



D6.1.b

Knowledge sharing activities in Bolzano and Innsbruck

Summary of knowledge sharing activities within SINFONIA

SINFONIA

“Smart INitiative of cities Fully cOmmitted to iNvest In Advanced
large-scaled energy”

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List of abbreviations

ACC	Agenzia Casa Clima
BOZ	City of Bolzano
CEN	European Committee for Standardization
DH/C	District heating/cooling
DoW	Description of Work
EURAC	European Academy of Bozen/Bolzano
G!E	Greenovate!Europe
IEP	Innsbrucker Energieentwicklungsplan
IIG	Innsbrucker Immobilien Gesellschaft
IKB	Innsbrucker Kommunalbetriebe
IPES	Istituto per l'Edilizia Sociale
KPC	Kommunalkredit Public Consulting
MAG IBK	Magistrat Innsbruck
NHT	Neue Heimat Tirol
PHI	Passive House Institute
PMB	Project Management Board
SAT	Standortagentur Tirol
SEL	Società elettrica altoatesina SpA
SME	Small and medium enterprises
TC	Technical Committee
TIGAS	TIGAS Erdgas Tirol GmbH
TIWAG	Tiroler Wasserkraft AG
UIBK	Universität Innsbruck
WP	Work package



Executive Summary

Exchange of knowledge is a key factor for good team work as it is required in smart city projects like SINFONIA. It takes place on all levels – on a local level between internal stakeholder groups and with "external" stakeholders, between all European partners within the different work packages, between the demo cities and above that, of course with other smart cities, Replication Cluster or Early Adopter Cities.

It is basic and simple, decision-making, definition of goals and the achievement of those rely on exchange of knowledge. Consequently, strong effort has to be done to create an environment of trust and mutual understanding, which are the most important prerequisite for a well functioning and transparent knowledge transfer.

Exchange of knowledge is considered the crucial factor for the success of SINFONIA, a project that challenges all involved parties because of its complexity in size and contents. After one and a half year of project runtime both demo cities succeeded in structuring activities concerning exchange of knowledge in different panels and committees. In Bolzano as well as in Innsbruck exchange of knowledge is well coordinated and documented.

The core of knowledge sharing in both demo cities is represented by the district teams, consisting of all local internal stakeholders. These local teams meet on a regular basis with a focus on knowledge exchange between the internal stakeholders. Local Communication Teams (Bolzano and Innsbruck), Working group Teams (Bolzano) and Local stakeholder panel (Innsbruck) function as kinds of regulatory elements when it comes to the involvement of "external" stakeholders. Members of these teams make decisions about whom to address at which time and with which method. Several methods for knowledge exchange have been tested, best practice examples have been collected and will be provided to Early Adopter Cities and others.

When in the first months of the SINFONIA runtime the focus lied on the exchange of knowledge between internal stakeholders, defined as stakeholders represented in the project consortium, ultimately "external" stakeholders have been addressed more intensively. These "external" stakeholders are mainly tenants, executive actors, politicians (Innsbruck) or technical consultants. Since in Innsbruck three school buildings are to be refurbished special emphasis lied also in the exchange of knowledge with the pupils of the concerned schools.



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1. INTRODUCTION

Knowledge sharing is indispensable for the success of SINFONIA. Prerequisite for the share of knowledge is the creation of an environment of trust. By meeting this challenge, knowledge hoarding of single actors can be prevented, since involved individuals are not threatened by the fear to lose their power. The will to share information is inherent to all of us, but depends on a positive commitment to the project goals (Chen and Hsieh, 2015).

Institutions in the SINFONIA consortium hold two different functions. Even though they are project partners and are obligated to follow the SINFONIA's description of work (DoW), they also have the status of stakeholders, since they correspond to the definition of stakeholder by Savage et al. (1991) that is used for SINFONIA:

“Stakeholders include those individuals, groups, and other organisations who have an interest in the actions of an organisation [project] and who have the ability to influence it.”

To enable a clear differentiation of these stakeholder groups to stakeholders that are not represented within the SINFONIA consortium, the terms “internal stakeholders” and “external stakeholders”, for the latter ones, have been established.

In the following chapters knowledge sharing activities in the first 18 months of SINFONIA, their results and outcomes respectively, are summarized, whereas exchange of knowledge within “internal” and “external” stakeholder groups (for classification of these groups see Deliverable 6.1.a) is described separately. All activities described below are based on the findings of stakeholder mapping and profiling described in Deliverable 6.1.a., and have been adapted to them. Since the stakeholder groups in SINFONIA are quite heterogeneous, it has been found that requirements of knowledge sharing cannot be met by two single participatory workshops only, as foreseen in the DoW (two participatory workshops in month 18 and in month 56). In order to meet the challenge to address both, “internal” and “external” stakeholder groups in an adequate and efficient way, a series of events focusing on knowledge sharing has taken place on a local level in the Demo Cities Innsbruck and Bolzano (see chapters 3 and 4). Beyond that, knowledge sharing has also taken place beyond the local level between the demo cities and with the Early Adopter Cities. These activities are summarized in chapter 5.



2. GOALS OF KNOWLEDGE SHARING ACTIVITIES

Turning the SINFONIA Demo Cities Innsbruck and Bolzano in “real” smart cities is an intensive process that requires good networking and cooperation activities between all involved parties. The basis to meet this challenge is the creation of common goals and the harmonization of the different involved interests.

The following goals are targeted by knowledge sharing activities in SINFONIA:

- ▶ Knowledge sharing at all levels
- ▶ Encouraging of stronger interdisciplinary collaboration between stakeholder groups
- ▶ Coordination of planning and implementation activities
- ▶ Facilitation of replication processes in Early Adopter and Replication Cluster Cities
- ▶ Share of good practices as well as broader engagement



3. KNOWLEDGE SHARING ACTIVITIES IN BOLZANO

In [Deliverable 6.1.a](#) (submitted in May 2015) a stakeholder map for the activities in Bolzano was elaborated. Based on this map knowledge sharing activities were set up and will be further developed (Figure 1).

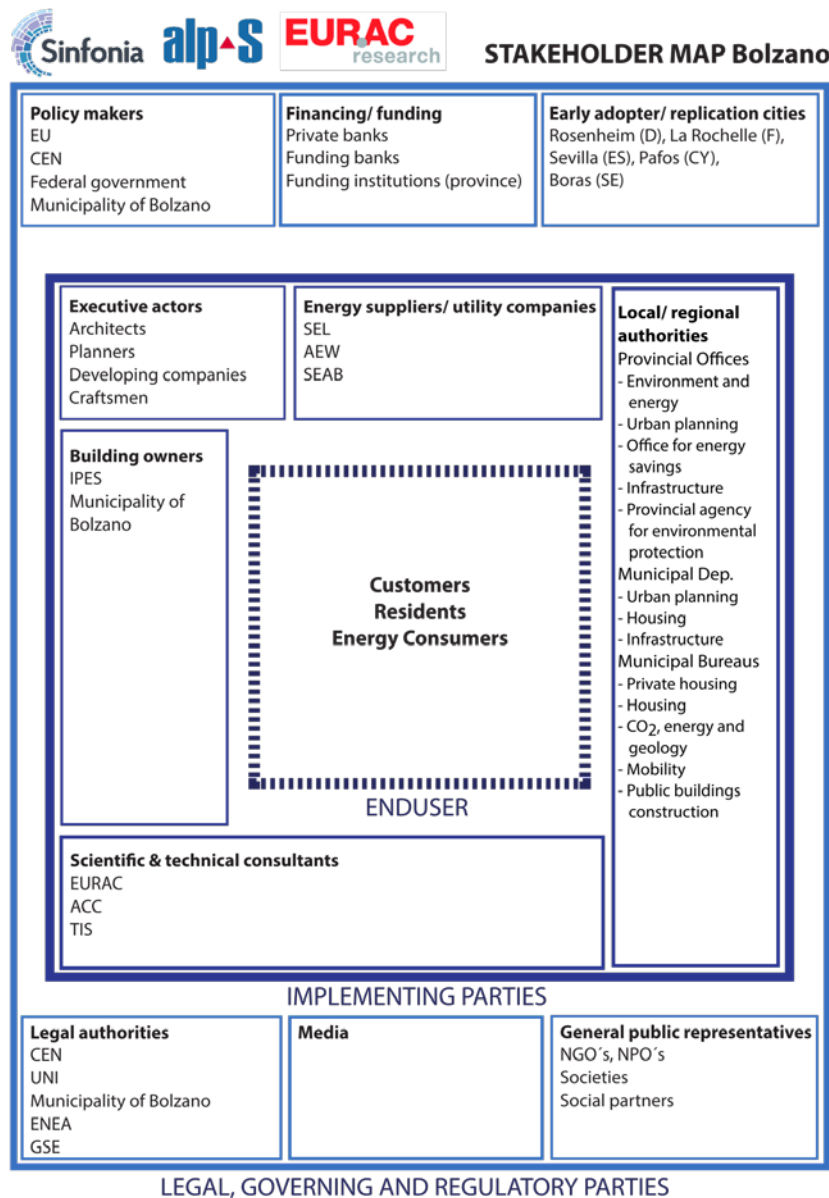


FIGURE 1 STAKEHOLDER MAP FOR THE CITY OF BOLZANO



Based on stakeholder analysis (Deliverable 6.1a), "internal" and "external" stakeholders have been selected for SINFONIA project¹. Several communication activities took place. Internal stakeholders were involved through district and working group meetings, inter-district meetings, questionnaire survey and communication team encounters. "External" stakeholders are more difficult to involve, because they do not have a direct interest into SINFONIA project. Certainly, information was exchanged between "internal" and "external" stakeholders through meetings with tenants, questionnaire survey, stakeholder workshops, media. In the following rows, a deeper explication of knowledge sharing activities is proposed. An overview over methods for exchange of knowledge with different stakeholders in Bolzano is given in Figure 2.

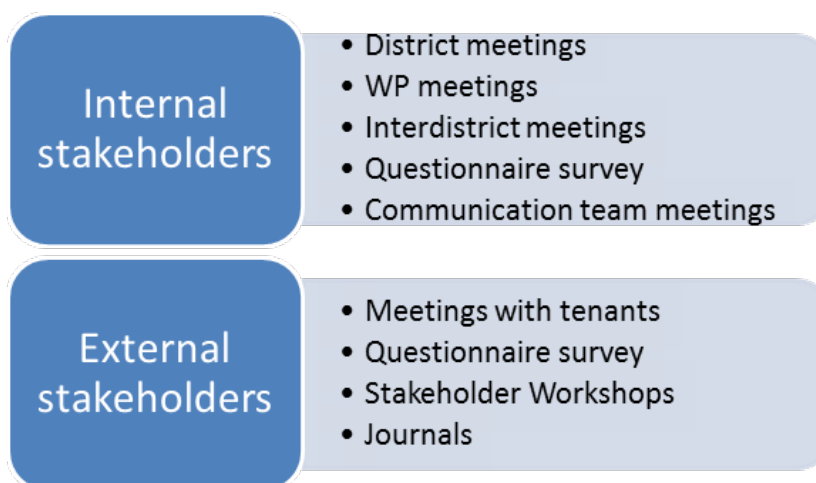


FIGURE 2 OVERVIEW OF ACTIVITIES IN BOLZANO

KNOWLEDGE SHARING ACTIVITIES AMONGST "INTERNAL" STAKEHOLDERS

DISTRICT MEETINGS

District meetings are the most frequent encounters in the SINFONIA demo city Bolzano. District meetings represent an important opportunity to exchange information between local partners in Bolzano. Its agenda concerns the activities of all SINFONIA work packages. During these meetings, local partners collect information about current activities in SINFONIA and make comments, new

¹ "Stakeholders in the two Demo Cities Innsbruck and Bolzano are structured into "internal" and "external" ones, whereas the first are defined as stakeholders represented in the project consortium (e.g. housing associations) and the latter as stakeholders that are not represented in the consortium (e.g. tenants)." Deliverable 6.1a

ideas and shared decisions. The district meetings take place in a frequency of one meeting per month, usually in the morning of the first Friday of the month. All local SINFONIA partners participate (Table 1). District meetings are organized as round tables and are moderated by the district manager (EURAC). The main discussion points are synthesized in Table 2.

TABLE 1 LOCAL INTERNAL STAKEHOLDERS IN BOLZANO (DELIVERABLE 6.1A)

BOLZANO INTERNAL PARTNERS		
SEL	Società elettrica altoatesina SpA	Energetic company
MoB	Municipality of Bolzano	Social housing owner
IPES	Istituto per l'Edilizia Sociale	Social housing owner
ACC	Agenzia Casa Clima	Energy efficiency certification agency
EURAC	European Academy of Bozen/Bolzano	Research institute

District meetings give the possibility to exchange ideas and considerations about challenges and represent a suitable opportunity to coordinate and integrate all SINFONIA activities. In addition to the district meetings partners of each WP have the possibility to meet in specific meetings for more detailed discussions on specific issues.

The main challenge is the definition and acceptance of common goals of the project between the district partners that are suitable for all partners. However, the opportunity to meet in regular periods led to the increase of trust between internal partners. Trust is a fundamental relational component of European projects and it permits to reach shared goals and a coordinated implementation of envisaged activities.

TABLE 2 DISCUSSION POINTS OF BOLZANO DISTRICT MEETINGS

Date	Discussion Points
04.09.2014	Hand-out and Hand-over certificates; Work plan of WP8; Integrated design method; Cubature bonus and impact on existing buildings.
19.09.2014	Presentation of tasks and activities of WP8, definition of constraints that have to be faced (savings, definition of gross/net surface, amendment, LCA and whole life cycle calculation).
03.10.2014	Calculation method characterization in relationship to the requirements of the tenders, discussion about the possibility of application of prefabricated multifunctional facades with integrated energy system.
07.11.2014	Amendment: definition of required modifications, Progress Report: common



	agreement.
09.01.2015	Revision of BEST sheets, IDP, Hand-over certificates, Questionnaire for tenants, Project website.
29.01.2015	Recalculation of BEST sheets and tender processes.
06.02.2015	Deliverable 8.1, activities 8.1 and 8.6, BEST sheets update and status of the calls for tender.
06.03.2015	D8.1, D8.6, Lean construction, activities of 8.3.1, IDP.
22.04.2015	Monitoring, Multifunctional facades, Smart points, Manual for the users and Lean construction, Budget for 8.6, IDP progress.
08.05.2015	Monitoring post intervention, Preparation for meeting in May, Task 8.3.1 and Communication activities.
05.06.2015	Activities 8.6, Handover certificates, Update for 8.3 (parts 1 and 2), Feasibility study for timber extensions - proposal from BOZ/IPES + budget shift, WP8 report, Updates from the communication group/replication activities of WP10, Districts coordination.
03.07.2015	Update WP8 incl. tasks 8.2, 8.3, 8.4, 8.6, First activities for preliminary projects, Manual for tenants.
07.08.2015	IDP update, WP4 activities development, Inter-district meeting preparation, SINFONIA video update, Final presentation of district definition, WP6 activities for collection of data, Update on the development of monitoring system.
11.09.2015	Pre and post monitoring system, WP3 update, Presentation of questionnaire results and next steps, Planning of stakeholder workshop and party for tenants, SINFONIA video, Innovation and related financing.
02.10.2015	General update, Monitoring system update pre and post, Organization of stakeholder workshops and party for tenants, Reports and related issues.
06.11.2015	WP8 general update, M18 report and related issues discussion, Planning for the 2 nd stakeholder workshop (WP6), district energy baseline, monitoring system update.
11.12.2015	Integration of environmental monitoring with smart point grids?, District efforts in terms of kWh- and CO ₂ -savings, Organization 8.6 activities "Quality assurance", Task 4.1 and coordination between Innsbruck and Bolzano, Stakeholder engagement, User manual and update after Innsbruck meeting, Communication strategy.

WORKING GROUP MEETINGS

Stakeholder involvement in aiming at encouraging stronger interdisciplinary collaboration between stakeholder groups. SINFONIA is separated into ten work packages (WP) that propose different activities. The success of SINFONIA is based on the connections and the interdisciplinary of all the



topics. The working group meetings for each WP are important to deepen the knowledge exchange on specific topics and for decision-making on single activity.

“Internal” stakeholders should work together in a comfortable environment, based on trust and the possibility to make effective choices. For this reason, several meetings have been organized within and between WPs. These meetings last from 1,5 to 4 hours and are usually managed by one leader.

RECOMMENDATIONS FOR EARLY ADOPTER CITIES

“Internal” stakeholder meetings provide the possibility to exchange knowledge and make decisions. The regularity of these (district or working group) meetings has a high value because it increases the trust between stakeholders and it, consequently, permits a good environment to make shared decisions. Recurring face-to-face meetings lead to the increase of trust between participants. Transparency and sharing of knowledge are important elements to strength trust between stakeholders.

COMMUNICATION TEAM BOLZANO

The Communication Team Bolzano coordinates the communication activities among all the local partners involved — EURAC Research, Municipality of Bolzano, TIS Innovation Park, SEL, WOBI/IPES, Agenzia Casa Clima/KlimaHaus Agentur — and focuses on the outreach of SINFONIA on a local level. The Communication Team plans and develops strategies and products to communicate results, milestones and activities of SINFONIA to a variety of different audiences.

Members of the Communication Team in Bolzano are the local project partners represented by their communication experts (e.g. members of the institution’s departments for public relations) and project managers.

The team works on different tasks defined and discussed during the general meeting. See Table 3 for a list of the meetings and their main discussion points.

TABLE 3 LIST OF COMMUNICATION TEAM MEETINGS IN BOLZANO

Date	Discussion Points
20.05.15	Task meeting: defining the audiences: In a smaller group we defined local and national target audiences for SINFONIA.



04.06.15	Creation of a promo video of SINFONIA focussing on Bolzano as demo city, possible channels to communicate with the tenants and other "external" stakeholders, negative press experienced in Innsbruck, the possibility to use the internet to communicate with the citizens of Bolzano.
19.06.15	Meeting with representative of the Department of Public Relations, City of Innsbruck, discussion on the departments role for the communication in SINFONIA
18.8.2015	Task meeting: Video: In a smaller task group we defined the features of the promo video and we started the activities.
15.10.15	Task meeting: Video: In a smaller task group we discussed the first drafts of the video.

COMMUNICATION STRATEGY OF THE CITY OF BOLZANO

Up to now, in Bolzano no negative public perception of and negative press about SINFONIA activities was encountered, as it was only in Innsbruck. Since the Communication Team is not forced to react on negative press, the main goal of the team is to coordinate the communication activities of the local partners involved.

The Communication Team is working to spread accurate contents about SINFONIA to different target stakeholder groups. Four main "external" stakeholders were identified:

- 1) City administration (Bolzano, early cities, replication cities)
- 2) Stakeholders such as association, Autonomous Province of South Tyrol, Chamber of Commerce
- 3) Tenants
- 4) General public

The general strategy is to switch on proper communication channels with different audiences at the right time. We are aware that there is the possibility of a negative public perception of SINFONIA in Bolzano. A close contact with the Communication Team in Innsbruck shall lead to a mutual learning process and reduce the risk of repetition of the negative experiences made in Innsbruck in Bolzano.

KNOWLEDGE SHARING ACTIVITIES AMONGST "EXTERNAL" STAKEHOLDERS:

KNOWLEDGE SHARING WITH TENANTS

Tenants are important actors in energy refurbishment projects. In the planning phase some preferences of SINFONIA's tenants could be considered, even if they have not been actively included



in this phase. Tenants will be involved more intensively in the implementation part of the project. Refurbishment interventions will require a correct use of new technologies and new spaces, such as balconies, for aiming at energy efficiency and saving. Technologies in themselves cannot be energy-effective, but call for the proper application by the tenants. Energetically relevant building refurbishments require a societal transition of user behaviours towards new technologies. Refurbishment interventions should include measures to increase tenants' acceptance in order to raise the effectiveness of energy efficiency measures. A constant flow of information is fundamental to increase trust between tenants and SINFONIA partners. Transparency, frequency and clearness of information are elements to enhance the efficacy of communication with tenants.

Each building or each group of buildings has a mediator between tenants and SINFONIA partners. This mediator (Italian name *fiduciario*) is nominated by the owner institute (IPES or MoB) and has the role to exchange information between social-housing owners and tenants, and vice versa. *Fiduciari* contributed to some tasks in SINFONIA: project and meetings advertisement, delivery of questionnaire, mediation between tenants and social-housing owners to exchange information and uncertainties. *Fiduciari* have been established before the start of SINFONIA and hence are already object of tenants' trust.

TABLE 4 BOLZANO SINFONIA MEETINGS WITH TENANTS

Date	Discussion Points
9.10.2014	SINFONIA project presentations (administrators and technicians); introduction and compilation of questionnaire; time for questions. (MoB)
14.10.2015	SINFONIA project presentations (administrators and technicians); introduction and compilation of questionnaire; time for questions. (MoB)
15.10.2015	SINFONIA project presentations (administrators and technicians); introduction and compilation of questionnaire; time for questions.
07.07.2015	Presentation of SINFONIA project and refurbishment activities; introduction of questionnaire survey. (IPES)
08.07.2015	Presentation of SINFONIA project and refurbishment activities; introduction of questionnaire survey. (IPES)

IPES (Istituto per l'Edilizia Sociale) and BOZ (Municipality of Bolzano) organized several meetings in order to present SINFONIA and envisaged refurbishment activities to interested tenants (Table 4). Representatives of IPES have met tenants twice during 2015. One meeting on 7th of July 2015 was organized for explaining the project to tenants that live in via Cagliari. On 8th July an encounter was



organized for tenants of via Similaun and via Palermo. At both meetings about 50 people participated. The main objective of these meetings was to exchange the most important information about the project and to get in first contact with tenants. The meetings also served to test the suitability of the questionnaire designed for the tenants. Technical aspects of the refurbishments will only be presented when appropriate information is available, in order to avoid misunderstandings or wrong expectations of the tenants.

Also BOZ organized meetings to inform tenants about SINFONIA. In October, BOZ presented a general overview about the planned refurbishment interventions. The social-housing owner decided to organize different encounters for each buildings block: on 9th October 2014 via Parma tenants were involved, on 14th October 2014 via Aslago tenants and on 15th October 2014 Passeggiata dei Castani tenants had the meeting (Table 4). Twenty or twenty-five people participated in each encounter, listening to presentations of administrators and technicians and filling the questionnaire with the support of a representative of TIS (Techno Innovation South Tyrol). Finally, one hour lasting discussions permitted the tenants to collect more information.

Tenants were asked to participate in a questionnaire survey (as part of task 5.4 and results shown in a separate report). This activity represented another opportunity to interact with people in SINFONIA buildings and helped to collect some information about their socio-demographic characteristics, behaviours, habits, knowledge and opinions. Most of the inhabitants of SINFONIA buildings collaborated and filled the questionnaire. The availability and the interest of tenants in SINFONIA is quite confirmed.

In the SINFONIA refurbishments intervention of tenant's privacy is unavoidable. For this reason, the interaction with and involvement of tenants have to be organized in a non-intrusive way and people's needs and interests must be respected. The analysis of questionnaire results aims to collect some information about tenants' preferences. These results should be taken into consideration for the organization of future meetings. The questionnaire survey can be considered as an exchange of information between tenants and SINFONIA partners. It is the opportunity to improve future approaches in information exchange.

For example, most of interviewed tenants said that energy saving is very important in their daily life (**FIGURE 3**). This result should not be taken for granted and future meetings should focus on energy saving in order to raise the attractiveness of encounters for tenants.



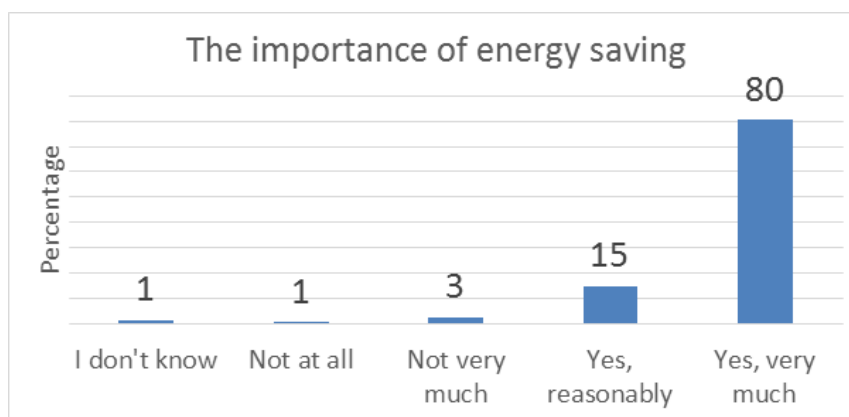


FIGURE 3 THE IMPORTANCE OF ENERGY SAVING ACCORDING TO BOLZANO SINFONIA TENANTS

A common idea is that behaviours can be influenced only by reduction of costs. Anyhow, result of the SINFONIA survey showed that many tenants not comply with this idea. The importance of having certification of CasaClima Class A is given by both, reduction of costs and increment of comfort.

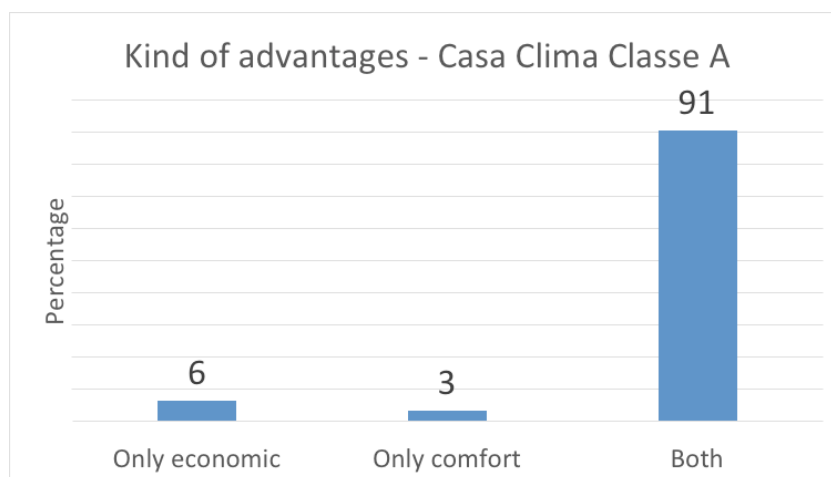


FIGURE 4 ADVANTAGES OF CASA CLIMA CLASSE A ACCORDING TO INTERVIEWED TENANTS

Future encounters should underline the importance of refurbishment interventions for improving the indoor comfort. Moreover, different buildings have different comfort problems. In the meetings that involve tenants of houses with more mildew, speakers should underline the possibility to remove it by means of SINFONIA interventions. The changes in tenants' behaviours are important for the efficacy of energy refurbishment and the improvement of indoor comfort.

The complexity of tenants involvement is a key aspect of SINFONIA. Some fundamental recommendations should take into account by WP6 partners in order to raise the attractiveness of information meetings and to achieve changes in energy behaviours. Experiences in Bolzano led to the following recommendations:



- ▶ Consider important issues for tenants and give information about energy saving, economic and comfort advantages of refurbishment interventions.
- ▶ The high response rate of the questionnaire survey proves tenants' availability and interest in SINFONIA. However, this interest should not be taken for granted in future interventions. The recommendation is to always find innovative ways to create interest (e.g., neighbourhood party, games for children).
- ▶ The majorities of tenants belong to the highest age class. Future WP6 activities should be organized to permit access of all tenants.

NEXT STEPS IN KNOWLEDGE SHARING WITH TENANTS

Tenants will be involved in future information meetings in which IPES and BOZ will give more information about the refurbishment steps in SINFONIA by presenting preliminary refurbishment projects. Tenants are not involved in the planning phase due to the complexity of technological solutions. However, SINFONIA activities and objectives have already been presented and the flow of information and knowledge will continue. By the design of a demonstration flat (laboratory) tenants will get an insight in best practices of a correct use of new technologies. The laboratory visit will be combined with the meetings organized by social and technical experts, according to the needs of social housing owners and tenants.

RECOMMENDATIONS FOR EARLY ADOPTER CITIES

Social acceptance of energy refurbishment interventions should be an important focus of social-housing refurbishment projects. The effectiveness of interventions is based on both, quality of technological-architectural choices and social-individual changes (mainly for user behaviours).

Some aspects and recommendations should be taken into account:

- ▶ Project partners should not take preferences and needs of tenants for granted. Ad hoc survey should be designed and administered with the aim to collect information about the specific case study.
- ▶ Preferences and needs concerning behaviours, habits, knowledge and energy topics should be integrated in the organization and contents of information and consultation meetings.



- ▶ Meetings should be held in language and contents that are comprehensible for the target group (in this case, tenants).
- ▶ Questionnaires should be filled with the support of an interviewer.
- ▶ The flow of information to the tenants should be constant and transparent.
- ▶ The relations should not be intrusive but shall lead to the creation of trust between tenants and institutions.

STAKEHOLDERS IN ENGAGEMENT MEETINGS

The involvement of stakeholders (Table 5) is one of the strategies to improve the significance of a project. In SINFONIA, stakeholder involvement means an exchange of information inside and outside the group of project partners, a deeper comprehension of technical problems and sets of solutions, a stronger link between theories and targets and less uncertainty in replication activities. Linking of "internal" and "external" stakeholders adds knowledge to both sides. The involvement of "external" stakeholders and the meeting between internal and external actors permit to find new and innovative solutions, integrating the specific knowledge of each actor.

TABLE 5 MEETINGS WITH "EXTERNAL" STAKEHOLDERS IN BOLZANO

Date	Discussion Points
14.10.2015	SINFONIA project and overall targets; technologies for energy refurbishment in SINFONIA; district heating linked with the integration of a H2 thermal engine; "Why is the building renovation market so limited?"
27.11.2015	SINFONIA project and overall targets; possibility to refurbish residential buildings and surface increment; CasaClima protocol R for energy certification; "Do effective financing tools exist for energy refurbishment of residential buildings?"

Two workshops have been organized in the last months of 2015. The first one took place on 14th October 2015, while the second one was organized at the 27th November 2015. The participation was quite good, even if the expectations were higher.



REPORT ON THE 1ST STAKEHOLDER WORKSHOP ON THE 14TH OF OCTOBER 2015

The first stakeholder workshop in Bolzano has been structured in two different parts. In the first one, internal partners of SINFONIA presented some key issues of the project:

- ▶ EURAC gave a general overview over SINFONIA and its targets
- ▶ MoB presented some technologies for energy refurbishment that are taken into consideration
- ▶ SEL focused on SINFONIA district heating linked to the integration of a H2 thermal engine

Tenants were able to ask questions.

The second part of the workshop was more interactive. Three questions have been proposed to partners and other stakeholders, with the aim to collect opinions of the participants on post-its. The main objective of this exercise was to stimulate a discussion between "external" and "internal" stakeholders to compare the effectiveness of SINFONIA activities with the market and the opinions of the actors that work in the city. Last but not least, the future after SINFONIA was investigated. The project shouldn't be "stand-alone" and an integration in reality should be made. There is a need of replication potential and this pass through a deep comparison with market expectations.

The three questions were the following:

1. (ENERGY IN BUILDINGS) Why is the building renovation market so limited?
2. (SMART GRIDS & ICT) How to manage renewable energy generated in multi-family houses?
3. (ECONOMIC & SOCIAL ASPECTS) Which financial tools exist for smart cities?

The three topics were chosen to cover the wide variety of tasks in SINFONIA, due to the experience from past activities and researches. Due to the composition of the participants, the second question was not answered. In many cases answers to question nr. 1 were the same as to question nr. 3. This shows that the two topics are closely linked. It's clear that there is a strong link between building retrofitting and financial tools. A smart city is a place where specific actions and tasks, as retrofitting, should be supported by financial tools. The answers are summarized next.

TABLE 6 PROBLEMS AND SOLUTIONS OF BUILDING RENOVATION MARKET ACCORDING TO PARTICIPANTS

PROBLEMS	SOLUTIONS
Payback time and payback uncertainty	A change in the approach, more conservative calculation, clear and/or fixed design schemes for easier evaluation and comparison.



Fear of hidden costs, uncertainty in „right“ prices	Upgrade of bonus (as i.e. volume bonus in Bolzano), new or upgrade of tools for price transparency.
Property fragmentation and motivation to act	More interaction with owners. There is the need of a public structure for owners, private ones, to support in the fields of technical feasibility, financing tools and legislative issues. Awards to district projects and realizations.
Property's fragmentation and motivation to act	Buying groups to facilitate investments.

The solutions needed are not easy nor immediate. The owners need tools that don't exist yet or that have to be strongly upgraded. The fields of discussion should be clustered.

FIGURE 5 SHOWS SOME IMPRESSIONS OF THE 1ST STAKEHOLDER WORKSHOP IN PICTURES.



FIGURE 5 IMPRESSIONS OF THE 1ST STAKEHOLDER WORKSHOP IN BOLZANO

Conclusions

In the next meeting, the SINFONIA partners will present the remaining themes of the project to "external" stakeholders. In particular, IPES and CASACLIMA will present their roles in the project.



A brief presentation of results of the first stakeholder workshop will take place. In the second part of the forthcoming meeting, new questions will be presented to stakeholders, to find new fields of discussion and involvement with the aim to increase "external" stakeholders' interest in SINFONIA.

2ND STAKEHOLDER WORKSHOP ON THE 27TH OF NOVEMBER 2015

The organization and management of this workshop is similar to the first one. Anyway, contents and participants changed. Besides representatives of banks and other financial institutes, internal SINFONIA stakeholders participated in the meeting. During the first part of the meeting, SINFONIA partners made short presentations:

- ▶ EURAC Research gave a general overview of the project and its targets.
- ▶ IPES showed the possibility to refurbish residential buildings, introducing the topic of surface increment and related financings.
- ▶ CasaClima introduced the experimental protocol R for energy certification.

The second part of the workshop was more interactive. Some questions were submitted, like e.g. "How to manage renewable energy produced in residential buildings?" and "Do effective financing tools exist for energy refurbishment of residential buildings?" The discussion lasted longer than organizers expected and for this reason participants answered only to the second question. Thanks to the financing groups that participated in the stakeholder workshop, several financing tools have been explained to SINFONIA partners. Internal stakeholders had the possibility to collect new and useful information for the next steps of the project.

RECOMMENDATIONS FOR EARLY ADOPTER CITIES

The interaction between participants during the workshops was good and SINFONIA partners collected useful information. However, the number of external participants was quite low. The communication and invitation of "external" stakeholders should be given more attention. Some arrangements of general communication should be addressed to a wider public and include attractive advertisement about SINFONIA project.



The interaction between several stakeholders permits to re-elaborate viewpoints of internal partners. This is very useful especially when partners have difficulties in finding solutions or decisions.

KNOWLEDGE SHARING WITH STAKEHOLDERS FOR SWOT ANALYSIS

“External” and “internal” stakeholders have been involved in a SINFONIA workshop. The meeting was aiming at the collection of opinions about drivers and barriers of smart city projects and SINFONIA. On the 10th of April 2015 a meeting has been organized to collect information for a SWOT analysis ([Deliverable 2.1 - SWOT analysis report of the refined concept/baseline](#), delivered in May 2015).

The SWOT analysis is based on the collection of data through a questionnaire survey and workshops. For this reason, two different questionnaires have been administered. The first one was administered to "external" stakeholders that have already participated in smart city projects. The second one was administered to SINFONIA partners in Innsbruck and Bolzano. With the first questionnaire exchange of information with stakeholders that already have knowledge and experience about how to manage a smart city project was guaranteed. The second questionnaire served the collection of information about previous experiences of internal SINFONIA partners. The questionnaires are published in Deliverable 2.1.

RECOMMENDATIONS FOR EARLY ADOPTER CITIES

SWOT workshops and questionnaire surveys aim to collect information about the previous experiences of "internal" and "external" stakeholders. The past involvement in smart city projects contributes to the consciousness of weaknesses and thus strengthens similar projects. The collection of previous data, skills and knowledge is essential to learn from other projects and to gain experience.

KNOWLEDGE SHARING WITH ARCHITECTS AND PLANNERS FOR REFURBISHMENT DESIGN PHASE

Currently, IPES and BOZ are in the design phase of the refurbishments, where one aspect is to apply for official permits for the interventions in the buildings. This phase includes planners and architects.



Stakeholders can exchange knowledge about law and physical constraints of refurbishment interventions.

Some useful information for planners and architects have been collected from tenants, through the common questionnaire survey (e.g. IPES distributed a schedule asking about the heating systems in the flats). This project phase requires the collection of information from several stakeholders and the exchange of knowledge between them. The design phase aims to propose effective refurbishment interventions according to law, physical limits and stakeholders preferences (e.g. social-housing owners, tenants).

Several meetings have taken place for each SINFONIA building. The refurbishment planning phase includes designers of different work fields: experts of architectures, energetic plants and systems, engineers, etc. In June 2015, social-housing owners and other partners have started to meet with designers. The meetings are listed in Table 7.

TABLE 7 DISCUSSION POINTS FOR THE REFRUBISHMENT PLANNING PHASE (SOURCE: SIX MONTH REPORT - WP8)

Date	Discussion Points
08.06.2015	Refurbishment Via Palermo
10.06.2015	Refurbishment Via Passeggiata dei Castani
06.07.2015	Refurbishment Via Passeggiata dei Castani
22.07.2015	Refurbishment Via Passeggiata dei Castani
25.08.2015	Refurbishment Via Similaun
07.09.2015	Refurbishment Via Similaun
15.09.2015	Refurbishment Via Parma
16.09.2015	Refurbishment Via Aslago
30.09.2015	Refurbishment Via Parma
30.09.2015	Refurbishment Via Aslago
28.10.2015	Refurbishment Via Similaun
16.11.2015	Refurbishment Via Palermo



Information exchange between internal and external partners is a fundamental activity in SINFONIA. Meetings to exchange information started with the begin and will continue until the end of the project. Communication and information exchange should be organized based on the interests and needs of all involved actors (social-housing owners, tenants and other "internal" and "external" stakeholders). The meetings should be organized based on clear language and concepts and they should have the aims to improve transparency and sharing of objectives and activities.



4. KNOWLEDGE SHARING ACTIVITIES IN INNSBRUCK

Figure 7 gives an overview of knowledge sharing activities in Innsbruck bundled in different platforms. While the District Team, the Communication Team and the Local Stakeholder Panel represent platforms for specific knowledge exchange with a focus on "internal" stakeholder groups, "external" stakeholder groups are addressed individually by different communication channels. Figure 7 summarizes the applied methods for exchange of knowledge with selected "external" stakeholders. Methods have been selected following the specific needs and requirements of the targeted groups.

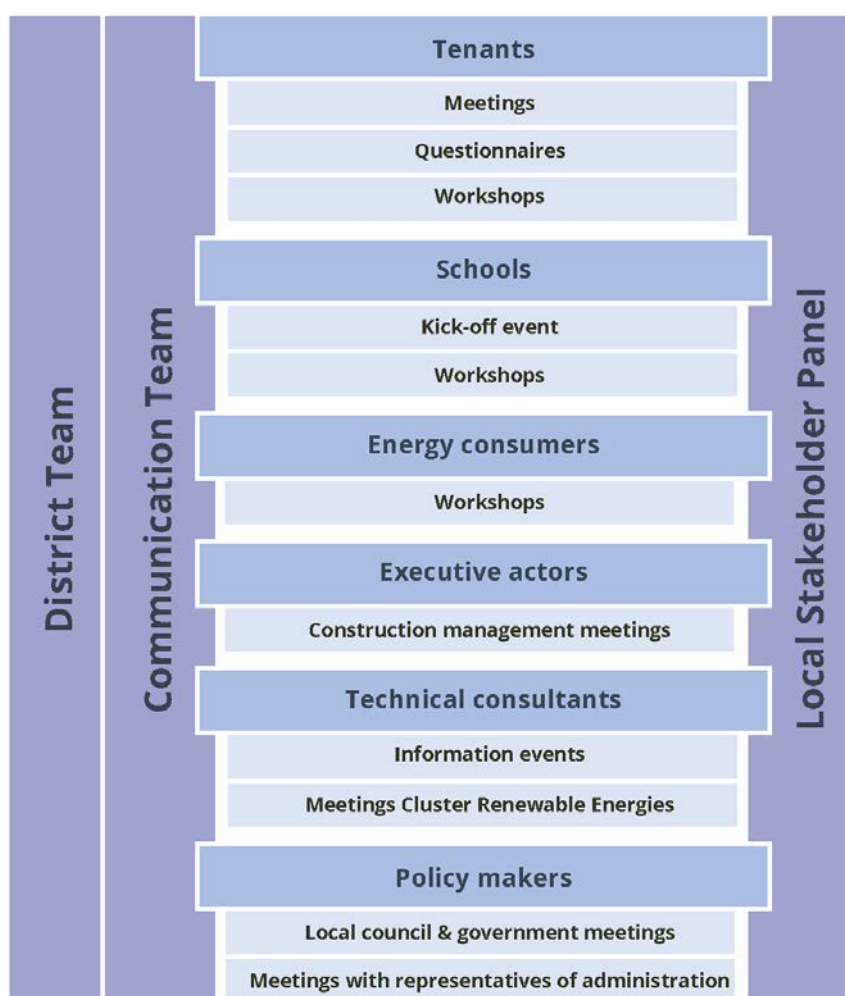


FIGURE 6 OVERVIEW OF KNOWLEDGE SHARING PLATFORMS AND ACTIVITIES IN INNSBRUCK

In the following chapters knowledge sharing activities with "internal" and "external" stakeholder groups are described separately.

KNOWLEDGE SHARING ACTIVITIES AMONGST "INTERNAL" STAKEHOLDERS

Knowledge sharing activities were set up based on the local stakeholder map Innsbruck (Figure 8) and will be further developed.

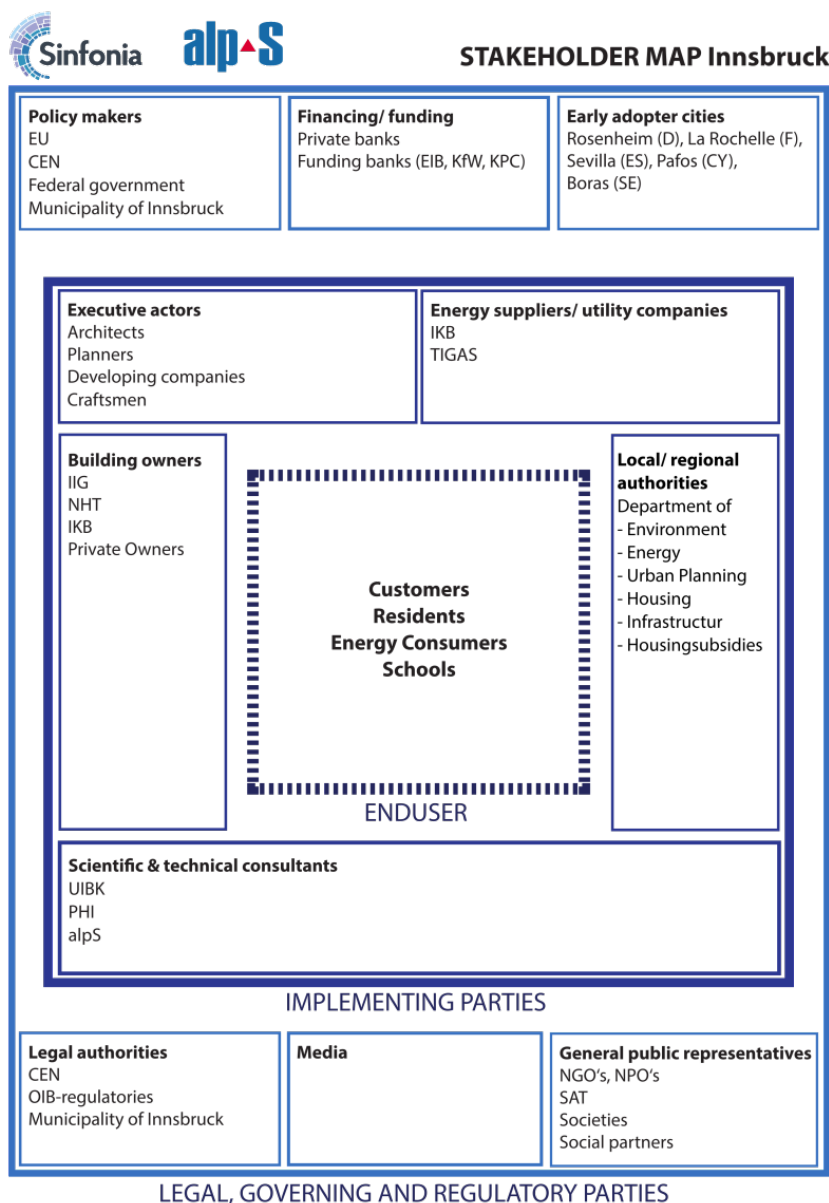


FIGURE 7 STAKEHOLDER MAP FOR THE CITY OF INNSBRUCK

DISTRICT TEAM INNSBRUCK

The core of knowledge sharing activities in Innsbruck is the District Team, whose members come together regularly in the District Meetings organised by the District Lead. The District Meetings serve



as an information platform for on-going SINFONIA activities, status and progress reports as well as the informal exchange (during breaks) between the local partners (“internal” SINFONIA stakeholders). The frequency of District Meetings is every one to three months according to necessity. The term District Meeting derives from the understanding that SINFONIA activities in Innsbruck are performed within a distinct district. In any other project/context this type of knowledge exchange meeting could be subsumed under the term “Core Group Meeting”. The role of the District Manager, whose responsibilities comprise the management, administration and organization of such meetings needs to be defined together with the members of the District Team/Core Group. A list of District Meetings including their contents is provided in Table 1.

TABLE 8 LIST OF DISTRICT MEETINGS

Date	Discussion Points
27.10.2014	Update project management; Best Sheets; Handover certificates; GIS Modell Smart District and Baseline; WP5 Monitoring update; Summary WP6 kick off
10.12.2014	Best Sheets and alternative buildings; Coordination between buildings and EVU nets; Baseline targets on district level; Monitoring; Update project management; District management book
4.2.2015	Best Sheets; Update refurbishments; Update project management; PV installation; Handover certificates; Buildings and nets; Baseline targets; Monitoring; Questionnaires “Survey about financing instruments used in demonstrations”
17.3.2015	PMB meeting update; Update project management; Implementations of new and retrofit DH/C energy supply; Quality assurance; Baseline targets; Monitoring; Negative Press; Update local stakeholder Advisory Board
21.4.2015	Update project management; WP6 common communication strategy; WP7 update concept IKB and refurbishments; Planned measures TIGAS; Data collection industry; Baseline update data collection; Update on communication with TECHNOFI
19.5.2015	Update project management; Results meeting “Nets and district targets”; Update refurbishments; Update monitoring; Measurements electric efficiency; Results meeting communication strategy
15.7.2015	Update project management; Status refurbishment, PV and solar thermal power on buildings; Data collection companies; Monitoring; Measurements electro efficiency; Baseline; Stakeholder involvement; Update Communication Team
17.9.2015	Update project management; Status refurbishments situation with tenants; PV/solar thermal power on buildings; Refrigerators Liebherr; Handover certificates; Monitoring; Communication Team report; Exchange Bolzano-Innsbruck
10.11.2015	Update project management (amendment process); monitoring activities; preparation 18-month-assembly (e.g. excursion); Report on school involvement



The challenges the District Lead has to face is to hold a well-balanced discussion between all involved actors and the restricted time the actors can dedicate to such meetings. A meeting of three hours seems to be the maximum reasonable duration. The acceptance of the District Team amongst the partners is high which is reflected by the large number of participants.

RECOMMENDATIONS FOR EARLY ADOPTER CITIES

The structure of the District Team and its regular meetings in Innsbruck has proven to work well for all actors. The involvement of all central stakeholders, the open discussion, the exchange of upcoming cross-cutting challenges, as well as a good documentation of these meetings have contributed to its success which is reflected by the high number of participants. Common decisions are the basis for further activities or, if not possible, the starting point of additional discussions within subgroups. The frequency of these meetings is more or less flexible – every one to three month. A higher frequency would overload the actors. District Meetings serve as a starting point for other, additional, more specialized meetings.

Good preparation of the District Meetings, e.g. circulation of the agenda one week before the meeting as well as providing the possibility to change the agenda upon need is important for the organization of District Meetings. Special care has to be given to include all actors actively in these meetings (via presentations, special agenda items etc.). A pre-condition of such a meetings is the nomination and establishment of a District Manager. The role of the District Manager needs to be defined and clarified. In the case of SINFONIA, the role of the District Manager was defined in the district management manual. In this manual information about the overall management of the meeting is outlined. Generally, it can be said that the District Manager has to be neutral and has to show a good understanding/standing within the involved persons.

Apart from this, the nomination of District Team Members has to be performed. This can be supported by a stakeholder mapping identifying the relevant members of the tea . Furthermore, profiles (e.g. according to criteria like interest or power) of these members can be elaborated (compare Del. 6.1a).



COMMUNICATION TEAM INNSBRUCK

The Communication Team Innsbruck aims at the bundling and coordination of communication activities at all different levels during the runtime of SINFONIA. A special focus of the local Communication Team in Innsbruck lies on the establishment of clear communication routines in order to channel the transfer of knowledge that is inherent to the project partners to "external" stakeholders, e.g. to tenants or to the general public. The crucial factor for the installation of the Communication Team in Innsbruck was the increasing negative public perception of the project due to insufficient communication to the parties concerned, which was picked up by local newspapers with headlines like "SINFONIA leads to rent-raise in social housing". The negative press about SINFONIA activities made clear that previous efforts to communicate the envisaged SINFONIA activities have not been sufficient.

Members of the Communication Team are the local project partners, i.e. SINFONIA's "internal" stakeholders, that are, to some extent, represented by their communication experts (e.g. members of the institution's departments for public relations).

A list of all Communication Team meetings and their main discussion points is presented in Table 9.

TABLE 9 LIST OF COMMUNICATION TEAM MEETINGS IN INNSBRUCK

Date	Discussion Points
5.5.2015	Establishment of the team structure; Acquisition of communication demand ; Identification of key dialogue groups by a survey among local "internal" stakeholders
24.6.2015	Development of a local communication strategy; Involvement of schools; Update communication strategy of Bolzano; Information of relevant WP10 activities
13.8.2015	Meeting with representative of the Department of Public Relations, City of Innsbruck, discussion on the departments role for the communication in SINFONIA
18.8.2015	Information on city senate decision of the 15th of July 2015: external allocation and financing of local communication activities for SINFONIA; Next steps: definition and prioritization of common goals for tendering and award criteria that shall be carried out with all Communication Team members interactively
31.10.2015	Update on external procurement activities for communication expertise by the City of Innsbruck; Workshop with team members to define and prioritize common goals for tendering and award criteria



COMMUNICATION STRATEGY OF THE CITY OF INNSBRUCK

One focus of the Communication Team Innsbruck is to develop a local communication strategy and to manage its implementation. Figure 8 describes an idealized process of communication routines accompanying smart city projects. Communication activities should start with the identification of communication goals, whereby this starting point should be equal to the starting point of the project itself. The blue steps of Figure 8 represent necessary preparatory steps before actual communication measures start. The red steps are focussing on the measures themselves, from planning to implementation and evaluation. The red arrow indicates a feedback loop. By constant evaluation of communication measures and corresponding adjustment of these, the quality of communication activities shall be guaranteed.



FIGURE 8 IDEALIZED PROCESS OF A COMMUNICATION STRATEGY

In Innsbruck communication activities until now did not follow the scheme in Figure 8. Partners have acted independently and activities have not been well coordinated. The City of Innsbruck is going to compensate the lack of coordination by investing money additionally to the SINFONIA budget for external procurement of an communication expert or expert institution, respectively.

Nonetheless, some points of the idealized process for communication routines have already been processed by the Communication Team. The following communication goals have been identified and prioritized (first mentioned goals are considered to have a higher priority):

- ▶ Increasing of local acceptance of implementation measures and reduction of potential conflicts
- ▶ Establishment of a positive project image
- ▶ Promotion of the performances of the project partners



- ▶ Promotion of participation in the development of the smart city Innsbruck
- ▶ Awareness raising for energy efficiency and saving for a better life quality
- ▶ Triggering a multiplier effect
- ▶ Assurance of the project transparency (e.g. by communication of the progress and milestones)
- ▶ Proactive action in dealing with "critical" "external" stakeholders
- ▶ Economic positioning of the city/region, e.g. as a "specialist for refurbishments"
- ▶ Increasing the name recognition of SINFONIA in Innsbruck
- ▶ Linking of SINFONIA to the local energy plan IEP (see Deliverable 6.1a) and other initiatives related to climate change

Additionally, dialogue groups have been identified following the results of stakeholder mapping published in Deliverable 6.1a.

RECOMMENDATIONS FOR EARLY ADOPTER CITIES

In SINFONIA the dedicated resources for communication activities in Innsbruck are underestimated. It is crucial to the success of smart city implementations to pay attention to requirements of communication activities in advance of the budgetary planning.

Experiences in Innsbruck show clearly that communication to the concerned parties as well as to the general public, meaning the inhabitants of the city, is one key issue to the success of the project. Lack of or insufficient information, respectively, can influence the public perception of the project in a negative way and, moreover, can lead to negative consequences for the achievement of project goals, meaning delays and cost increases.

Thus, it is strongly recommended to Early Adopter Cities and Replication Cluster Cities to I) reserve sufficient monetary and personnel resources for communication activities (including all steps listed in Figure 8 and II) to start with these activities before actual implementations of smart city measures start.

Furthermore, it is recommendable that the agendas of project communication are taken over by an external expert or expert institution that is working side by side with communication experts of institutions in response of implementation activities. This expert or expert institution shall be,



besides housing agencies or electricity suppliers, part of the core project team to guarantee an unprejudiced position without fear or favour and to coordinate communication activities of single partners.

LOCAL STAKEHOLDER PANEL

The Local Stakeholder Panel aims at the institutional embedding of activities concerning stakeholder involvement in Innsbruck and is an inherent structure of WP6. It is a local structure that aims at the evaluation of communication pathways, e.g. between project partners and their clients and vice versa. The Local Stakeholder Panel is closely tied to the Communication Team as well as to the District Team, but the focus of the first lies more strongly on the scientific input to and evaluation of communication routines in smart cities and to stakeholder management in general, while the latter is focussing on the practical application of communication activities.

The panel aims at the following goals:

- ▶ Institutional embedding of activities concerning stakeholder involvement
- ▶ Regular exchange meetings between partners in Innsbruck
- ▶ Learning from each other: input of partners, stakeholders and external experts and regular update of WP6-relevant activities in Bolzano
- ▶ Coordination of data collection
- ▶ Evaluation of communication pathways

Local Stakeholder Panel meetings are listed in Table 10. Panel members are equal to the members of the Communication Team and the District meeting and consist of representatives of the local consortium partners.

TABLE 10 LIST OF LOCAL STAKEHOLDER PANEL MEETINGS

Date	Discussion Points
10.12.2014	Introduction of the panel's objectives; Status quo and next steps within WP6; Report on tenant involvement by IIG and NHT; Workshop on prioritization of stakeholder groups
17.3.2015	Report on tenant's individual stories; Presentation of results of tenant survey; Discussion on common communication strategy



RECOMMENDATIONS FOR EARLY ADOPTER CITIES

The Local Stakeholder Panel is a structure tailored to the scientific claim of the SINFONIA project. It represents the regulatory level in stakeholder involvement and is closely connected to the District Team and the Communication Team. The installation of a Local Stakeholder Panel is only recommended to Early Adopter Cities with a strong scientific focus, otherwise communication efforts can be covered by the two structures Communication Team and District Team, in order to keep the number of project meetings manageable. If the focus of an Early Adopter City lies also on scientific screening of its local communication structures, it is recommended to keep the number of panel members low. Members of the panel should be "internal" stakeholders or project consortium partners, respectively. The inclusion of "external" stakeholders is not recommendable.

To include the meetings of the Local Stakeholder Panel in the District Meetings has proved positive since all actors already are on site.

KNOWLEDGE SHARING ACTIVITIES AMONGST "EXTERNAL" STAKEHOLDERS

Besides communication activities with "internal" stakeholders, a series of "external" stakeholders have been addressed with different communication measures and methods. In the following chapters communication activities with the "external" stakeholders Tenants, Schools, Energy consumers, Executive actors, General public representatives, Local/regional authorities and Policy makers will be described and summarized.

KNOWLEDGE SHARING WITH TENANTS

The envisaged refurbishment measures lead to the confrontation of tenants in SINFONIA buildings with a series of technological changes. These changes require the modification of people's lifestyles and attitudes. It is important to consider that the use of innovative technologies and, ultimately, the achievement of energy reductions are highly dependent of the acceptance of the resident population. The individual opinion as well as financial possibilities of tenants might differ and, hence, have to be analysed and taken into account.

Innsbruck's housing institutions involved in SINFONIA have lots of experience in the refurbishments of their building stock. But when refurbishments belong to their daily routine, activities that require a regular access to the flats (e.g. installation of ventilation systems) and hence, lead to a strong



interference with the tenants, are rare. The refurbishment measures that are planned in SINFONIA require innovative methods for the involvement of tenants. These new requirements initiated a learning process that includes the test of different involvement strategies and methods in the course of the project. The tested methods comprise of all levels of participation, being information, consultation and co-decision-making.

The involvement activities described in Deliverable 6.1.a have been expanded by the holding of interactive workshops with tenants. Tenants of buildings of NHT are invited to participate in a workshop that aims at the active sharing of knowledge with the tenants. The sharing of knowledge is beneficial to both sides. The tenants gain detailed insights in the forthcoming interventions and can actively contribute to them, the housing associations can benefit of the inside knowledge of the tenants. By the new workshop format tenants is given the possibility to voice their wishes and concerns about the refurbishments. During the workshops tenants, representatives of the housing agencies and refurbishment experts discuss in topic specific focus groups details of the refurbishments. The topics are selected based on results of the tenant survey described in Deliverable 6.1.a. The workshops shall lead to the improvement of the relationship between tenants and housing associations and ultimately, to the increase of acceptance of the refurbishment and evaluation activities by the tenants. A second survey when refurbishments are completed, will prove this assumption.

Another new approach to communicate details of the refurbishments to the tenants is the possibility to visit demo apartments. Both local housing associations offer their tenants the opportunity to visit apartments similar to their own that have already been refurbished. As a result of these visits, tenants gain an idea about how their future flats will look like and how they will be technically equipped.

A survey among Communication Team members in September 2015 aimed at acquiring information on communication demands among different dialogue groups. Results of this survey (Figure 9) give an overview of existing communication channels with tenants and suggestions of improvement of the knowledge exchange.



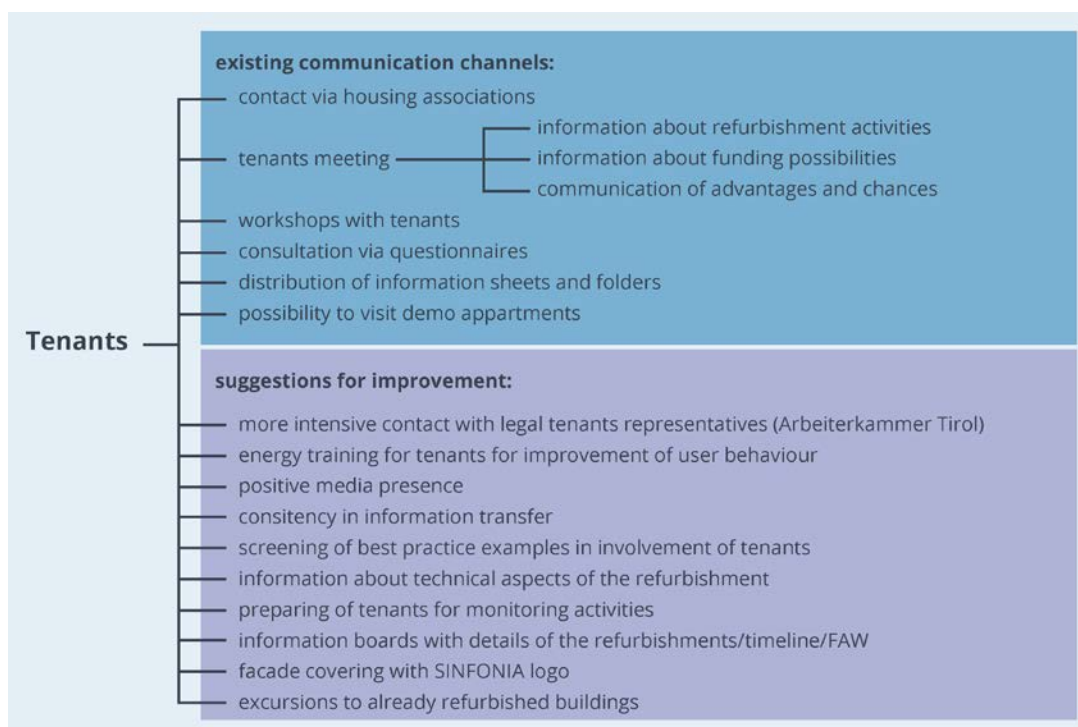


FIGURE 9 EXISTING COMMUNICATION CHANNELS AND SUGGESTIONS OF IMPROVEMENT FOR THE COMMUNICATION WITH TENANTS (IN SEPTEMBER 2015)

NEXT STEPS IN KNOWLEDGE SHARING WITH TENANTS

The questionnaire for tenants (Deliverable 6.1.a) includes questions about the tenant's interest in energetically relevant aspects of the refurbishments and their preferred way of exchanging corresponding information. These questions aim at the definition of appropriate ways for the training of tenants in the use of new technologies in their flats. Answers to the questions are shown in Figure 10 and Figure 11. The majority of tenants are interested in information about energetically relevant aspects of the refurbishments of their apartments, being approximately 50 % of tenants that attended at the survey in IIG buildings and more the 70 % in NHT buildings. The grey parts of the columns represent the number of flats with no contributions to the survey.

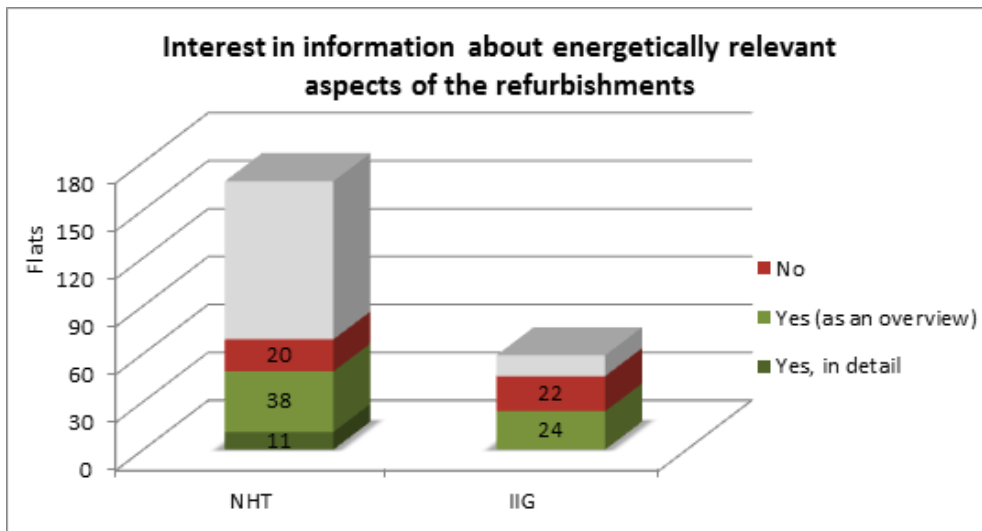


FIGURE 10 RESULTS OF SURVEY AMONGST TENANTS IN INNSBRUCK CONCERNING THE TENANT’S INTEREST IN INFORMATION ABOUT ENERGETICALLY RELEVANT ASPECTS OF THE REFURBISHMENTS

The majority of tenants that is interested in information about energetically relevant aspects of the refurbishments prefers to get it via guidebooks or user manuals (approximately 50 % of interested tenants), as shown in Figure 11. Based on these findings, a guidebook or user manual for tenants is going to be designed together with the consortium members of Bolzano. The guidebook shall contain important information about the technical innovations and the appropriate application of these, in order to contribute to the achievement of envisaged energy savings in the refurbishment buildings.

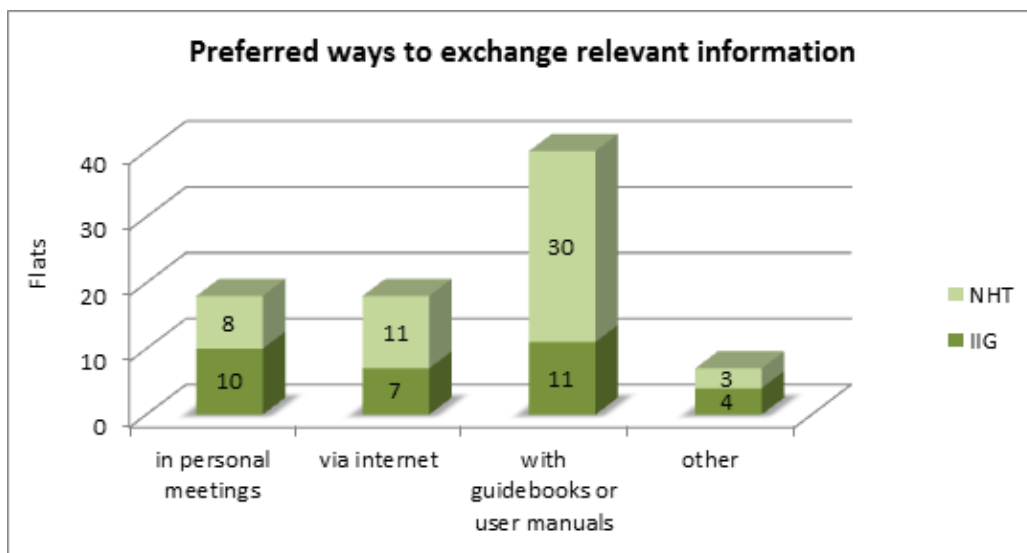


FIGURE 11 RESULTS OF SURVEY AMONGST TENANTS IN INNSBRUCK CONCERNING THE PREFERRED WAY TO EXCHANGE RELEVANT INFORMATION



RECOMMENDATIONS FOR EARLY ADOPTER CITIES

The communication with tenants is a key facture for reaching the goals of smart city refurbishments. Some important point should be kept in mind:

- ▶ Tenants should always get first-hand information. They should be the first to know that their building is going to be refurbished.
- ▶ A constant information flow before and during the refurbishments shall be provided to the tenants.
- ▶ Enabling of co-decision-making guarantees that tenants bring in important inside knowledge beneficial to the housing associations. The possibility of co-decision making increases the acceptance of refurbishments exceptionally.
- ▶ Formats of participation have to be considered in budget and time plans of the refurbishments.
- ▶ Information on monetary aspects of the refurbishment (e.g. rent raises) shall be transparently described, since it is essential to tenants.
- ▶ The advantages of the refurbishments must be clearly shown.

SCHOOLS

In Innsbruck, three elementary schools (VS Siegmair Schule, VS Angergasse and VS Neu Arzl) take part in SINFONIA. Over a period of two years (2015-2017), schools are being refurbished to improve their energy efficiency. To involve these schools and their users, being teachers and pupils as local stakeholder groups, the *School Workshop Program: Smart Cities* is developed and will be implemented into the school's curriculum. The organisation of the activities of knowledge sharing with the SINFONIA schools is performed by members of the Communication Team Innsbruck under the lead of alpS.

Concerning contents and methods, external workshop partners (Energy Tyrol, Climate Alliance Tyrol and Passive House Institute) will adapt their educational programs to the age of the children. The workshops will provide pupils and teachers with information about SINFONIA topics like e.g. energy efficiency, and give insights in the energetically relevant aspects of the refurbishments of their school buildings. Furthermore, the involvement of schools is aiming at the raise of awareness and the increase of acceptance for the refurbishments. The exchange of knowledge with pupils can have a



strong multiplier effect. Hence, its effects can reach far beyond the schools and can positively influence the project on different levels.

By the involvement of "external" stakeholders like Energy Tyrol and Climate Alliance Tyrol, that have experience in the knowledge transfer of relevant topics to the target group, it is guaranteed that the envisaged workshops serve the purpose.

Table 11 summarizes the meetings held with the organizing committee consisting of Communication Team members. Additionally, the school's headmasters took part in single meetings.

TABLE 11 LIST OF MEETINGS CONCERNING THE INVOLVEMENT OF SCHOOLS

Date	Participants	Discussion Points
23.06.2015	alpS, IIG	Aim of involvement of pupils and teachers; concept
08.07.2015	alpS, IIG, head of schools	Presentation and discussion of concepts
29.9.2015	alpS, IKB, IIG, MagIBK	Elaboration of workshop concept for the "Young University – day of action"
20.10.2015	alpS, IIG, MagIBK, UIBK	Preparation of the "Young University – day of action"

METHODS OF KNOWLEDGE SHARING ACTIVITIES IN THE SINFONIA SCHOOLS

The exchange of knowledge with schools is divided into two activities. The first one is the kick-off event in the framework of the "Young University – day of action" of the University of Innsbruck, the second are subsequent workshops (following 3 modules) throughout the school year 2015/2016.

1. "Young University – day of action"

In November 2015, the "Young University – day of action", organized by the University of Innsbruck, will take place in Innsbruck. Beside different institutes of the university external institutions with a scientific and technical background will present the topics of their daily work to school children and teenagers.

In this framework, the SINFONIA partners organize workshops/stands for pupils of the three Tyrolean schools to be refurbished within SINFONIA. The workshops focus on creating awareness on energy consumption, renewable energy, climate and environment protection among the pupils. Furthermore, an ideas competition with the topic "SMART CITY – City of the Future" will be



organised, where pupils can write/design their concepts and win prizes. A compilation of these designs/ideas will be published at the SINFONIA website.

The ceremony for awarding of the best ideas took place on the 10th of December in the Municipality of Innsbruck. The eight winners were invited to receive their prizes in person, handed over by the vice-mayor of Innsbruck. Since teachers and parents of the students participated in the award ceremony, the event had a multiplier effect on the social environment of the students.

2. Workshops throughout the school year

During the school year 2015/2016 a series of workshops will take place in selected classes of the SINFONIA schools. The workshop program consists of one obligatory basic module and three elective modules (compare Table 12), of which one workshop each should be selected. A consistency of the program sequences is guaranteed by a coordination unit consisting of local project partners.

TABLE 12 LIST OF WORKSHOP MODULES FOR THE INVOLVEMENT OF SINFONIA SCHOOLS

Module	Organizers	Content
Module 1 "SINFONIA – Smart City" (obligatory)	SINFONIA Consortium	Presentation of the project Refurbishment activities in the different schools Renewable energies
Module 2 "Energy" (mandatory)	Energy Tyrol	Three workshops on different energy topics are proposed (one can be chosen) 1) <i>Energie... und wie!</i> (about the relation between energy and climate protection; information about different energy sources, renewable energy) 2) <i>Energierundgang</i> (guided tour in the school with information about heating, hot water supply, air conditioning) 3) <i>Stromdetektive</i> (information about hydroelectric power and photovoltaic; children will learn how safe energy)
Module 3 "Mobility" (mandatory)	Climate Alliance Tyrol	Two workshops on different mobility topics are proposed (one can be chosen) 1) <i>Öffi school</i> (public transport and school: Information about ecological and sustainable mobility; how to read maps of public transport 2) <i>Be a Mobistar!</i> (Information about measures and actions to raise awareness for ecological and sustainable mobility; guided bus ride)
Module 4	Passive House	Two workshops on different architecture topics are



"Architecture" (mandatory)	Institute	<p>proposed (one can be chosen)</p> <p>1) <i>"Building with the sun"</i>: information about architecture and adaptation towards solar radiation, methods of insulation, presentation of various passive house models</p> <p>2) <i>Including components of a passive house</i>: excursion to passive houses in Innsbruck</p>
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CHALLENGES OF KNOWLEDGE SHARING ACTIVITIES

Prerequisite for the transfer of knowledge to the pupils is the establishment of a good contact with the teachers and the headmasters of the schools. Since the curricula of the schools are relatively tight and offers of extracurricular activities by different institutions are manifold, some efforts had to be done to persuade the schools of participating in the workshop modules described above.

Furthermore, it is quite challenging to prepare complex topics in the context of smart cities in an age-based way. The age of pupils of the SINFONIA schools range between six and ten years. Accordingly, topics are processed in a playful and easy intuitive way.

Another point that has to be taken into account when activities are planned is the financial situation of pupils. All exchange of knowledge activities with schools described above are offered for free. Costs are covered by the consortium partners or by the external institutions involved. It is unlikely that costs for non-financed events can be covered by schools or pupils, respectively.

RECOMMENDATIONS FOR EARLY ADOPTER CITIES

When schools are part of smart city refurbishments it is very recommendable to use the opportunity to share the knowledge with the school's pupils, since the pupils are the adults of tomorrow and serve as important multipliers for smart city topics.

The involvement of external educational institutions with a focus on e.g. energy or mobility can be very beneficial to smart city projects. A funding scheme for the involvement activities is absolutely necessary. Schools might not contribute to the project if costs are not covered. External educational institutions like e.g. the Climate Alliance often can offer workshops financed by subsidies.



The constant involvement of pupils and teachers via single workshops accompanying the refurbishments of schools is an appropriate way to transfer knowledge about the refurbishment measures and smart city measures in general.

ENERGY CONSUMERS

Information of energy consumers is of high interest for the local energy supplier IKB, also to perform some of the planned activities within SINFONIA. The aim of the knowledge sharing activities launched by IKB was to identify the challenges and chances of increasing decentralized injection of renewable energy in public nets. In this case, chances of an intelligent energy management are detected for SMEs that can achieve - with the support of intelligent sensor data - an optimal adjustment of local production and consumption. Furthermore, the optimization between energy consumption, energy usage and energy efficiency is analyzed.

In order to answer the above described questioning, 25 energy intensive companies were selected and contacted via a questionnaire elaborated by Urban Institute. This questionnaire focused on the flexibility of energy consumption of companies. Since the feedback rate of the questionnaire was low, telephone interviews via the customer center of IKB were performed following an interview guideline.

CHALLENGES OF KNOWLEDGE SHARING ACTIVITIES

One of the main challenges of the above mentioned knowledge sharing activity was to describe the aim of the study in short precise sentences as well as to avoid a sales conversation but a cooperation where both business partners shall profit on the chances of the activity.

RECOMMENDATIONS FOR EARLY ADOPTER CITIES

In order to establish a smart electric grid for a city/district the involvement of companies is essential. Contact with possible partners (e.g. SMEs) should be personal and not via e-mail, letters etc. Telephone consultation could be one mean to set up contact and to exchange knowledge. Anyhow, the direct involvement of companies concerned within the project can be highly recommended. This involvement could include the presentation of the overall context, the targets of the project and its visions to interested companies and in a next step (e.g. side event) the personal contact and a discussion about information exchange (via questionnaire).



EXECUTIVE ACTORS

According to the SINFONIA stakeholder map of the City of Innsbruck (Figure 7) the stakeholder group "executive actors" includes the subgroups architects, planners, developing companies and craftsmen. Executive actors have been strongly involved by the activities of Innsbruck's housing companies IIG and NHT. The communication with these stakeholder groups is based on regular construction management meetings. Participants of these meetings are, besides "internal" stakeholders, architects, planners, construction lead and the developing companies. The meetings take place on a regular basis and as occasion demands, aiming at a continuous exchange of knowledge between the parties involved in the refurbishments of different objects in order to facilitate and coordinate planning and implementation of refurbishment activities.

The following topics have been addressed during construction management meetings:

- ▶ Information on internal procedures (organogram etc.)
- ▶ General information on the refurbishment objects
- ▶ Presentation of the design competitions
- ▶ Information on tenant involvement
- ▶ Information on municipal building inspection
- ▶ Specification of technical aspects of the refurbishments (heating/cooling, electricity etc.)

TECHNICAL CONSULTANTS

KNOWLEDGE SHARING ACTIVITIES

To accelerate the involvement of technical consultants or regional companies, respectively, and to push knowledge transfer towards a new format, the "Smart City Dialogue" was established by SAT. The first two dialogues have been organized on the 20th of April 2015 with focus on refurbishments of buildings (22 participants, mainly SME) and on the 24th of September 2015 with focus on smart grids (29 participants, mainly SME but also authorities/representatives of the Province of Tyrol). Compare Table 13 for more detailed information on the dialogue meetings.

Aims of the "Smart City Dialogs" are information sharing about the challenges and findings of solutions in SINFONIA and the involvement in the development and implementation of components,



where no standard products are available or the need for new solutions is high. For that goal, the Clusters for Renewable Energy, Mechatronics and ICT is an excellent pool of companies, managed by SAT. Main topics are technical solutions but also aspects of the legal framework for the implementation of measures like the Tyrolean housing subsidies (Tiroler Wohnbauförderung) or the Austrian electricity law (ELWOG Elektrizitätswirtschafts- und -organisationsgesetz) were part of the discussions. The "Smart City Dialogues" take place with a frequency of three to four times a year. The frequency also depends on the occurrence of hot topics.

Further information can be found under: <http://www.sinfonia-smartcities.eu/en/news/2nd-smart-city-dialog-held-in-innsbruck>.

TABLE 13 LIST OF MEETINGS "SMART CITY DIALOGUE"

Date	Participants	Discussion points
20.4.2015	Companies from the following sectors: architects, solar engineering, energy provider, window manufacturer, heat pump manufacturer, process engineering, energy system, building technology, wood processing	Presentation of project status Discussion of challenges and new aspects in the fields of construction of window components for refurbishments, insulation, integration of comfort ventilation of inhabited flats, integration of housing and energy technic in the façade, PV and solar thermal solutions roof integrated
24.9.2015	Companies from the following sectors: architects, solar engineering, energy provider, municipal utility management, power station providers, university, telecommunication, ventilation technology, heat pump technology, regional government of the Tyrol, measuring technology	Presentation of the IKB energy network within SINFONIA Discussion of energy sharing with the aim of efficiency enhancement, more renewables and new business models 4)

METHODS OF KNOWLEDGE SHARING ACTIVITIES

The format "Smart City Dialog" is a mixture of presentations given by the project partners and external experts, followed by an "Art of Hosting"-workshop, in which small groups discuss several topics. The participants are invited to bring in these topics. The discussion results are kept records. Moreover, each participant can get in face to face contact with project partners and experts. To gain further feedback from the participants, each "Smart City Dialog" is evaluated by an external



institution. As a follow-up service, SAT offers consulting about cooperation and funding for research and development.

CHALLENGES OF KNOWLEDGE SHARING ACTIVITIES

Dealing with the challenge of the requested high participation of local companies, the Cluster networks built up and managed by SAT in the branches renewable energy, mechatronics and ICT are an excellent base. These target-groups will be directly addressed by program and invitation. The content of the "Smart City Dialogues" is matched with the competences and interests of the Cluster companies and the tasks in SINFONIA. Finding the right balance between involvement and the expectations for orders is a challenge that can be met by clear and transparent communication routines.

RECOMMENDATIONS FOR EARLY ADOPTER CITIES

Involvement of local companies and scientific institutions in the transformation process to a low carbon society makes sense. Without the creation of added value on a regional level the barriers for the implementation of large scale measures would be much higher. In order to find the right balance between involvement and the expectations for orders clear and transparent communication routines shall be installed as important prerequisites. Feedback and follow-up activities are crucial to hold a high level of loyalty/participation.

POLICY MAKERS

The members of the Communication Team Innsbruck recorded the communication demand among local stakeholder groups. Figure 12 summarizes the survey results and gives an overview of already existing communication channels within Policy makers & local/regional authorities and suggestions for improvement.



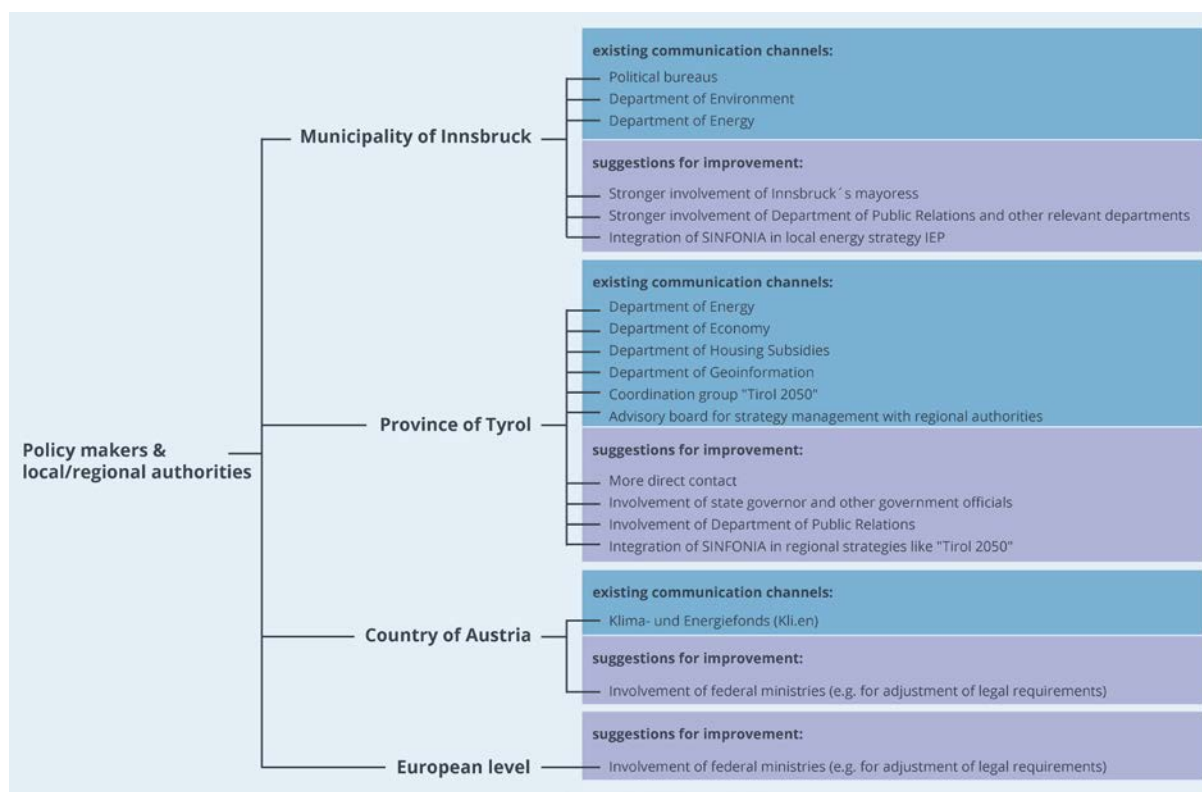


FIGURE 12 EXISTING COMMUNICATION CHANNELS AND SUGGESTIONS OF IMPROVEMENT FOR THE COMMUNICATION WITH POLICY MAKERS & LOCAL/REGIONAL AUTHORITIES (IN SEPTEMBER 2015)

PROVINCE OF TYROL

In autumn 2014, the Province of the Tyrol has launched an ambitious program "Tirol 2050 energieautonom". With the implementation of this program the following objectives shall be reached: Until the year 2050 energy consumption shall be halved and the share of renewable energy sources shall be increased up to 30%. There is full political consensus that SINFONIA is of high importance for the province to reach this target as well as for the EUREGIO region. In order to involve the political and administration level from the province, regular meetings are organized by the District Leads. Until now two of these meetings have taken place with members of the SINFONIA consortium, representatives of the Regional Government of Tyrol, the political offices of the provinces and NGOs. The format of these meetings is an short presentation about the status of the project followed by an informal discussion.

In the first meeting in 8th June 2015 with representatives from:



- ▶ SINFONIA consortium (UIBK, SAT, MAG IBK)
- ▶ Energie Tirol
- ▶ Provincial Government of the Tyrol (Department Water, Forest and Energy legislation, Energy Commissioner of the Tyrol, Department of Housing Subsidies, Department of Economy and Labor, Governmental Offices)
- ▶ EUREGIO Region

First recommendations from this knowledge sharing activity are:

- ▶ Better involvement of tenants in refurbishment activities (communication) in order to increase acceptance
- ▶ Involvement of the workers syndicate the project
- ▶ Creation of links between SINFONIA and the energy monitoring of the province and the program TIROL 2050
- ▶ Public relation also via media of the province
- ▶ Dialogue with the urban planning department of the city
- ▶ Integration of SINFONIA and energy relevant topic in school lessons
- ▶ Establishment of a SINFONIA Advisory Board with representatives of the province and the city

MUNICIPALITY OF INNSBRUCK

Focusing on knowledge exchange, the policy makers of the Municipality of Innsbruck take on two different levels. The first level is to receive relevant information from SINFONIA partners (mainly the municipal administration in charge of the performance of the project), who are actively involving the local politicians. In the second level, politicians are transferring information on the project themselves and become important multipliers by representing the project on different events, committees or other political platforms.

Local politicians have been addressed by the following knowledge sharing activities :

- ▶ Information event for regional stakeholders and politicians (Oct. 2014)



- ▶ Creating a shortcut between Municipal Administration and politicians via the Committee for the environment, energy and mobility (information about the progress of SINFONIA), which is the advisory board for the responsible decision making committee (city council or town senate)

Politicians became multipliers for project information during the following knowledge sharing activities:

- ▶ A “Current Hour SINFONIA” of the city council (<http://www.ibkinfo.at/gr-mai>): Launching a discussion on the project progress including different political parties
- ▶ Political participation at meetings, e.g. development of a local communication strategy for the City of Innsbruck, upon request

For the forthcoming months a closer cooperation on a political level between the Demo Cities Innsbruck and Bolzano and the Early Adopter City Rosenheim will be initiated by the Municipality of Innsbruck.

One method for the exchange of knowledge with Innsbruck’s politicians is to launch discussions on SINFONIA issues in municipal bodies (town senate, city council), including e.g. project progress or necessary resolutions. Furthermore, SINFONIA is an important discussion point at the Municipal Committee for Environment, Energy and Mobility. Exchange meetings between politicians and administration can be launched once a week at the jour fix via the head official. Furthermore, meetings between politicians and administration are hold on request.

RECOMMENDATIONS FOR EARLY ADOPTER CITIES

A strong political support for the performance for such a big project is one of the most important factors for the project’s success. In addition, a regular update of the project progress is quite important, to keep the politicians up to date. The common structure for the internal knowledge exchange is always to be optimized. Communication structures should be established from the very start of the project.



5. KNOWLEDGE SHARING BEYOND THE LOCAL LEVEL

Knowledge sharing does not only take place in the demo cities but also reaches beyond the local level. By the share of knowledge between Innsbruck and Bolzano an ambiguous learning process shall be guaranteed. Each city uses different approaches and methods to provide and collect knowledge. The exchange of experiences helps to raise the efficiency of the used methods and facilitates the search for solutions if necessary.

SINFONIA bears a lot of challenges for its virtual team, since the project involves institutions distributed over whole Europe. Hence, most project team members, besides the local sub-teams in Innsbruck and Bolzano, are geographically separated. Even though the consortium strives for a strong personal contact, the collaboration within a virtual group cannot be avoided. Communication between virtual group members bears a series of challenges (Gibson and Cohen, 2003).

KNOWLEDGE SHARING BETWEEN THE DEMO CITIES INNSBRUCK AND BOLZANO

Due to the international character of both the SINFONIA consortium and the project content knowledge sharing is not limited to the local level. Intensive knowledge transfer is taking place between the two demonstration cities Bolzano in Innsbruck. By sharing experiences and lessons learnt each city can benefit of the other. Beside regular topic-specific exchange meetings (e.g. between the housing associations or the district leads), knowledge sharing on a transnational level is organised by the Project Management Board and the Technical Committee.

PROJECT MANAGEMENT BOARD (PMB) AND TECHNICAL COMMITTEE (TC) MEETINGS

PMB and TC meetings are classical structures for the management of the project. Nonetheless, these meetings serve for the sharing of knowledge amongst different stakeholder groups within the SINFONIA consortium. PMB and TC meetings take place in a frequency of six months and are alternately hosted by the district leads of Bolzano and Innsbruck. Furthermore, teleconference meeting of the TC are taking place once a month. Details about the organisation of the PMB and the TC meetings are provided in the Project Management Handbook of SINFONIA.



KNOWLEDGE SHARING WITH OTHER SMART CITIES

REPLICATION TEAM MEETINGS

In order to efficiently coordinate and implement the Dissemination and communication strategy, SINFONIA has established a Replication Team. This Replication Team seeks to identify suitable opportunities to communicate about the project, and to ensure that all communication material correctly reflect the scientific content of the project. The Replication Team is led by the WP10 Lead (Dissemination and exploitation), and consist of a restricted group of project partners for increased efficiency which are: Project coordinator, WP6 Lead (Local Stakeholder involvement, evaluation & follow up in Demo cities), the District Lead of Innsbruck and Bolzano, the Early Adopter Cities, WP3 Lead (Development and validation of scaling and replication rules of the smart district template) as well as the WP9 Lead (Economic impact and EU-wide integrated assessment of replication potential of smart district template).

The replication team of SINFONIA creates the link with the Replication cluster lead by the WP10 Lead. This replication cluster is a joint initiative between the EU projects SINFONIA and EU-GUGLE and aims to share the experiences of demo cities with the early adopter cities. By joining the Replication Cluster cities can:

- ▶ Become part of a community of like-minded cities and take part in replication events with its peers;
- ▶ Access tested knowledge on all aspects of large scale and integrated refurbishment (technical, social, financial, political)
- ▶ Have its district refurbishment master plan reviewed by a more experienced city, and/or review the plan of another city
- ▶ Engage in technical visits both in their city and in one of the Demo cities of EU-GUGLE and SINFONIA

More details can be found on www.sinfonia-smartcities.eu/en/replication

Concerning the activities of the replication cluster a detailed report will be elaborated (D10.1 and 10.3).



EXCHANGE OF EXPERIENCES IN SALZBURG - CONCERTO PROJECT "GREEN SOLAR CITIES"

In order to benefit of the experiences made during the CONCERTO project "Green Solar Cities" Innsbruck's SINFONIA partners and a representative of the Early Adopter City Rosenheim travelled to Salzburg at the 29th of October 2015. During a one-day excursion partners in Innsbruck gained insights in technical solutions as well as in social approaches, concerning e.g. involvement of tenants, of the CONCERTO project.

The SINFONIA team was guided by the project lead SIR (Salzburger Institut für Raumordnung und Wohnen), by a city planner, a representative of the local energy supplier and the representative of the neighbourhood management organised in the association "Stadtwerk Lehen". Although the focus of "Green Solar Cities" lies on the construction of new buildings in the neighbourhood Lehen, one emphasis of the project also is the refurbishment of building from the 60s.

Tenants were involved from the very beginning via information evenings, events or exhibitions and an info point was established in a central location. Additionally, consultations hours for tenants in refurbished buildings were offered twice a week in a site trailer. The direct contact with tenants was managed by a key personality which increased the trust of the tenants. Involvement of tenants continues beyond the refurbishments and new constructions, respectively. E.g. design of free spaces is done in a participatory way including tenant's ideas and needs.

At the beginning of the project, consortium partners of "Green Solar Cities" signed an "agreement on quality", an informal paper that aims at the formulation of project goals, including also social topics. Although the agreement is not legally binding, partners gave their commitment to complying the common project goals which facilitated solution finding during the implementation phase.

RECOMMENDATIONS FOR EARLY ADOPTER CITIES

The exchange of experiences with other projects implementing smart city measures was very revelatory for all persons involved. Beside learning of the experiences in the demo cities Innsbruck and Bolzano, it is recommendable to benefit of the outcomes of other local or regional projects.



6. LESSONS LEARNT & OUTLOOK

While communication routines and ways of knowledge exchange have been well established on the local levels in Innsbruck and Bolzano, exchange of knowledge between the demo cities and between the international project partners is still improvable. The last 18 months have shown that personal contact of project partners at meetings, workshops, group discussions or face-to-face meetings have huge advantages compared to the collaboration in virtual teams and can hardly be replaced. Consequently, WP6 partners intend to intensify the personal contact beyond the local level, which is well implementable due to the geographical proximity of the demo cities.

SINFONIA is not well known in the general public. Although some efforts have been made to spread the name, goals and contents of the project, the name recognition is low. The different exchange of knowledge events described above showed clearly that information material and other efforts to increase the public recognition of SINFONIA are insufficient. In the upcoming project period the collaboration between the demonstration work packages (WP7 and WP8) and the dissemination WP (WP10) should be deepened in order to design dissemination material in compliance with requirements of the project partners in the demo cities. Furthermore, the local Communication Teams of Bolzano and Innsbruck will contribute to the dissemination of project goals, milestones and results to a broader public on the local levels by increasing the contact to the stakeholder media and by actively promoting the project via the different communication channels of the single project partners.

The organization of the school-involvement kick-off event was a delightful example for the constructive collaboration of local partners in Innsbruck. Since the ideas competition "The smart city of the future" had great success, especially when considering its multiplier effect on student's teachers and relatives, it is considered to repeat the contest including also children and adolescents of Bolzano.

Some "external" stakeholder groups have already been intensively involved in SINFONIA, as described in the chapters above. Contact with politicians has been increased, also on a regional level. Nonetheless, communication with some stakeholders is still insufficient and will be intensified in the upcoming months.

Moreover, exchange of knowledge includes the collection of information and preferences of tenants and other "external" stakeholders, with the aim to reach envisaged energy savings. Refurbishment planning and implementation should be endorsed by local "external" stakeholders. Otherwise,



implementation of new technologies and energy interventions will not touch expected CO₂-reduction outcomes.



7. LITERATURE

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8. ANNEX

ANNEX 1: DOCUMENT INFORMATION

SINFONIA DELIVERABLE FACT SHEET	
PROJECT START DATE	1 st June 2014
PROJECT DURATION	60 months
PROJECT WEBSITE	http://www.sinfonia-smartcities.eu
DOCUMENT	
DELIVERABLE NUMBER:	D 6.1b
DELIVERABLE TITLE:	Site specific reports for Bolzano and Innsbruck
DUE DATE OF DELIVERABLE:	33/11/2015
ACTUAL SUBMISSION DATE:	22/12/2015
EDITORS:	
AUTHORS:	Schwab, Hohenwallner-Ries, Balest, Meyer, Mautner
REVIEWERS:	Vettorato, Perslow, Elosegui
PARTICIPATING BENEFICIARIES:	
WORK PACKAGE NO.:	6
WORK PACKAGE TITLE:	Local Stakeholders involvement, evaluation & follow up in demo cities
WORK PACKAGE LEADER:	UIBK, alpS GmbH
WORK PACKAGE PARTICIPANTS:	SP, MAGIBK, IKB, UIBK, SAT, BOZ, EURAC, IPES, SEL, ACC, BORAS, LARO, SEV, PAFOS, GIE, PHI, ROSE, ALF, LIE
DISSEMINATION LEVEL:	
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PU (PUBLIC)	
PP (RESTRICTED TO OTHER PROGRAMME PARTICIPANTS, (INCLUDING THE COMMISSION SERVICES))	
RE (RESTRICTED TO A GROUP SPECIFIED BY THE CONSORTIUM INCLUDING THE COMMISSION SERVICES)	x
DRAFT/FINAL:	Final
NO OF PAGES (INCLUDING COVER):	54
KEYWORDS:	Local stakeholders, dissemination, communication

