is shown in the graph below[1]. At the moment of writing 50 have been the total number of the participants to the 2nd LAT meeting. Pie chart below describes the distribution of members in their specific membership area and organisation.

The distribution in terms of "number of people for category to which they belong", it is so distributed:

- 30 members in Technical Organization/Professionals;
- 9 members in Administration/Policy Maker;
- 9 members in Financial;
- 2 members in Occupant.

Pie chart below describes the distribution percentage.

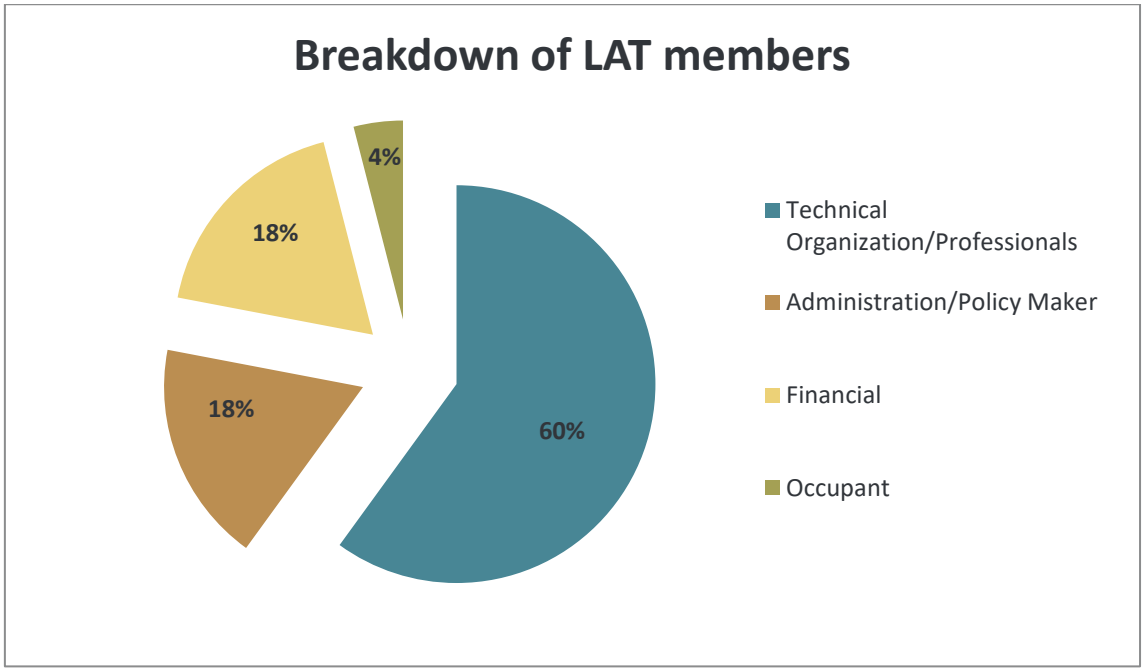

FIGURE 1: CURRENT LAT MEMBERS BREAKDOWN BY PROFILE

[1] Currently based on information from Finland, Spain, Germany, Hungary and Italy.

2.1. FINLAND

The Finnish Local Advisory Team is managed by Granlund, and includes participants from the Finnish Demo Site.

NAME	ORGANISATION
JAAKKO PELTONEN	The City of Seinäjoki
ANSSI PUSKA	Seinäjoki city
ANTTI ÅLANDER	Granlund Pohjanmaa
DAVOR STJELJA	Granlund Oy
KARI RINTAMÄKI	Granlund Pohjanmaa

TABLE 1: FINNISH 2ND LAT MEMBERS

2.2. GERMANY

The German Local Advisory Team is managed by MUAS.

NAME	ORGANISATION
MARIA-ANNA GRIGOROPOULOU	GEWOFAG Projektgesellschaft GmbH
WIE ZHOU	Intep
JONAS BIET	Ingenieurbüro Reichert
MATTHIAS HEINRICH	Technische Universität München
PAUL MITTERMEIER	MUAS
AHMED KHOJA	MUAS

TABLE 2: GERMAN 2ND LAT MEMBERS

2.3. HUNGARY

The Hungarian Local Advisory Team is managed by ABUD, and includes participants from the Hungarian Demo Site.

NAME	ORGANISATION
ISTVÁN HUNYADI	Municipality of the 18th district
LÓRÁNT VAJDA	Városgazda XVIII. Kerület Nonprofit Zrt. / 18th district City Management Non-profit Ltd.
DR. ANDRÁS SZÁNTHÓ	-
TIBOR FARKAS	Városgazda XVIII. Kerület Nonprofit Zrt. / 18th district City Management Non-profit Ltd.
ZOLTÁN SERFLEK	School district of outer Pest
PÉTER FARKAS	HunGEOD
ZSÓFIA MOLNÁR	Municipality of the 18th district
TÍMEA BAKSA	Municipality of the 18th district
ERZSÉBET PÉHL	Municipality of the 18th district
ESZTER MÁRTON	Mérték Studio
ÉVA JUHÁSZ BALDAVÁRINÉ	Bókay Árpád Primary School
ISTVÁNNÉ KRAJCZÁR	Bókay Árpád Primary School
IMRE MÓRICZ	Városgazda XVIII. Kerület Nonprofit Zrt./18th district City Management Non-profit Ltd.
ZSÓFIA DEME	ABUD
SZABINA VÁRNAGY	ABUD
MELINDA OROVA	ABUD
GABRIELLA DÓCI	ABUD

VIKTOR BUKOVSZKI	ABUD

TABLE 3: HUNGARIAN 2ND LAT MEMBERS

2.4. ITALY

The Italian Local Advisory Team is managed by iiSBE Italia R&D.

NAME	ORGANISATION
ANDREA PALEARI	"Studio Liveriero" Professional Organisation
MAURIZIO LANCINI	"Studio Valzelli" International Engineering Company
MATTEO TRAVERSO	"R&P Engineering S.R.L." Engineering Company
PAOLO SACCO	"RS Studio ing. Raina e Sacco" Engineering Company
ANDREA BONDI	"Collegio Costruttori Edili- ANCE Torino"
MAURIZIO MARCHIONNI	"M3PR Studio" Design Studio
GIUSEPPE MENTO	"M3PR Studio" Design Studio
GIOVANNI GINEPRO	"M3PR Studio" Design Studio
PAOLA BORGARO	iiSBE Italia
CLAUDIO CAPITANIO	iiSBE Italia
ANDREA MORO	iiSBE Italia
ELENA BAZZAN	iiSBE Italia

TABLE 4: ITALIAN 2ND LAT MEMBERS

2.5. SPAIN

The Spanish Local Advisory Team is managed by Sant Cugat, and includes participants from the Spanish Demo Site.

NAME	ORGANISATION
MANUEL BLASCO	Ecrowd!
VICTOR MARTINEZ	Ajuntament de SantCugat
CAROLINA CARBÓ	AMPA (Pins del Vallès school parents association)
FRANCESC ESTRADA	VEOLIA
JORDI RUBIO	7 Mar de la Xina tenant
EDUARD CALDERÓN	ENERGEA
FABIÁN REYNOLDS	PROMUSA
GERARD RIBA	Ajuntament de SantCugat
PAU ASENS	Ajuntament de SantCugat

TABLE 5: SPANISH 2ND LAT MEMBERS

2.6. UK / IRELAND

The UK/Ireland Local Advisory Team is managed by IES/UCC. No information about the definition of participants.

NAME	ORGANISATION
TBD	TBD

TABLE 6: UK/IRISH 2ND LAT MEMBERS

3. LAT MEETINGS

3.1. 2ND LAT MEETING

The first LAT was pioneer of the series of meetings set by NewTREND Project and for the organization of this second meeting has been taken into account the lesson learned during the first one. Taking advantage of the positive results in terms of feedback obtained from the first LAT, the 2nd LAT meeting was organized by Project Partners with greater awareness.

This LAT meetings was held at the end of the second year of the NewTREND Project, to obtain useful feedback from key stakeholders. 2nd LAT meeting was focused on three main aspects which have been agreed taking into account partners' needs about the feedback they wished to receive. Following, the main arguments summarized:

- The **IDM project phases**, the communication and participation models developed in WP2 –T2.6 asking the LAT for feedback in regard to the applicability of the IDM communication and participation models in the project based on the their experience and the **IDM manual** developed in T2.7;
- The **Technology Library** developed in WP4- T4.2, asking the LAT for survey on previous experience with technology libraries, for Technology update functionalities and for Links with other NewTRENDinfo;
- **Case Studies** presentation going through the three demo projects presentation showing general information about each of the three and asking the LAT participants suggestion about the level of occupant involvement into retrofitting project, the end-user satisfaction of current building, etc.

As for the first LAT, also in this case the overall presentation was managed by iiSBE IT R&D as LAT coordinator; specific material was requested to the partners involved in the aspects described before. In particular:

- MUAS has provided supporting documents about the results of Task 2.6 "Integrated retrofit design methodology" and about the IDM manual developed in D2.7;
- ABUD has provided supporting documents about the explanation, advantages and benefit of the activity about the application of the NewTREND methodology and tool in the pilot project and about Pilot project 1 in Hungary (name, site, general information, images, retrofit actions description, technologies description, synergies in the neighbourhood framework);
- GO has provided a supporting document about Pilot project 2 in Finland;
- SANT CUGAT has provided a supporting document about Pilot project 3 in Spain;
- STAM has provided a video presenting the Technology Library to make participants familiar with it;
- iiSBE IT R&D has provided a document with a brief description of the progress of the NewTREND Project and a supporting power point concerning the information on the LATs role and 2nd LATs specific objective.

All these supporting documents have been merged into one Power Point presentation which was used by partners as a common basis to lead the second LAT meeting.

A common agenda was developed based on the harmonised presentation, together with a minutes template, to ensure that all feedback was provided following the same structure across countries. The agenda and minutes template of the 2nd LAT meeting is provided in **Annex A**.

The 2nd LAT meeting was held mainly in the period between June and July 2017 while for MUAS was performed in November 2017; below the dates are showed.

COUNTRY	VENUE	DATE
FINLAND	Granlund Pohjanmaa – Seinäjoki office	02/06/2017
GERMANY	Dachauerstr. 100a, Munich	24/11/2017
HUNGARY	Képzéskoordinációs Iroda – Training Coordination Office (Budapest, Üllői st. 317.)	28/06/2017
ITALY	Environment Park, Torino	17/07/2017
SPAIN	City council, Ajuntament Sant Cugat del Vallès	13/07/2017
UK/IRELAND	TBD	TBD

TABLE 7: 2ND LAT MEETING DATES

In the following pages there are the public summary of the 2nd meeting reports collected so far from the NewTREND LATs.

3.1.1. FINLAND REPORT

The Finnish LAT was conducted before the production of the common Power Point for the presentation, for this reason some of the topics discussed differ from those common to everyone.

In particular, the Finnish LAT focused on two key aspects: the first is about results from the occupant survey obtained through the building user questionnaire and the second is the potential renewable energy retrofits in Seinäjoki Pilot site, in Finland.

Concerning the building user questionnaire on Seinäjoki pilot site, the slides that summarize the percentage of respondents man/woman to the interview, the age of the respondents, the organization to which they belong and their relative position, their degree of satisfaction in terms of comfort into the spaces of the pilot area, building surrounding condition and the condition of all the building envelope included doors, windows, facade, etc. have been shown.

Other questions were about the perception of safety into the spaces of the buildings, about the indoor air quality, temperature and internal/external adequacy of lighting level. The last part of the questionnaire was about the perception of noise condition in the buildings of the Finnish pilot area.

After the presentation several feedback were collected, participants complained a too high temperature in summer and too low in winter, several problems with humidity, bad smell from sewers and ventilation, indoor air quality bad, drafty windows and they proposed a more ergonomic furniture and that the interior design should be more interesting and more motivating.

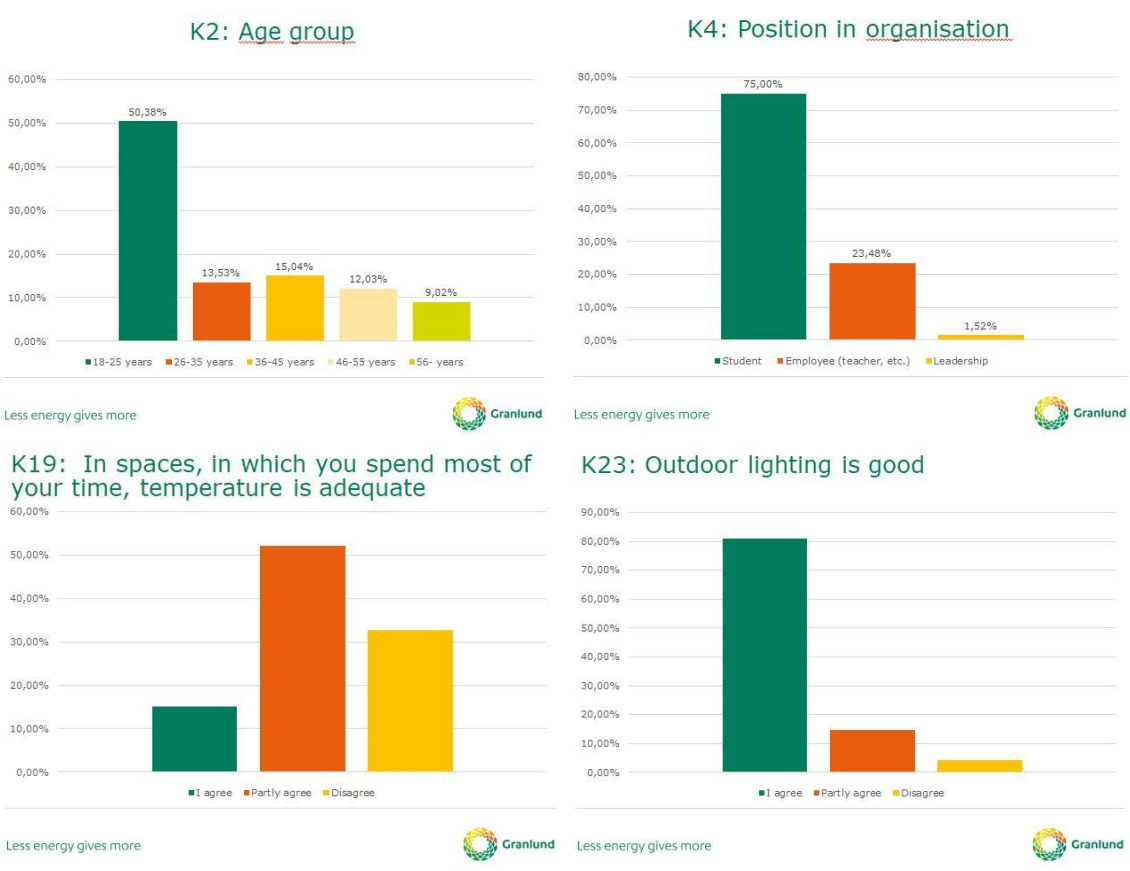

FIGURE 2 – USER QUESTIONNAIRES, RESULTS FROM THE OCCUPANT SURVEY

Next step involved the feasibility studies about retrofit simulations in the pilot area. Simulations concerning hypotheses of replacement of inner window have been shown, together with the installation of a HVAC system and the predisposition of 1200 m2 surface of solar PV panels for renewable energy production. Retrofit simulation also includes adding to the building an hybrid heating system (combination of ground-source heat pump and existing district heating network).

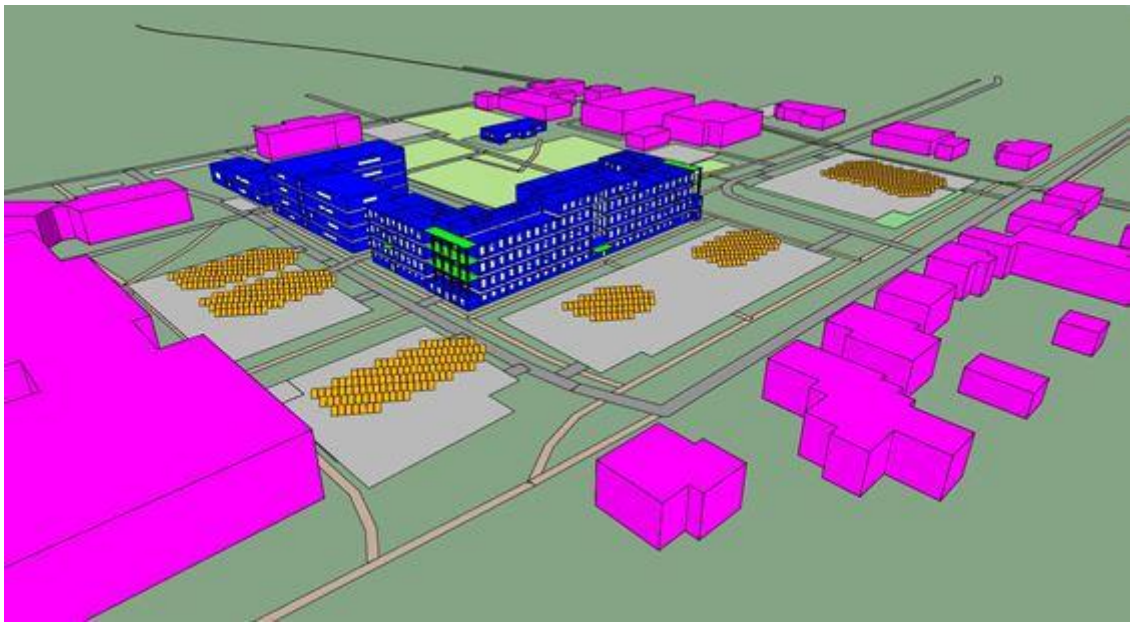

FIGURE 3 - RETROFIT SIMULATIONS IN THE PILOT AREA

During the LAT meeting was told that in the summer drillings in building structures are going to be made to assess their condition and as well check for possible thermal bridges.

About future measurements was told that in coming autumn/winter thermal measurements are going to be performed and further user feedback is going to be collected using advanced interactive methods (such as Granlund Pulse).

3.1.2. GERMANY REPORT

The German LAT was conducted by MUAS and started with the welcoming to the participants and a quick introduction to the project. The meeting participants introduced themselves accompanied with short presentation about meeting's agenda and the goals of the workshop.

After that were presented briefly the project scope and objectives of NewTREND, followed by a presentation of NewTREND Integrated Design Methodology in which the IDM phases and the corresponding communication and participation models and profiles developed in D2.6 were briefly described. Furthermore, the user manual developed in D2.7 and NewTREND technology library were presented in the meeting.

FIGURE 4 - 2ND GERMAN LAT MEETING

After the presentation, an open discussion between the participants took place. The LAT members considered the general scope and objectives of the project favourable. They identified as a main challenge of the NewTREND project the different languages in terms of technical and practical work between the different involved stakeholders in renovation projects. For example, architects think from the perspective of a building design while HVAC planners, electric planners or craftsmen have a more technical view. In practice, these different languages in real projects often do not fit together and can cause major issues if the coordination and communication is not efficient between the different stakeholders. Hence, the NewTREND project must overcome this gab by providing a useful methodology and toolset considering all of these requirements.

Concerning **NewTREND Integrated Design Methodology**, the construction site manager mentioned that the diagnosis phase in real projects is an iterative loop, as during the renovation project new information appear while the construction works progress. For example, after removing the ceiling covering or floor covering the HVAC systems and pipes only can be inspected, and added to the models, in a more detailed way. This allows to re-run the diagnosis phase in order to update the previous results with the new information. For the time frame the participants proposed to increase the estimated time frame for data collection for a single renovation project per building up at least to two month for simple buildings (residential) and up to 4 month for more complex buildings (e.g. non-residential). A Researcher of the University of Munich mentioned that using default values in the basic mode might be critical, as the

accuracy of the results on single building level needs to be ensured. He suggest having a solid validation of the basic mode results during the demo site testing within the NewTREND project.

The construction site manager emphasized the risk of old-fashioned companies not being able to use the NewTREND methodology and tools, as they may be to modern and complex for planners working still with traditional methods instead of BIM. To overcome this issue, he proposes to provide comprehensive training material and training lessons to users in order to avoid fears using the project results in practice. Concerning the **NewTREND IDM phases** the LAT experts expressed the wish to allow a later contextualization of the proposed phases with national standards like the HOAI in Germany. As the current approach is not fully in line with the German standard HOAI it might be hard to apply the full methodology in Germany. However, the LAT experts appreciated that the IDM must be applicable for the whole EU and contextualization may be done during the exploitation phase in each country.

In relation to the **Data Manager tool**, the project developer involved in the LAT meeting mentioned that, for the Gewofag housing company, which is managing 30.000 apartments in the City of Munich, no data about the energy demand of the buildings is available and can be analysed so far. Moreover, the availability of existing floor plans and building descriptions is poor and for less than 5% of the renovations available in an adequate and updated format and sufficient quality. However, Gewofag has a huge amount of building data scattered around in different departments (planning, facility management, portfolio management, financial administration) aspects like rental fees, energy billing, year of construction, rented building area, deterioration status, etc. Although this data is available Gewofag is not able to capitalize the data to derive valuable knowledge from it, as no big data analytic processes are available. Hence, in Gewofag renovation projects at the beginning detailed and cost-intensive expert opinions on the building current state have to be developed which are a seen as bottleneck for quick and efficient renovation. Moreover, due to their high cost and time effort they cannot be compiled for the whole building stock in a meaningful time.

FIGURE 5 - PARTICIPANTS TO THE GERMAN 2ND LAT MEETING

The participants also highlighted, that the data manager tool in housing companies may be used for portfolio management and for strategic decisions before sending experts for a detailed analysis in the building. Moreover, the LAT experts emphasized, that the data manager tool must allow coupling models from different subsection of the building. As most critical they consider the linkage of geometrical models with HVAC models and electric design models as the interfaces as in practice mostly not existing.

Another argument discussed was the **NewTREND Technology Library**, LAT participants appreciated the general approach and design of the NewTREND Technology Library. However, after detailed testing a lot of question emerged, in which way the library can be used in practice in planning and who exactly will be the main user. Especially the cost calculation was identified as very misleading in the current website of the library as it is not clearly stated which cost are calculated and to which units / quantities the displayed cost are referring. Moreover, some of the cost calculations show wrong units and it is not clear on what the units are representing (e.g. gross or net cost, cost as per €/ m2 or total cost in €, per m2 floor area, per component area, per PV panel area, etc.?). Furthermore, the budget filter should be linked to the real building geometries derived from the BIM model to show valuable results of the building renovation cost instead of only operating a multiplication by total floor area. Hence, the participants stressed that NewTREND Technology Library must be reviewed in terms of operability and displayed units / calculations. Moreover, more hints on how to use the library website should be included like mouser-overs or help buttons and the use of abbreviation or acronyms like “RES” instead of “Renewable Energy Systems” should be better explained or replaced. As user manual would be very helpful as well. Finally it was highlighted, that the type of building in the library may not be useful, as it currently is not implying any filters and therefore has no result.

FIGURE 6 - PARTICIPANTS TO THE GERMAN 2ND LAT MEETING

Concerning the **occupant engagement**, the LAT experts see the most important part of the occupants involvement during the early design and the post-occupancy phase. Especially after renovation measures are finished in Gewofag projects occupants often misuse the new installed technologies like ventilation systems. For example, they open the windows during the heating season for the whole day although the

ventilation system with heat recovery is running. Hence, the participants greeted the NewTREND methods for occupants involvement and the strategies to avoid misuse of new technologies by occupants.

Finally, some general comments emerged; the LAT members highlighted, that the NewTREND approach may also be extended for including further GIS data beside building models like district heating pipes, sewage channels in order to allow a more complete planning and visualization in the neighbourhood. Moreover, it was mentioned that public authorities in Germany in the most cases are not working digital but still analogue data (e.g. submission of forms). The too slowly progressing digitalization in the public administration may be an obstacle for the NewTREND approach as these stakeholders may not be able to fully use the new technologies as they are still depending on analogue processes.

3.1.3. HUNGARY REPORT

The goal of the meeting was to receive feedback on the applicability of NewTREND approach and components to retrofitting praxis of Hungary, and to raise awareness across a wide cross-section of stakeholders – as potential users.

The LAT meeting was introduced by a brief overview of the entire project, than it is followed a presentation of the integrated design methodology, the display of the Technology Library video, and after the presentation of the three demo sites, with a focus on Bókay School. Segments of discussion were injected for each subtopic of the agenda.

FIGURE 7 – 2ND HUNGARIAN LAT MEETING

Talking about the **Integrated Retrofit Design Methodology**, many of the participants say that the district approach is relevant for billion HUF scale projects. They say that there is a higher chance of district-scale interventions when either the ownership, management or retrofitting responsibility is shared. For example: school districts, municipally owned buildings, estates.

Many retrofitting projects are co-funded or funded through grants and other external incentives. These schemes give clear requirements regarding the interventions and the indicators, leaving asset managers with choosing the technologies accordingly, and to measure only the data required to define said indicators. This has implications for the attitudes towards previously uncommon practices like deeper stakeholder involvement throughout the lifecycle and advanced, continuous monitoring and modelling of key performance indicators which are part of the key value propositions of NewTREND.

Urban management bodies are generally positive and curious, but they cannot communicate the benefits of using these practises. When faced with the question, is this feature or that functionality a promising idea, there is usually agreement, but nothing more. When asked when could this feature/functionality be applied, the response is: for larger projects only. This attitude, coupled with the fact that a grant-based development prescripts their use might give us the false picture of what practises are really absorbed into Hungarian retrofitting.

Urban management operates under strict budget, and activities like harvesting more data and opening up the development process have values under the radar. As their benefits are seen as externalities, they are acknowledged and strived for, but the municipality "will not pay for it". In EU funded projects, the approach is different. With sufficient intensity of support, any activity can become "feasible" – pseudo-feasible in a sense that the local government does not lose money on it. This became clear when looking at the phases of IDM: all invited parties unanimously agreed that there is little effort for measuring performance and stakeholder involvement in the post-intervention period. However, they also agreed that there should be.

The organizer of the Hungarian LAT asks to the participants their thought about **NewTREND modes** and all the reply agree about the fact that advanced and premium modes are only an extra cost and Hungarian public building / district retrofitting projects only need to comply to regulations, for which basic mode is enough. The responses suggest that the benefits of more detailed modes at municipality level are unclear.

Concerning the **IDM structure**, architects agree with the fact that many retrofitting projects are co-funded or funded through grants and other external incentives, an extra phase for competing for grants, fundraising would be useful. The point of view of the urban management is that a retrofitting of a building means that the lifestyle must adapt to the changing environment as well, which needs to be curated, NewTREND is expected to be the tool providing know-how for educating users for their occupancy, however, it is an extra cost, and the municipality would not pay for it.

So the final question is: in which stakeholder can we find/plant an interest to curate inhabitants? There is no clear party bearing responsibility for post-intervention phases.

Communication and participation methods are explained by the moderator, questions arising from the topic are about the extent of participation offered by NewTREND tools, involving users in the design process and about the utility of the online tools. There are differing perceptions about the extent of participation currently, which suggests that there is an asymmetry of information flow among the stakeholders. The values of involvement are acknowledged, so the expectations from NewTREND is to strengthen dialogue.

Moving on to the topic of the **IDM Manual**, moderator asks to the participants if they have used or they would use a similar manual for actual project. For urban management the manual could be useful for a new next project while school teacher says language barrier is an issue and it could be used to educate children on sustainable living. Teachers had in fact the idea to use the IDM manual to teach sustainable living for their pupils – making them potential post-occupancy personnel for refurbishment projects. It is clear, that involvement throughout the lifecycle is not something that a municipality can easily plan its budget for, but it is not necessarily a problem. There is an unnamed stakeholder group similar to the teachers in every retrofit project who have personal interest in carrying out participation measures. Arming them with the material that they understand, and they can disseminate could become one of the edges NewTREND can gain.

This is an interesting opportunity: stakeholders with a sense of environmental responsibility could be recruited for the critical post-intervention phases to curate the change of behavior mentioned earlier. This means a distinct project profile could be added to NewTREND covering them.

Concerning feedback on the functions of the **Technology Library**, judging from the responses the experts expect more sophisticated, data analytic tools; the municipality does not want it to be a one-time static database, while the users did not reply anything at all.

Both the integrated design methodology and the technical library reverberated in a single target group: urban management. The technical language renders the library hardly usable for non-expert users. Designers during the session suggested reporting, comparing, collecting functions. It is true that so far, the only database related functionality the library offers are filtering, and linking solutions database to cases database. Without any further analytic features, the library will only be a list, competing with open-source solutions databases that also focuses on solution application. On the other end, users have different language, different terms and criteria.

They do not discuss the thermal performance with the terminology, the KPIs, or the technologies presented by NewTREND, but through everyday problems and use-cases. The library suits decision makers, who need quick, easy-to-digest information about the usual suspects of the market.

FIGURE 8 – PARTICIPANTS TO THE HUNGARIAN 2ND LAT MEETING

Going to the final arguments of the LAT, that are the **Case studies of the pilot project areas**, moderator asks if case studies are useful and representative and in particular if Bókay School is typical for Hungarian retrofit projects.

From the point of view of the urban management heritage protection is common for public buildings and retrofit processes are similar, meaning the project is representative. School teachers say that there are values in the place which are not protected by law, yet acknowledged by users, they must be protected as well. For them, the staff is not sufficiently involved in decision making and more information is needed on scheduling of the construction. On the contrary school district disagrees with teachers: he says that they survey tasks to be done with priorities, which they build into their plans, they will receive technical responsibilities and they will manage buildings.

Stakeholder communication during the retrofitting is not really developed and stakeholders for the duration of retrofitting leaving the rights and responsibilities of some parties unclear. This became evident

as the workshop briefly turned into an impromptu town hall, with the teachers asking questions from the urban management. Regarding decision making, the teachers felt that their staff is often presented with facts, rather than questions, to which the School district objected. According to their representative, several surveys are regularly conducted among the staff, which delineates tasks with priorities. The higher priority tasks have budget allocated to them, but lower priority items are often delayed also, the processing of the surveys is closed, contributing to a perception that decision making is top-down – although by that, the School district unintentionally confirmed that it is. The teachers were eager to share their comfort related experience to designers, as the current practise uses higher level bodies as intermediaries. On a separate occasion, when discussion the applicability of laser-scanning, the urban management team noted that it is very expensive, and only billion HUF projects can afford it.

After the formal workshop however, the representative of the surveyor company mentioned that there is a false perception of laser-scanning costs. These experiences mean that stakeholders across the project do not have the interfaces to share their information and/or resources which hinders perceived and real involvement, and delays innovation.

During the final discussion on NewTREND Project evaluation, following aspects have come to light as weaknesses and missing parts:

- From urban management: choosing a technical solution does not necessarily come from considering requirements for the project, but the limitations of strict grant technical prescriptions.
- From urban management: grants also make certain activities feasible, which are otherwise not. With sufficient intensity of support, any activity can become “feasible” – pseudo-feasible in a sense that the local government does not lose money on it. These activities do not carry on beyond the project scope of the grant.
- From architect/users: the technical indicators do not necessarily overlap with user satisfaction, and they are expressed differently, which might result in a communication barrier.

Judging from the meeting, NewTREND can gain potential edge on the market by building on its strength: the overcoming the communication gap among stakeholders. On the other hand, in the Hungarian context, the heavy reliance on grants to finance retrofit projects limit the applicability of participation measures, promotes prescriptive measures and solutions instead of performance ones.

In conclusion, the LAT workshop pointed at benefit communication as a major challenge for all NewTREND components to overcome. To promote the novel communication and participation methods, as well as techniques of data gathering and collaborative work, NewTREND needs to address asymmetric information flows. The solutions must carry benefits defined by their manufacturers, they must respond to technical problems acknowledged by urban management, and be translated to day-to-day problems encountered by users.

3.1.4. ITALY REPORT

The meeting opened with an overview of the NewTREND project, progress and main achievements of the project were presented as well. The Integrated Design Methodology and the software tools supporting it were shortly described during the opening session. The moderator highlighted the IDM "participatory approach", aimed at ensuring stakeholders and end-user engagement in all the phases of neighbourhood scale retrofitting projects.

During the LAT meeting many interesting aspects emerged and participants discussed on which might be the strengths and weaknesses of NewTREND methodology and tools in relation to the main features that normally occur in the restructuring projects they are currently operating on. All participants agreed that the NewTREND system can play a key role in spreading in Italy a more targeted approach to find the most effective solutions in retrofitting projects with regard to energy and cost efficiency and overall sustainability performance.

Participants highlight, in particular, the role that NewTREND tools can play in managing the financial aspects of a retrofitting project because they help to define cost-effective financial plans and reliable cost-benefit analyzes.

FIGURE 9 – 2ND ITALIAN LAT MEETING

One of the first topic discussed was the **Integrated Retrofit Design Methodology.** An overview of the Integrated Design Methodology (IDM) is presented, the moderator highlights the main innovative features of the IDM approach and then asks a first question to the participants about a possible future of the IDM in their concrete professional context. Many participants claimed that there is a "cultural" shortage in Italy if compared with the participatory approach underlying the IDM methodology. Only in some cases the project manager "role" is present and communication among the various stakeholders involved is often lacking.

A professional from an architecture studio, involved in different retrofitting projects, claims that in his experience rarely a single project manager follows all the development phases of the retrofitting project.

The situation is more critical if, for a commercial building with a single owner, there are several tenants: in every step of the project the approach is different because there are different management styles and cultures and it is more and more difficult to identify a single project manager.

A designer illustrates a case on which his company is currently working on: the owner is a real estate fund with five different tenants. Each tenant wanted to install a different automatic control system. The moderator reiterates that the NewTREND model works effectively if there is one owner, one process manager and all the involved stakeholders acting synergistically.

A work director of an engineering company points out that the methodology and tools provided by NewTREND can be really useful to support the process manager to bring together all actors involved in the retrofitting process to achieve a shared economic goal by improving building energy efficiency. In his opinion it is mainly applicable to large customers because it makes clear the economic gains mostly if you have complex and large projects.

More participants point out that the IDM methodology includes a "Handover and Close Out Phase" which is crucial for handing over the project to the end user. In Italy this aspect is often considered secondary, while it is really important to ensure a good in-use phase. A technician from a great design studio, who currently is working on renovation projects of shopping malls, points out that many aspects of NewTREND IDM methodology are related to the Protocollo ITACA pre-evaluation phase (editor's note: Protocollo ITACA is the Italian National public assessment system). The moderator confirms the possibility of linking the Protocollo ITACA to the NewTREND system, indicators could be included in the NewTREND software. Then the performance targets must be fixed and, by using the NewTREND simulation software, you can create and then compare various scenarios and decide which scenario best meets your requirements.

The "in-use" phase is crucial to optimize building performance, the designer claims that the critical issues emerging during the in-use phase are even more evident for large shopping malls, where you can have several owners or a single owner with several tenants. In both cases, each tenant/owner has different "'in-use" approaches. A shared manager for the in-use phase would be necessary: he should monitor the consumption of the different tenants to identify critical aspects and enforce rules. It would be desirable to define a regulation that should be used to ensure that the different tenants behave consistently with the energy performances envisaged during the design phase. The Constructors Association representatives opens a discussion about the size and type of buildings suitable to apply the NewTREND system. He argues that it seems difficult to apply these tools to a small-medium residential building. It seems more suitable when you need to make non-ordinary retrofitting works and it can be very useful for commercial or office buildings. Large-scale interventions justify cost and commitment that seem remarkable if you have to use the NewTREND system. The Constructors Association representatives states that in his professional experience, to use just a single part/component of the NewTREND system can be more useful: for example, only the component that verifies the economic savings associated with the application of a particular technology. In this case, a developer can use this tool to analyse the different scenarios for a retrofitting project and to have the resulting business plan. He claims that the NewTREND tools may also be useful to set up a financing plan to apply to a bank.

The analysis carried out through the NewTREND system provides to the bank concrete and reliable data to fund the project. The designer states that from this point of view, the NewTREND system could have a great added value because it not only generates energy savings, but also allows tax relief or economic incentives from the public bodies. So the higher costs incurred by using the system could be covered by financial incentives.

A professional from an engineering company claims that the use of the NewTREND system should be made mandatory in Italy. This would help to spread an integrated design approach based on BIM and would stimulate the development of the most effective energy retrofitting solutions. More in general, all the participants appreciated the importance given in the IDM methodology to the role of end-users and a large number of questions were asked about the two "handover and close out" and "in-use" phases, which the participants consider crucial to ensure the effectiveness of the implemented energy retrofitting solutions.

Manual describing the developed of the collaborative design system was the next topic; moderator describes an overview of the IDM Manual and of the various sections composing it. The hands-on test of the interactive PDF manual follows. During the presentation participants ask lot of questions to better understand the use of the manual, they express a positive opinion on the usefulness and easiness of using the IDM Manual. However they feel that a more thorough examination is needed to express themselves on parts to be improved or to be included.

Concerning the aspect of the **energy-saving on building management**, a design company technician points out that in Italy there are still few examples having this energy-saving focus. For him, consumption needs to be monitored and users must be made aware of the impact of their behaviours. This applies to both residential buildings and commercial buildings (offices and retail). A professional from an engineering company describes its experience related to the negative attitude of entrepreneurs towards energy saving: until 2015 there was in Italy a law obligation to analyse the production processes energy consumption.

Even when the analysis showed great energetic inefficiencies that could be easily solved, the entrepreneur refused to intervene to improve energy performance in production processes.

FIGURE 10 – 2ND ITALIAN LAT MEETING, PRESENTATION OF RETROFITTING SOLUTION

The moderator points out that it is important to perform “dynamic” energy simulations. In the NewTREND system the simulations are made in dynamic mode. Normally the calculations made during the design phase are "rough". DG Energy is standing on a dynamic simulation based regulation.

The other important topic of the 2nd LAT meeting was related to the **Technology Library** and the video on it was showed.

The participants agreed that such a tool can definitely be useful in defining the different scenarios, also providing precise information on the costs associated with the different technology solutions. The innovative technologies showed by the NewTREND Library and the comparison at European level, were considered by many of the participants the most significant elements of this tool. Lot of them suggested to include information about the environmental impact of the products. During this session many participants raised numerous issues regarding data exchange and software interoperability and asked lot of questions regarding the interface for data exchange between the Technology Library and other NewTREND software components (BIM, simulation, etc.).

The design studio representative claims that such a tool can definitely be useful in defining the different scenarios, also providing precise information on the costs associated with the different technology solutions. The representative of the engineering company states that is probably the developer to get the most benefit from using this tool. Some participants do not agree because the designer also takes advantage of the Technology Library. Many participants ask for further explanations about the interface for data exchange between the Technology Library and other NewTREND components (BIM, simulation software, etc.). The representative of an engineering company asks if information about the environmental impact of the products is included in the Technology Library. The moderator states that this information is partially included at present and it will be further enhanced in the future. Many participants agree on the importance to have this information on environmental impact included into the Technology Library.

The innovative technologies showed by the NewTREND Library and the comparison at European level are considered by many of the participants the most significant elements of this tool.

Last session of the meeting was dedicated to the three **Case Studies** carried out in NewTREND in pilot project areas. Participants asked a number of technical and procedural questions and made many comments about the pilot projects described.

Moderator presents briefly what are the advantages and benefits of applying the NewTREND methodology in the pilot projects and illustrates what is offered and what is required for case studies. Each case study is then described in detail; participants ask a number of technical questions about the retrofitting measures adopted and the technologies applied. In some cases, the participants critically make comment on the insulation performance and the thermal transmittance values of some buildings when compared with the construction year of the building itself. The procedural aspects of refurbishment, as well as the role of stakeholders and the relationship between public and private in building management are also of great interest.

FIGURE 11 – 2ND ITALIAN LAT MEETING, PRESENTATION OF THE CASE STUDIES

During the final discussion have been brought to light some final considerations both in terms of strengths for the project and weaknesses.

Some participants in fact expressed doubts about the applicability of NewTREND software in small retrofitting projects: it seems to be more suitable for large-scale retrofitting works. However, they stated that they would be interested in "customized" versions that would also be applied to small-scale building retrofitting projects.

Others believe that in Italy the NewTREND methodology should be made mandatory at least in public building retrofitting interventions because this would contribute to increase and spread out the “culture” and awareness about the energy efficiency issues. This lack of awareness concerns many different actors involved in the process: professionals, decision makers, private entrepreneurs, end users. During the hands-on test of the interactive PDF manual on the IDM methodology many participants expressed a positive opinion on its usefulness and clearness.

3.1.5. SPAIN REPORT

People attending the meeting were all different from those of the previous LAT and it is important to underline the presence among the participants of an end user, whose comments are very important at this stage of the project. The 2nd LAT meeting was introduced by a complete overview of the entire project because some of the participants did not know very well NewTREND Project, followed by a presentation of the integrated design methodology. Then the moderator showed the Technology Library video and after that most of the conversation was about the Case Studies.

In fact, particular attention was given to the Case Studies analysis with a special focus on 7 Mar de la Xina Street, Pins del Vallès School and on two private houses in Les Planes neighbourhood, the Spanish Case Studies.

Segments of discussion were injected for each subtopic of the agenda. The goal of the meeting was to receive feedback on the applicability of NewTREND approach and components to retrofitting praxis of Spain, and to raise awareness across a wide cross-section of stakeholders, as potential users.

FIGURE 12 – 2ND SPANISH LAT MEETING

Concerning the **Integrated Retrofit Design Methodology** several feedbacks were collected in relation to the program and the retrofit process. The responsible for energy management and the responsible for urbanization and management of buildings, in relation to the different options/proposals to the possible actions, they ask what weight the program gives to each concept and if it is possible to modify this weight of each concept. The commercial Director says that it's important that the process can be done at the district level in order to ensure the participation of the whole neighbourhood and of the end users.

From the point of view of the Director Division Buildings, it is very interesting that there is a financial part in the program and he thinks it would give him added value. Some problem of participation and little commitment on the part of their occupants/users, are highlighted by an end user of the neighbour of 7 Mar de la Xina Street but he considers that this tool could help in this aspect.

A civil Engineer adds some practical consideration concerning the fact that usually, it is considered that the buildings are symmetrical, namely, it is assumed that all the façades have the same characteristics when it could be the case that they were different according to their orientation.

In relation to the **three modes of NewTREND (basic, advanced & premium)** the civil engineer emphasizes an important aspect related to the BIM approach, she thinks that it will be difficult to make a BIM of the buildings if it is not obligatory normatively because supposes an extra cost to the projects.

At this point, speaking of the expenditure, a new topic appears: the Director Division Buildings underlines that the return on investment in energy rehabilitation projects are very bad and unattractive. This is because calculations do not take into account the revaluation of the building when it improves its efficiency after rehabilitation. It is necessary to consider that the buildings are an asset that is depreciating over time and rehabilitation gives it value. The responsible for urbanization and management of buildings totally agrees with the previous opinion. Set as an example the installation of an elevator in a building, this action in fact does not give an economic return, but it increases the value of the property. In the opinion of the Director Division Buildings and of the civil engineer the environmental awareness is currently the only way to motivate performing energy improvements actions.

Returning to the subject of the three modes, the responsible for urbanization and management of buildings thinks it will be difficult for elderly people to get involved in participating in the platform. Director Division Buildings agrees with him and says it is true, but fortunately every time people are more technologically prepared.

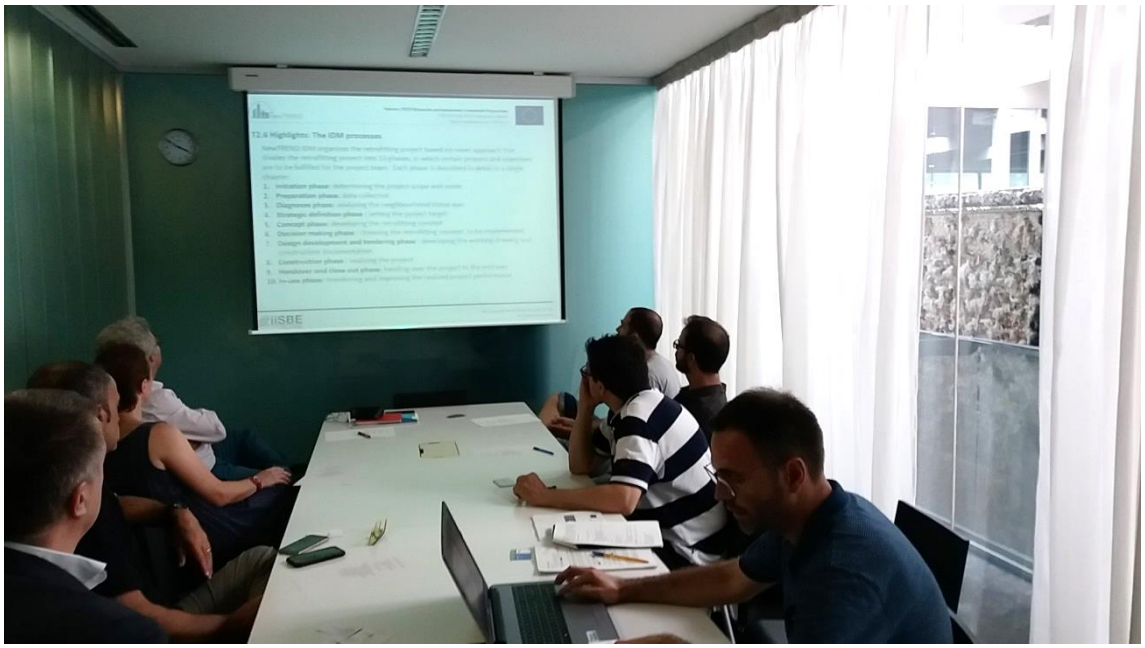

FIGURE 13 – 2ND SPANISH LAT MEETING PRESENTATION

Technology Library was widely debated and in relation to that the responsible for urbanization and management of buildings says that sometimes it is complicated to know the characteristics of the façade (the library gives you possibilities according to the year of construction).

More in general they all agree about the importance and the utility to have this library always up to date and this can be the key to the success and operation of the program.

The responsible for energy management says that he knows other similar libraries with whom he has worked. They have its strong and weak points, but the problem is that sometimes he has to work with more than one library at the same time, so the suggestion is that there would be necessary to have a single software with only one library that contained everything.

The last part of the meeting focused on three **Case Studies.** General comments coming from the participants are about the importance to apply passive improvement measures to model buildings.

While, in relation to the Spanish pilot areas, the end user's point of view was strongly taken into account (the end user comes from the neighbour of 7 Mar de la Xina Street). In fact, he has given interesting feedback on the performance of the buildings and consequently, relevant suggestions in order to improve the situation of the buildings. He says that he illumination of common spaces through detectors currently does not work properly and predicting modifications in this aspect can be positive. While the civil engineer of the Pins del Vallès School proposes to put awnings on the sunniest façade. It is a cheap, not energy expenditure and very effective solution.

4. UPCOMING ACTIVITIES

4.1. NEXT MEETINGS

According to the Application Form of the Project, another one LAT is expected in 2018, which should be the last scheduled and probably the most important because of the arguments that will be treated but, during the project meeting held in Ancona (Italy) in September 2017, the need to conduct a further LAT before the one of the end of the project was underlined by partners. The optimal period to conduct this additional LAT will be June-July 2018, since the NewTREND software will be up and running by this date. The usefulness of this additional LAT will be in fact the potentiality of receiving feedback on the working and operation of the implemented platform.

The emerged idea is to match a part of the training activity envisaged by the project, with the third LAT; this could be in fact the ideal opportunity to explain to the decision makers and to the professionals the functioning of the software, giving them the opportunity to experience the potential and eventually highlight the critical aspects of NewTREND software. After this frontal lesson, carried out by technical representatives of the different parts that make up the software, will follow a fixed term access to the platform, with expiring credentials, to use the software. Subsequently, it will occur a period of collection of comments and perplexities related to the operation of the platform.

All the comments that will flow from this experimentation activity will be the subject of the last LAT, the fourth, at the end of the project to be held in August 2018. In this occasion the considerations received from the stakeholders will be analysed and it will be also a crucial moment of the project to share the results and for dissemination of the achievement.

4.2. POSSIBLE TOPICS

As said before, the third LAT meeting will be directly connected with the training activity so the main topic of this LAT will be the functioning of the NewTREND software.

The fourth LAT, that is the last one, will allow to display certainly the results of NewTREND Project but it will be also the occasion to receive final comments, proposals, ideas on the work carried out and to discuss all the comments emerged from the experimentation activity.

Some other hypothesis about the topics to be discussed during the last LAT meeting are:

- Collaborative Design Platform functionalities;
- Validation of the NewTREND methodology and tools in the three refurbishment projects (Hungary, Spain, Finland);
- Feedback about the refurbishment projects in Hungary, Spain and Finland;
- Operation of the NewTREND Platform;
- Useful comments to improve any aspect developed in NewTREND Project.

If the participants of the LATs have been the same for all the fourth meetings, it will be very interesting to receive their feedback just because they are aware of the whole process of the project and of all the advancements occurred during this period.

4.3. LAT REPORT UPDATE

The current report is a living document as the one that preceded it, which will be updated continuously throughout the project life as new LAT meetings are held. In particular another formal update moments is expected:

- M36: D7.9 Final report on LATs activities

It will be the last Report on LATs activities and it will contain the report of the third and fourth LAT meeting.

ACKNOWLEDGEMENTS

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ANNEX A: 2ND LAT MEETING MINUTES TEMPLATE

COUNTRY*:

ORGANIZER*:

DATE*:

VENUE*:

PARTICIPANTS:

Name*	Organization*	Profile	e-mail

TOPICS*:

- NewTREND tools feedback about the **Integrated Retrofit Design Methodology** and relative **Manual** describing the conduct of the developed collaborative design system
- NewTREND feedback about the development of the **Technology Library**
- **Case Studies** in NewTREND Project, consideration about advantages and benefit of applying the NewTREND methodology in the pilot project

AGENDA [TOTAL TIME 3:30 HOURS]:

- **1:30 h: 1ST PART** - Retrofitting & NewTREND workshop
  - 10 mins: Welcome, introduction (tour de table)
  - 20 mins: Introductory session and developments of the project
  - 60 mins: Integrated Retrofit Design Methodology and IDM Manual

- **1:30 h: 2ND PART** - Retrofitting & NewTREND workshop
  - 45 mins: Technology Library development
  - 45 mins: Case Studies in NewTREND Project

SUMMARY OF MEETING*:

* All fields marked with an asterisk will be made public

Ca 500 words / 1 page

[describe various parts and steps, general comments; use narrative prose, not bullet lists; anonymise participants if needed to present feedback and thoughts; summarise specific sw feedback and remove confidential information if any]

SPECIFIC FEEDBACK

INTEGRATED RETROFIT DESIGN METHODOLOGY

Add information

If you want you can insert a sub-chapter (Questions to LAT)

Add information

MANUAL DESCRIBING THE CONDUCT OF THE DEVELOPED COLLABORATIVE DESIGN SYSTEM

Add information

If you want you can insert a Sub-chapter (Questions to LAT)

Add information

TECHNOLOGY LIBRARY

Add information

If you want you can insert a Sub-chapter (Questions to LAT)

Add information

CASE STUDIES

Add information

If you want you can insert a Sub-chapter (Questions to LAT)

Add information