



D6.3

Report on transnational challenges and recommendations for local stakeholder involvement and consumer/tenant orientation

final

SINFONIA

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

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Executive summary

This deliverable tries to give an overview about the transnational challenges and recommendations from the two demo cities in SINFONIA - Innsbruck and Bolzano - for local stakeholder involvement and tenant orientation experienced in the project so far.

In both cities the focus was set on four main topics, that derived from demonstration measures that have already been implemented or are in the implementation process: chapter 2 focuses on “monitoring of building refurbishments”, chapter 3 on “other implemented technical measures” and chapter 4 on “building refurbishments”. The last main topic is covered in chapter 5 – the analysis of the “communication and dissemination activities done by all partners” .

As the experts on these topics are the involved project partners – the internal and external stakeholder – from both demo cities as well as from other project partners, the information summarised in this deliverable is deduced from a series of workshops, where all experiences, knowledge and recommendations were discussed, collected and recorded. This report is not only a “status quo” of the knowledge at that time of the project (although this part covers the majority of the report), it also gathers compiled recommendations to the early adopter and replication cluster cities in order to save time and overcome certain challenges faster. In order to do this, the group of stakeholder derived so called “key-messages” for each relevant topic within these workshops. It has to be stressed that this is always based on the individual experiences and knowledge of every stakeholder, and therefore no scientific analysis. Knowledge and experiences are developing during a project of 5 years duration – so this deliverable gives a snapshot at the time of the workshops and is not always able to document the ongoing work and the opinions, that are likely to change over time.

A variety of challenges occurred within SINFONIA, as it is a large scale demo and research project. Also the fact that Sinfonia is an inter- and transdisciplinary project makes challenges inevitable but more interesting is how to overcome these challenges. This means, that every partner has to face first internal challenges (technical, organisational, financial) to implement the measures. And then in a second step challenges occur at district level between the involved partners. Therefore a combination of both levels of challenges - let's call them internal and external - had to be overcome in every single demo project.

Beside this - internal and external stakeholder bring their different views, their various professional experiences and backgrounds as well as their “languages” into the project. Cooperation is essential for the success of such a project and has to be learned again and again.



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Shortcuts of the involved partners:

Innsbrucker Kommunalbetriebe AG (IKB)

Innsbrucker Immobilien GmbH & CoKG (IIG)

Neue Heimat Tirol Gemeinnützige WohnungsGmbH (NHT)

TIGAS-Erdgas Tirol GmbH (TIGAS)

Leopold-Franzens-Universität Innsbruck (UIBK)

Tiroler Zukunftsstiftung - Standortagentur Tirol (SAT)

Stadtmagistrat Innsbruck (MagIbk)

Passivhausinstitut Innsbruck (PHI)

Urban Software Institute (USI)

Istituto per l'edilizia sociale della provincia autonoma di Bolzano / Institut für den Sozialen Wohnbau des Landes Südtirol (IPeS)

European Academy of Bozen-Bolzano (EURAC)

Municipality of Bolzano (MoB)



1. INTRODUCTION

Workpackage 6 focuses on the involvement of local stakeholders e.g. tenants in the demonstration buildings, who are crucial for a positive implementation of refurbishment measures. Other relevant stakeholders such as politicians, institutions and the general public have been identified in the first project years.

Task 6.3 focused on the « transnational comparison of challenges and findings between the two demo cities Innsbruck and Bolzano ». Thus, to better understand favourable conditions and barriers for the implementation of demonstration measures, a mutual learning process was started.

Findings of task 6.1 and task 6.2 which were presented to the internal stakeholders of the demo cities created the basis for this process which lead into the organisation of three interdisciplinary workshops between spring 2016 and May 2017, where local stakeholders from both demo cities participated. Each of these transnational workshop focused on challenges and findings related to one of the following topics :

- a. monitoring activities
- b. building refurbishments
- c. communication and dissemination activities.

The first workshop in spring 2016 was dealing with monitoring activities. As this workshop covered two large topics - “building refurbishments” as well as “smart districts, district heating networks and smart points”, the results were split into two chapters in the deliverable 6.3 – chapter 2 “challenges and findings related to monitoring of building refurbishments” as well as Chapter 3 “challenges and findings of other implemented technical measures.

The second workshop took place in November 2016 in Bolzano, stakeholder from both demo cities as well as other project partners discussed challenges related to building refurbishments – ranging from social to technical and legal questions.

The third workshop in May 2017 in Pafos focused on the analysis of dissemination activities of three stakeholder groups, that had not gained as much attention so far as the stakeholder group “tenants” – namely “youth - general public”, “scientific community” and “politicians”.

The outcomes of these workshops are the basis for this deliverable and were investigated concerning interdependencies, involvement, effects, interrelationship of stakeholders. Furthermore, the public perceptions of, and social and institutional impacts and dynamics induced by renewable energy or energy saving investments were analysed. The results and recommendations developed in task 6.3 are amongst others the basis for the knowledge transfer with the Early Adopter Cities and replication cluster cities, eager to start similar projects, via the online Toolkit (task 6.1).



2. CHALLENGES IN THE VIEW OF THE DISTRICT LEADERS

The following report is based on the outcomes of several workshops dealing challenges in the Sinfonia demo cities in connection with the implementation measures and dissemination activities. These actions had several obstacles to overcome, whether financial, technical or others, and should give an idea on what has to be clarified before entering projects like Sinfonia. Of course, some of the findings can be found in the risks and contingency plans in the DOW but theory and practice, as in many occasions, differ. Despite these obvious and partly foreseen challenges there are other aspects which impede the successful implementation of a project which have been observed by the district leaders in Bolzano and Innsbruck respectively.

Problems can be foreseen but in practice they are different or more complex than expected. A proposal is written, and risks are taken in to account. Sometimes innovative ideas get more complex in the moment they are implemented. This is true for any mechanical innovation and for a large-scale project like Sinfonia where we are elaborating innovative solutions in urban environment. Considering that there are more than ten partners involved in each pilot city, this does not make things easier.

The management of the district composed by public authorities and utilities portrays several challenges that despite the initial risk analysis still impact the overall performance of the project. In Sinfonia district of Bolzano during the course of the project there was a change of the national legislation regarding the issuance of the public tenders related to the modality and timing as well as seismic obligations, that has led to the delays in the refurbishment project execution, another issue is that there was a change of the political composition of the Municipality of Bolzano as a result of the elections in the middle of the project. This has led to the changes of the description of work not foreseen in the beginning of the project, hence the amendment was requested.

Of course, and this is true for all projects, the most important factor is the people involved. Different people have different interests. As well different backgrounds and therefore people, even if they speak the same language, talk about different issues and do not understand each other. This has been experienced in Sinfonia where we are facing a trans-, intra-, interdisciplinary and international project. Sociologists meet technicians, practitioners meet theorists and legal frameworks are different in different countries. This can lead to misunderstandings and end with conflicts between certain partners. Being district leader, it happens that certain partners do not even speak to each other any more because of a personal antipathy and this is not beneficial for the project. However, this is the role of the district leader besides coordinating the pilot cities, moderating meetings we must act as a kind of mediator in order to get things back on track.

Another problem which can be foreseen in any European project is the intercultural difference and English not being mother tongue for most of the partners. This also leads to misunderstandings because of linguistic as well as cultural differences. Well, this does not only concern the district leader but also the coordinator.

As we have a consortia agreement in Sinfonia, as in every EU collaboration project, the partners also have internal procedures to fulfil. Decision processes in bigger companies, political institutions last longer than in an SME or a research institution. This is interfering certain procedures but in the end



everybody has to cope with this and align the procedures to internal rules. This works out but it takes time.

Also public institutions form part of the consortium they have to comply with tender procedures which outcome is not always comprehensible for the project partners and they even complain – also this makes life difficult. Of course, everybody is aware about public tenders but when other organisations rely on these procedures different corporate cultures clash.

When I think about monitoring I have to admit that the procedure for Innsbruck proposed in the DOW is not the most efficient. Organised by UIBK, installed by the housing companies, equipment ordered by IKB and accompanied with questionnaires before and after by alpS. For me it is now obvious that this “construction” leads to certain delays, problems and misunderstandings. Furthermore a huge planning and coordination is needed to get this “side project” done. We managed to do so but in the future things must be kept simple.

And last but not least Sinfonia was a five years project which now has turned to a six years project. Within this timeframe people change their jobs, responsibilities or they go on leave. Dealing this is not easy because most of the times the newbies have to enter a running project without knowledge about it. So everything which is was written before is new for these people. Also for the district leader this is always a challenge because a certain relationship is established and then the whole process has to be undergone once more. And of course things can turn to the better with new people but unfortunately also to the worse.

Furthermore, due to the restrictions in the hiring established for the public authorities in Italy, there was a continuous change of project management personnel (5 times so far) of the Municipality of Bolzano, which as a consequence means that the new person needs couple of months to understand all the procedures and the project implementation activities, establish contacts with internal division of the Municipality responsible for the implementation of various activities of the project (Mobility Office, Public Procurement office, tenant management office, etc). All afore mentioned aspects could not have been foreseen at the beginning of the project and had to be managed on the case by case basis.

3. CHALLENGES & FINDINGS RELATED TO MONITORING OF BUILDING REFURBISHMENTS

“Setting up a large monitoring campaign from convincing the building owners and tenants, the development of the monitoring architecture, implementing technical devices, data collection in the data base and the assessment of the data is a long-lasting process. To keep a high quality during all steps it needs an accurate preparation and a very good collaboration between the involved partners over the whole project period.”(quote by UIBK)

“A large scale monitoring system has never been installed before in Bolzano. Therefore transfer of an R&D level of the technical specifications developed by research partners (EURAC) into routine



procurement schemes of a public authority with the obligations and restrictions regarding the potential subcontract was needed. Considering that public authorities cannot assign a directed tender or name a specific product in a public tender, created a challenge that 5 different companies implement 5 monitoring systems, which should deliver same type of the information - such challenge was not foreseen in the beginning of the project.” (quote by EURAC)

In SINFONIA “monitoring” was set up for building refurbishments (block of flats and schools) and affected local stakeholder groups. Temperature, humidity, CO₂, heat (domestic hot water and space heating) and electricity demand are monitored by sensors inside the flats as well as on building level. However, the systems in Innsbruck and Bolzano differ because of national standards, legal regulations and different hardware. Therefore different databases are used in both cities which has to be taken in account when analysing and comparing the obtained monitoring data. The challenges are well described in the statement by UIBK – many partners have to contribute: UIBK has to plan the architecture and set up the database, building owners have to convince the tenants, building owners have to install the devices and last but not least IKB has to purchase the equipment. Furthermore everything has to be with the data protection laws which is complicated dealing sensitive data. Even if there are less contributors in Bolzano the tenants and legal regulations make the monitoring complex.

In spring 2016 a workshop took place in Innsbruck on challenges and findings related to the monitoring of building refurbishments. Representatives/internal stakeholders from relevant organisations in both demo cities participated. In the framework of this workshop financial, technical, legal, organizational, social and other challenges and possible solutions were elaborated in order to compare different challenges experienced in Innsbruck and in Bolzano. The outcomes pictured below reflect the common view of all workshop participants. Of course, today these findings would be different due to gained experience and knowledge over the last 20 months of project runtime. Some solutions that had been elaborated till today, have not been obvious in spring 2016. However, the aim of the report is not finding the perfect findings but the opinion and knowledge of the relevant stakeholders at that time of the project.

Based on the identified challenges and solutions “key-messages” for Early Adopter and replication cities were defined with the workshops participants.



3.1 CHALLENGES AND SOLUTIONS RELATED TO MONITORING OF BUILDING REFURBISHMENT IN BOTH DEMO CITIES

In Innsbruck as well as in Bolzano the refurbished dwellings are social housings. Additionally, three primary schools were refurbished in Innsbruck. Once the refurbishments are completed, monitoring equipment is installed and data from the apartments and school classes is transferred to a secure data server for 12 months. The collected data is analysed regarding comfort and energy issues. In Bolzano, each monitored apartment is equipped with a display on which selected monitoring data can be visualized in order to give tenants a feedback on their energy consumption.

Tables 1 provides an overview on challenges that partners had to face related to the monitoring activities. The challenges are subdivided into the following categories: financial, technical, legal, organizational/ administrative and social. Please consider, that financial, technical and legal challenges are closely connected to each other. Table 1 also summarizes different solutions that were found in both demo cities to overcome the challenges. Contents of the table are derived from the above mentioned workshop in spring 2016. All partners involved in the monitoring activities participated in the workshop.

TABLE 1 CHALLENGES AND SOLUTIONS RELATED TO MONITORING OF BUILDING REFURBISHMENT IN BOTH DEMO CITIES

	INNSBRUCK		BOLZANO	
	CHALLENGES	SOLUTIONS	CHALLENGES	SOLUTIONS
Financial	Limitation of budget: expenses of monitoring devices exceed the calculated costs	Adaptation of monitoring measures according to budget (e.g. cheaper sensors, reduction of measurement intervall)	Limitation of budget: expenses of monitoring devices exceed the calculated costs	No solution yet



Technical	<p>Integration of monitoring devices/systems:</p> <ul style="list-style-type: none"> - Calibration of monitoring devices - Data transfer: Wi-Fi or cabling? <p>Development status of technology (LORA) → no market readiness at project start</p> <p>Data protection during data transfer</p> <p>Comparability of monitoring devices enabling comparisons of measured and calculated energy demand applied in Innsbruck and Bolzano</p> <ul style="list-style-type: none"> - Data transfer: different partners are working with different software (EXCEL, matlab) - Different database structure in Bolzano and Innsbruck 	<p>Consideration of Wi-Fi and cabling solutions in the call for tender</p> <p>Design of data base according to different data input formats (e. g. dynamic, stationary)</p>	<p>Integration of monitoring measurements/devices</p> <ul style="list-style-type: none"> - Calibration of monitoring devices - Data transfer: Wifi or cabling? (adopting the WIFI connection means using batteries that run down quickly and are not very reliable) <p>Exchange of data: Applied data acquisition system should enable easy exchange of data between project partners</p> <p>Data management:</p> <ul style="list-style-type: none"> - Getting a significant amount of both quantitative and qualitative information - Responsible partner (BOZ) cannot handle such data (e. g. because of lack of dedicated staff) - Use of data for internal use or also to educate tenants <p>Development status of technology (LORA) → no market readiness at project start</p> <p>Comparability of tools for comparison of measured & calculated energy demand applied in Innsbruck and Bolzano</p> <ul style="list-style-type: none"> - Data transfer: different partners are working with different software (EXCEL, matlab) - Different database structure in Bolzano and Innsbruck 	<p>Tenants live in their flats during refurbishment - > only a wireless connection for data transfer is possible.</p> <p>The cable connection was chosen because it is more effective (eg no annual battery changes) and it is possible in technical rooms, but also because it is possible to apply sensors.</p> <p>Inside the flats and along the stairways WIFI technology was preferred.</p> <p>The data acquisition system will work through a proprietary platform of the municipality of Bolzano, which makes it possible to use data for in-house purposes.</p> <p>Data management has been outsourced to EURAC for one year. Monitored data will be communicated to tenants as part of several workshops</p> <p>Meeting UIBK / BOLZANO /EURAC: Maybe we find a way to exchange data more comfortable within the project (XML) - also concerning KPI's; Database exchange, comparability of PHI and ACC methods.</p>
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Legal	<p>Strong data protection regulations in Austria: ELWOG (= Electricity sector act) MRG (Mietrechtsgesetz = tenancy law) DSG (Datenschutzgesetz= data protection act)</p>	<p>Consultation of data security experts Collection of permits from tenants for the use of anonymized data by restricted partners and for restricted uses</p>	<p>Data protection regulations:</p> <ul style="list-style-type: none"> - Legally tenants are the only owners of their monitoring data - How to handle confidential information? 	<p>Cooperation with tenants; avoidance of aggressive approaches Distribution of a declaration of consent for monitoring among tenants (incl. permission to collect sensitive data, highlighting of benefits related to monitoring activities. Contracts with new tenants include the permission for the monitoring automatically.</p>
Organizational/ administrative	<p>Internal communication for compilation of data collected in different WPs Lack of economic KPI's Availability of baseline data Cooperation between involved partners (IIG; IKB; NHT; UIBK) Unclear procurement procedure for monitoring devices Unclear cost allocation for monitoring equipment (cabling)</p>	<p>Definition of the different roles and tasks of the stakeholders involved in the monitoring process Definition of useful indicators Design of monitoring concept in cooperation with IKB (budget for monitoring equipment) and NHT & IIG (building companies with the budget for cabling costs) After receiving the declaration of consents of the tenants equipment is ordered (IKB with support of UIBK), prepared (standard control of functionality, calibration, naming) and send to the building site for installation.</p>	<p>Internal communication: Lack of precise definition of different roles within the consortium Unclear cost allocation for monitoring equipment? Partners spend money for the collection of data they are not able to manage</p>	<p>Definition of the different roles and tasks of partners involved in the monitoring process:</p> <ul style="list-style-type: none"> - Who defines technical specifications (performance indicators not specification on technologies)? - How should the technical specifications be accounted for in the tender? - Who issues the tender? - Who is responsible for the implementation of the measures?
Social	<p>Tenants do not give their approval for monitoring measurements in their flats Participation of tenants in the monitoring measurements – How to motivate tenants?</p>	<p>Design of information events for tenants Possibility to visit demo apartments Experts of the University of Innsbruck explain monitoring concept Limitation of work in apartments</p>	<p>Participation of tenants in the monitoring measurements – How to motivate tenants? Approach of communication of energy demand to tenants: How should monitoring data be communicated to tenants?</p>	<p>Each monitored apartment will have a display on which selected monitoring data will be viewed in real time. Organization of workshops for tenants aiming at raising the acceptance for monitoring and training of correct use of displays</p>



3.2 ANALYSIS OF SIMILARITIES AND DIFFERENCES OF CHALLENGES AND SOLUTIONS RELATED TO MONITORING OF BUILDING REFURBISHMENT

Partner in Innsbruck and Bolzano had to face similar challenges with the design and implementation of their monitoring concepts. In both cities, social housing has been refurbished. Tenants in social housings were found to often have a low educational background and the majority of tenants were not open minded towards monitoring aspects. To motivate tenants was the most critical aspect since for statistical analysis of the monitoring data a critical number of monitored flats was required. Monitoring was often considered as an intrusion into tenants` privacy. Hence, the housing companies and other involved partners had to invest a considerable amount of time to convince tenants about the advantages of the monitoring since in both cities the participation in the monitoring was voluntary. Tenants were encouraged to participate in the monitoring campaign by promising incentives. In Bolzano, each monitored apartment was equipped with a display that allows the visualization of monitoring data. This offer raised the interest of tenants to participate in the monitoring procedure. Housing companies of both cities will include a clause on the permission for monitoring in their rental contracts with new tenants. By doing so, monitoring will be facilitated in the present and future refurbishment projects.

In both cities the issue of data protection was underestimated. A huge administrative effort was needed to get agreements for data transfer between the involved SINFONIA partners and – in a next step - tenants. This process was very time consuming. The Municipality of Bolzano and the two housing agencies in Innsbruck (IIG and NHT) solved the problem of data protection by sending the tenants a consent form in which tenants were asked for their permission to collect sensitive data.

Also technical aspects such as data transfer, database structure were underestimated and caused costs and delays. It is recommendable to elaborate and use only one consistent data protection agreement for data collection that is jointly developed by all involved partners and their lawyers. Furthermore, industry-standard monitoring equipment shall be used as open source solutions might not be able to constantly deliver data and for a longer period. Data acquisition systems to be integrated in the existing database need to be studied in the starting phase. Also, the monitoring period should be more than one year in order to secure quality and control mechanisms.



Working in a team with different institutions was also found challenging in both demo cities. To overcome this challenge it is important to start the monitoring process with a clear vision of objectives, methods and results to be achieved. The objectives of the monitoring have to be clear at the beginning of the project. Each partner involved has to master the framework of the monitoring process (legal issues, technical issues, planning, etc.) in order to give a positive contribution.



4. CHALLENGES AND FINDINGS RELATED TO OTHER IMPLEMENTED TECHNICAL MEASURES

Beside the refurbishments of residential and school buildings, a variety of technical measures was planned and implemented in both cities in the framework of SINFONIA. In the following chapter we will take a close look at challenges that occurred during the implementation of district heating networks in Innsbruck and Bolzano. In addition, we present respective solutions that were found by the involved project partners.

In Bolzano, the existing district heating & cooling network was extended and optimised to reduce both the CO₂ and the nitrogen equivalent emissions. Measures include real time monitoring and forecasting of peak loads and energy demand, a hybrid hydrogen/methane backup system and a study on recovery of wasted energy from local industrial park. In Innsbruck, the energy providers IKB and TIGAS implemented various smart heating systems primarily based on renewable energy sources and waste heat, using several heat sources. A smart combination of various technologies (e. g. replacement of the biogas CHP, a sewage sludge drying system or a biomass gasification plant) was implemented.

The smart points of the diffused nature (single sensors) were acquired in time and are being installed by the end of 2018. While 3 integrated smart points have couple of month of a delay due to the fact that these are unique and innovative infrastructures that are being developed specifically for the project and do not exist on the market. Its development requires a complex interaction between 3 actors that have different types of procurement schemes, such interaction was not foreseen in the beginning of the project, thus Amendment was requested.

In a stakeholder workshop in spring 2016 in Innsbruck challenges and solutions around these topics were discussed in an interactive way by all relevant project partners of both demo cities. The workshop with representatives of both cities also allowed the comparison of differences and similarities of challenges and solutions. Of course, today the findings presented below could be different due to gained experience and knowledge in the last 20 months of the project runtime. Some solutions that had been elaborated till today, have not been obvious in spring 2016. However, the aim of the report is not finding the perfect findings but is reflecting the opinion and knowledge of the relevant stakeholders at that time of the project.



4.1 CHALLENGES AND SOLUTIONS RELATED TO THE IMPLEMENTATION OF DISTRICT HEATING NETWORKS IN BOTH DEMO CITIES

“During Sinfonia Alperia has had several organisational changes (merging of ECOTHERM and SEL SRL to the main company SEL SPA the introduction of the third parties ECOTHERM and SEL SRL to the main beneficiary SEL SPA, then merging with AEW which formed the new company ALPERIA, then the reorganization within Ecotherm which became Ecoplus). In a research project like Sinfonia where the involvement of the several departments of the company is needed (legal, administrative, financial, technical, etc.) continuous change of head of departments and people involved in the decision taking process due to several organisational changes does not help. With the various company changes mentioned above, also the vision changed at times, so it was extremely important to align people on this on a regular basis.” (quote by Alperia)

„The troubles which appeared during the final planning, installation and implementation of the district heating, could not have been foreseen earlier. Due to the fact, that such a complex hybrid grid was never installed before and technical and bureaucratic obstacles were unknown. The expenditure, which would have been necessary to evaluate these inconveniences, during the project planning, would have by far overshoot the available time for project planning.” (quote by IKB)

In Innsbruck, a district heating network, the powerhouse Rossau, the IKB smart district, the power to heat site and others were realised. In Bolzano, the project partner Alperia implemented a district heating network.

Tables 2 provides an overview on challenges that partners had to face related to the implementation of the district heating networks. The challenges are subdivided into the following categories: financial, technical, legal, organizational/ administrative and social. Please consider, that financial, technical and legal challenges are closely connected to each other. Table 2 also summarizes different solutions that were found in both demo cities to overcome the challenges. Contents of the table are derived from the above mentioned workshop in spring 2016.



TABLE 2 CHALLENGES AND SOLUTIONS RELATED TO THE IMPLEMENTATION OF DISTRICT HEATING NETWORKS IN BOTH DEMO CITIES

	INNSBRUCK		BOLZANO	
	CHALLENGES	SOLUTIONS	CHALLENGES	SOLUTIONS
Financial	Expenses exceed calculated costs/ funding from the EU or national	Ongoing discussions with relevant partners for national or other funding sources	High investment costs - expenses exceed calculated costs Funding (EU / National)	Higher heat loss reduction = shorter payback period Adopt a different perspective: the major goal of the H2 engine is to achieve considerable emission reductions, rather than to have some economic benefits.
Technical	Integration of systems Development status of technology	Development of technical solutions through dynamic simulations in order to gain further insights on applicability	Integration of systems Development status of technology	Collaboration with relevant stakeholders with deep knowledge on the technologies to be implemented (Software Terms for District heating + H2 Engine)
Legal	Urban planning Construction regulations	Identification of legal options	Urban planning Construction regulations	Intensive collaboration with relevant authorities/companies Consideration of experiences of other district heating projects Communication with relevant offices for obtaining authorizations
Organizational/administrative	Cooperation between relevant project partners (TIGAS; IKB; MAGIBK) Procurement procedure	Participation on recurring appointments	Cooperation between relevant project partners (Alperia; Municipality of Bolzano) Procurement procedure	Intensification of communication and collaboration for constant exchange of information Intensive collaboration with relevant authorities/companies

4.2 ANALYSIS OF SIMILARITIES AND DIFFERENCES OF CHALLENGES AND SOLUTIONS RELATED TO THE IMPLEMENTATION OF DISTRICT HEATING NETWORKS

The challenges that occurred in Innsbruck and Bolzano in the process of implementing the heating grids and the respective solutions were quite similar. Both cities had to face high investment costs



that exceeded the calculated costs. The funding provided by the EC through SINFONIA itself had to be extended by national fundings.

The utilities in both cities underestimated the coordination effort in the project. Internal with all the departments and furthermore within the project consortium. A good communication with many partners is important when dealing the extension of a DH network. Of course business as usual and innovative actions are different and need more effort. Therefore all regulatory and administrative challenges should be tackled after the project approval as long term projects also need several external stakeholder for cooperation and some times regulatory approvals can take quite some time. Partners involved in the implementation of the district heating networks elaborated key messages that are to be considered in order to successfully replicate the measures performed in the demo cities by Early Adopter and other interested cities. The following key messages can be reported:

Key-messages for the successful implementation of district heating networks

- ▶ Keep in mind that utilities are bound to general laws as well as to additional national regulations.
- ▶ Reasonable effort is given/is necessary for data transfer (e. g. personnel costs, rental fee for servers). Clarify these issues in the very beginning of the project.
- ▶ In order to avoid differences and friction during implementation, it is essential to define clear responsibilities and competences within the project consortium before starting technical implementations (for e. g. costs, material, equipment, execution).
- ▶ Recording of data is a very sensitive process. It is recommendable to draft contracts between the various parties involved. To establish/generate such contracts enough time has to be calculated.
- ▶ Beside overcoming legal challenges a technical analysis of the current situation is essential.
- ▶ Intensive collaboration of involved departments within the company/institution is essential for the success of a research project.
- ▶ Start to deal with all the administrative, regulatory and legal issues of implementing a demo activity at the very beginning of a project.
- ▶ Make sure to have a very clear view on the actual situation and a vision of the final purposes of your planned activity at the start of the project.
- ▶ Do a deep analysis of the technical details of the demo activity in the first months of the project and inform all relevant stakeholders on the outputs.
- ▶ Pay attention to map internal and external factors that may affect the project thoroughly.
- ▶ Procurement procedures always take longer than originally planned.





5. CHALLENGES AND FINDINGS RELATED TO BUILDING REFURBISHMENTS

“Renovating buildings is daily business for our company. However, comprehensive refurbishment with full package also inside the apartments while tenants stay in their flats, turns out to be an endurance test for all involved partners. High costs, burden for the tenants and considerable delays are the result.” (quote by Housing companies IIG and NHT)

“IPES is renovating many buildings in the whole province and the renovations are in compliance with the legal requirements. But deep renovations like in Sinfonia are a new process for IPES, with the people living inside. During the years the improvement of building performances of the refurbished houses required more invasive activities inside the flat, so it was also necessary to improve the communication with the tenants and increase the effort in order to make the refurbishment possible.” (quote by IPES)

“The municipality of Bolzano usually does not refurbish while the tenants stay inside their flats. In an experimental project, the implementation requires a high expertise in technological, economic, human, and social topics from the beginning of all project partners. This expertise was not available in the municipality of Bolzano, so many of the employees of the municipality had to be educated and new professionals were hired. Eg a new employee acts as a bridge between the needs of the tenants, the municipality, and the refurbishment companies. This new employee was vitally important to create trust. Today, the municipality of Bolzano can share best practices with other cities even though training new professionals and hiring new experts has been a long process that took several years.” (quote by MOB)

In November 2016 a second workshop took place in Bolzano where the relevant stakeholders from both demo cities discussed the challenges and findings related to the refurbishment projects. Not only technical, but also social, legal and organisational challenges had to be faced by the housing companies. The cost-benefit ratio of the measures had to be positive to provide possible solutions for replication. In the mentioned workshop, each demo city presented the results of the discussion in the plenum. After this plenary session, 3-5 key-messages per city were developed as recommendations for Early Adopter and the replication cluster cities.

In chapter 4.1 we present the challenges and solutions in both demo cities that were experienced at the time of the workshop. Contents reflect the common view of all workshop participants. Of course,



today these findings would be different due to gained experience and knowledge in the last 20 months of the project runtime.

5.1 CHALLENGES AND SOLUTIONS RELATED TO BUILDING REFURBISHMENT IN BOTH DEMO CITIES

Building refurbishments are realised in social housings as well as in three primary schools in Innsbruck. These building refurbishments are comprehensive. The following steps are realised: replacement of windows, insulation of the facade, of earth-bearing walls as well as the top floor, electric installation work (e. g. conversion to LED lighting) and installation of ventilation systems, PV collectors on the roofs, etc. All these refurbishment activities are performed with the tenants living in their flats.

Table 3 provides an overview on challenges partners experienced during building refurbishment in Innsbruck and Bolzano. The challenges are subdivided into the following categories: financial, technical, legal, organizational/ administrative and social. Financial, technical and legal challenges should be seen as closely connected to each other. Table 3 also summarizes different solutions that were applied in both demo cities to overcome the challenges. Contents of the table are derived from the above mentioned workshop in spring 2016.

TABLE 3 CHALLENGES AND SOLUTIONS RELATED TO BUILDING REFURBISHMENT IN BOTH DEMO CITIES

		INNSBRUCK		BOLZANO	
		CHALLENGES	SOLUTIONS	CHALLENGES	CHALLENGES
Financial	Limitation of budget available by social housing companies	Cheap but sustainable solutions eg with open source software, etc.	Ambitious refurbishment is not economically sustainable, the pay-back is longer than the technical life	Pay-back driven analysis and definition of more realistic targets	
	Structure of the buildings is not known (houses of 1950-1970s): complex cost estimation	Step by step refurbishments	High costs because of high technical targets to be reached in SINFONIA	New financial roles are required – lack of financial resources for innovative projects	
	Depreciation of durable equipment	Adaptation of funding scheme of the EC: So far refurbishment costs only eligible as consumables - full costs should be borne	An additional storey as part of the business plan. It was not possible to do it in all the case studies because of structural problems.	Structural audit in order to choose the buildings that will be refurbished Design the projects more realistic (regarding targets and costs) --> better analysis in the beginning	



Technical			Some technical details are too expensive	Deeper analysis of technical details should be done more in advance
	Technical requirements are very high in SINFONIA (a lot changed since the 1950s - laws concerning statics, technical details of windows, ventilation systems, elevators...)	No comprehensive refurbishments - step by step refurbishments are recommended	Timeframes (planning and implementation) are delayed, lots of money and time is needed to recalculate and to redesign	External factors cannot be changed or managed, commitment by all partners essential to minimize burden
	Installation of ventilation systems: - Highly intrusive for tenants - Challenging for construction companies	Research for prefabricated integrative solutions Technical break-through in facade-integrated ventilation/electric system solutions for refurbishments (not yet available on the market) Training of handcraft workers in appropriate handling of building technology		
	Real innovations are not standard yet - there is no guarantee that they will last for 20-30 years.	National funding for innovative measures related to energy savings		
Legal/regulatory	New "standards" for housing (OIB, Norms, etc.) increase the costs and requirements in all aspects	no solution yet	New laws during the project period concerning earthquakes and statically conditions of houses were released resulting in new legislative conditions for the process, delays in the planning phase and shatters the timeframes	Consideration of external factors during planning phase
	NHT: needs the agreement of 75% of the tenants to start refurbishments	information events, consulting hours for tenants, brekfasts in front of the door on weekends, etc.		
	Different laws to be considered	no solution yet		
Organizati	Partners with different interests	Closer contact of the partners in the planning phase Stronger focus on knowledge transfer	Long project approval process for project funded by the EU	No solution yet – should be considered by Early Adopter Cities in advance



	Project applicants are not the project implementers, involved team members/personnel changes	Importance of periodic meetings (e. g. district meeting) and joint excursions for strengthening of partner interaction and creation of a positive working atmosphere		
	Sinfonia is a research and demonstration project	Planning phase should not be underestimated; project duration of five years too short (project extension) for innovative projects.		
Social	Restrained reaction of tenants on planned refurbishments, unpredictable behaviour of tenants Mixed social groups within the buildings	Adaption of information to the target group (identification of the right time and the way to inform the tenants) Organization of information events Regular contact with tenants on site Installation of demo apartments	Tenants are often old people or with low educational background, they are against refurbishments aprioristic and cannot see the benefits	Installation of demo apartments to show the planned refurbishments in advance Communication of benefits Involvement of a tenants representative
	Tenants live in the flats while refurbishing	Identification of individual solutions for each tenant (time-consuming). Complete refurbishment inside the flats only when the flat is empty (otherwise step by step refurbishment) Innovative technical solutions to be installed in flats without major intervention.	We are not sure that tenants will manage the refurbished flat in an optimal way.	Offering of learning activities for tenants (regarding technical equipment) Design of a user manual on the right management of refurbished flats

5.2 ANALYSIS OF SIMILARITIES AND DIFFERENCES OF CHALLENGES AND SOLUTIONS RELATED TO BUILDING REFRUBISHMENT

Both demo cities faced similar challenges regarding building refurbishments. The partners underestimated the challenges they had to face, especially when it comes to the work with tenants. Although the housing agencies involved in SINFONIA have experience in the refurbishments of their building stock, renovation activities that require regular access to the apartments (e. g. installation of ventilation systems) and lead to strong interferences with the tenants are rare. A variety of participatory approaches with tenants was exercised in Innsbruck and Bolzano. A comprehensive description of these activities can be found in all SINFONIA progress reports.

The high level of innovation within the SINFONIA buildings is one of the biggest challenge. SINFONIA is a research and demonstration project and the realization of activities is time consuming. Also the



unknown building structure of old houses (1940-1970s) required comprehensive replanning and caused unexpected delays in both cities.

Representatives of both cities see two major points:

- ▶ The importance of interaction with tenants should not be underestimated since a positive interaction is crucial for the success of refurbishments (focus on levels of participation from the very beginning).
- ▶ Generally, comprehensive refurbishment should be avoided while tenants are living in their flats. If tenants stay in their apartments during refurbishments a step-by-step refurbishment is recommended.

All refurbishment activities for SINFONIA were performed with the tenants living in their flats. Not only technical, but also social, legal and organizational challenges have to be faced and overcome by all involved housing companies (IPES and BOZ in Bolzano, NHT and IIG in Innsbruck). Also costs and benefits of the refurbishment measures have to be in line to provide possible solutions for replication.

As tenants live in the flats during the refurbishment activities individual solutions for each tenant are needed. This requires a lot of time for planning, communication, etc. Complete refurbishment inside the flat can only be recommended when the flat is empty. Parallel to this, a search for innovative technical solutions that can be installed in flats without major intervention is necessary.

The Austrian rent act is stronger than its Italian counterpart. E. g. Austrian tenants can refuse refurbishment measures that require the access into their apartments. Hence, housing agencies in Innsbruck required the legal agreement of tenants to be able to overcome this challenge and start the refurbishments.

Key-messages for the successful refurbishment of social housings

Consortial partners of SINFONIA identified the following key messages for the successful refurbishment of social housings based on the experiences made in Innsbruck and Bolzano:

The following **key-messages were drafted from Innsbruck**

- ▶ **Change the image of refurbishments from negative to positive (tenants are partners!)**



- ▶ **Refurbishments are more complicated and more expensive than new buildings when considering the the whole life-cycle costs**
- ▶ Step by step refurbishment is recommended when tenants stay in flats while refurbishment
- ▶ Knowledge transfer and collaboration amongst partners are essential for the success of a project
- ▶ Build living structures in the cities that last longer than the project duration

The following **key-messages were drafted from Bolzano**

- ▶ **Start the discussion and exchange with tenants at the very beginning of a project; the set up of a participation approach is crucial**
- ▶ Do not start a refurbishment project before having a very clear view on the actual situation and a vision of the outcome
- ▶ Interventions of such a high level should be carried out in empty buildings / when no tenants live inside
- ▶ No acceptable payback: Start this type of refurbishment only if your main goals are different than economic e.g. social, technical, well being of tenants (do not expect a financial profit out of these refurbishment projects)

The 3 top-keymessages are highlighted in bold. They are considered as very important for the representatives of both cities.

Key messages in tenant participation derived from literature:

The following 16 key-messages regarding tenant participation had been drafted from literature (task 6.1) as an example for a possible stakeholder involvement processes with a special focus on sustainable retrofit projects of lived-in buildings.

- ▶ A participation process is a benefit for every stakeholder due to reduced conflict and cumulative knowledge over market demand and needs.
- ▶ Every project will differ in size, type, economic-, cultural- or social characteristics. Therefore, every participation method must be individually adapted for the situation at hand. Hence, most guidebooks put a special emphasis on a degree of flexibility that each method should inherit.
- ▶ For all levels of participation that exceed the basic level of information it must be clear that the outcome of participation processes can be fixed from the beginning; a participation process will inevitably result in new results.



- ▶ External moderation is a key criterion to guarantee fair and neutral discussions between the stakeholders.
- ▶ Start involvement activities as early in the process as possible.
- ▶ Participation structures should be maintained until the refurbishment is finished and beyond to be able to react to failures and foster social bonding within the community.
- ▶ All tenants (from every social and cultural group) must be informed and invited to be part of the involvement process.
- ▶ Different groups of stakeholders may have very different access to certain types of information. Therefore, alternative methods may need to address these different groups with respect to stakeholder characteristics (social class, migration, type of business, size of business...).
- ▶ Architects, construction managers ect. should be personally available onsite. Information about these “office hours” should be sufficiently available.
- ▶ Graphical support like thermo-graphic images or construction time-lines are a must in order to gain widespread acceptance and support for energy efficiency measures.
- ▶ Critical, highly engaged individuals or organisations that normally exacerbate conflict and distrust, can be highly useful for the project, if they are asked to contribute to the project early onwards.
- ▶ Housing associations should draft individual rent agreements to acknowledge already refurbished flats through the tenant in order to clearly account for the work needed to be done by through the general refurbishment.
- ▶ Wherever possible, no matter how small the decision would be, to include certain aspects of codetermination are beneficial for the acceptance of the project.
- ▶ As consumer behaviour can greatly affect the final energy savings from the refurbishments, educational measures about heating, electricity and appliance are a must for the success of a project.
- ▶ Empower tenants to control their services independently (gas, water, electricity,...) and make the immediate savings as transparent as possible in order to fully convince tenants of the use of a retrofit.
- ▶ Many retrofits turn out to save less energy than expected, therefore they are often unable to meet the expected financial benefits in saving energy.

Comparing the key-messages generated within SINFONIA and those from literature showed, that the SINFONIA ones are not as much in detail and in depth as those from literature (e. g. the involvement



of the tenants). This does not mean it was of little relevance, but partners did not have so much time in the workshop to go into details. The importance of participatory approaches is much more stressed within literature. Maybe a deeper understanding of participatory approaches would have avoided a number of problems with tenants in both demo cities.

The reality of demonstration projects differs due to constraints as the legal framework, available time of project partners, political frameworks etc. Reality cannot e. g. reach the level of participation that is described in literature, what can be seen as optimum.



6. CHALLENGES AND FINDINGS RELATED TO COMMUNICATION AND DISSEMINATION IN THE FIRST 3 SINFONIA YEARS

In the framework of SINFONIA a variety of communication and dissemination activities were performed which is seen as a key-factor for the success of the project. Different activities have been placed to reach internal as well as external stakeholders. SINFONIA as an European project also has to be locally anchored. It is of high importance that objectives, implemented measures on a local level and corresponding results are communicated to a broader public beyond local members of the consortium (i. e. stakeholder groups like the general public, politicians or the scientific community in the demo cities). In the following we analyse time frames and formats as well as the consortium's perception of a selection of communication and dissemination activities conducted on a local level.

In a workshop in May 2017 in Pafos, Cyprus, consortial partners discussed and evaluated already ongoing or finalised dissemination activities. The workshop aimed at developing recommendations for Early Adopter Cities and other interested cities concerning dissemination and communication activities that are reasonable to reach various local stakeholder groups.

In a first step, an overview of activities to reach internal and external stakeholder was presented to the audience - „*What has been done in the last 3 years of SINFONIA?*“. In the following, the workshop participants evaluated the main activities already performed regarding their relevance for one of the three selected stakeholder groups „Youth-Public“ / „Politicians“ / „Scientific community & professional audience“. These three groups were selected because they were not tackled in previous analyses. The stakeholder group of tenants was not discussed, as this group already had a strong focus in previous workshops (compare chapters 2 and 4). Respective involvement activities have been reported in previous deliverables of work package 6 as well as in periodic reports to the European commission and hence, are not subject of the report at hand.

Based on the analysis of performed involvement activities for the selected stakeholder groups the workshop participants derived recommendations for the involvement of the selected stakeholder groups that are to be addressed to Early Adopter Cities in order to facilitate the replication process.

In the following chapters we provide an overview on involvement activities for the stakeholder groups „Youth-Public“ / „Politicians“ / „Scientific community & professional audience“.

6.1 WHAT HAS BEEN DONE IN THE LAST 3 YEARS



- ▶ Organization of infodays and other events
- ▶ CasaClimaTour – conference and infoday
- ▶ Organization of site visits
- ▶ Meetings with regional and national authorities
- ▶ Participation at international fairs
- ▶ School Workshops
- ▶ Young University, Day of Action «Uni Kids Day»
- ▶ Ideas competition « Smart cities – cities of the future »
- ▶ Monitoring advisory board Innsbruck
- ▶ Replication activities for Early Adopter and replication cluster cities
- ▶ International Passivhouse days
- ▶ Local stakeholder panels in Innsbruck and Bolzano
- ▶ Regional stakeholder workshops
- ▶ Exchange with other EU-projects (z. B. Smarter Together)

Ather involvement activities like e. g. the SINFONIA promotional films for Innsbruck and Bolzano or publications in newsletters, journals or on web sites will not be further discussed or evaluated. Involvement activities for tenants have been subject of previous reports and are not part of the following analysis.

6.2 CHALLENGES & FINDINGS RELATED TO THE INVOLVEMENT OF THE STAKEHOLDER GROUP YOUTH - GENERAL PUBLIC IN THE DEMO CITIES

6.2.1 WHAT HAS BEEN DONE SO FAR FOR THE YOUTH/THE GENERAL PUBLIC?

▶ School Workshop program Innsbruck

Content and aim of the activity: Series of workshops on smart cities in general and on SINFONIA for the pupils of the refurbished SINFONIA primary schools in Innsbruck

Stakeholder groups intended to reach: Pupils aged 7-8, from the refurbished schools

How often took this activity place: 29.2.2016 / 15.2.2016

Scope: Local

Recommended project period for initiation of the activity: Implementation phase and project end

Recommendations: The knowledge of the pupils concerning energy and sustainability issues varied



very strongly. There is still a lot of awareness raising necessary. The format was working very well (different stations with different topics - the program is available here: http://alpsth.bplaced.net/wordpress/wp-content/uploads/2016/09/SINFONIA_school-workshops_folder_english.pdf). The interest of teachers was only partly detected. The motivation of pupils was higher than those of the teachers. When schools are part of smart city refurbishments it is very recommendable to use the opportunity of sharing the knowledge with the school's pupils. Pupils are the adults of tomorrow and serve as important multipliers for smart city topics.

► Uni Kids Day and Ideas competition, University of Innsbruck

Content and aim of the activity: Interactive workshops by all SINFONIA partners in Innsbruck on energy, refurbishment of schools and houses, a PV race course and on the baseline, taking place on the two « Uni Kids Days » 2015 and 2017 at the University of Innsbruck. During these two Young University Days an ideas competition for kids in writing and painting ("Smart cities – cities of the future") was organised by SINFONIA partners. Pupils aged 8-18 years from Innsbruck & Tyrol participated. The best ideas were honored with prizes during an award ceremony with the vizemajor of Innsbruck that was held two weeks after the competition.

Stakeholder groups intended to reach: Pupils from all over Tyrol, aged 8-18 years, all types of schools

How often took this activity place: 06.11.2015 – 10.12.2015 / 21.04.2017 - 8.5.2017

Scope: local and regional

Recommended project period for initiation of the activity: Implementation, project end and dissemination

Recommendations: Since the refurbishment of school buildings was part of SINFONIA in Innsbruck pupils were dedicated as a stakeholder group. Activities with kids are definitely recommendable for they create and increase awareness for sustainability. Pupils showed a huge motivation to deal with and think about this topic in the given context of their current (urban) living environment and their ideas for a sustainable future. Moreover, many participants revealed detailed background information on sustainability matters, indicating that this is a topic of interest for the target group. The interest of pupils and motivation to engage in that topic should be encouraged by such activities.

Regarding young people as the future citizens it is very important to keep them in the process. Holding an ideas competition and award ceremony with political representatives is a good possibility to have interaction between pupils and local politicians.

► Open Door Event / Long night of research

Content and aim of the activity: Active participation in Innsbruck as well as in Bolzano of the SINFONIA consortium at "Long nights of research & open door events" with an interactive stand about the project (e. g. demonstration of effects of thermal insulation of buildings with infrared camera, information on SINFONIA monitoring activities, game "how to save energy"). The aim is bringing the scientific content of SINFONIA to the public.

Stakeholder groups intended to reach: general public



How often took this activity place : 22.04.2016 (Ibk) / 26.09.2014 & 30.09.2016 (Bolzano)

Scope: local & regional

Recommended project period for initiation of the activity: implementation, project end and dissemination

Recommendations: This kind of event is a good possibility to introduce "SINFONIA & science" to a large group of people all over the city.

It is an excellent activity to reach the stakeholder group of the citizens of the demo cities. Alperia in Bolzano and UIBK & SAT in Innsbruck had a very positive experience. It is a unique opportunity to familiarize the general public, regardless of age, with the world of research in an exciting way, providing a forum for researchers to meet and interact with the general public. With this initiative, the citizens of Bolzano and Innsbruck could meet researchers and technicians and discover places not generally open to the public (e. g. Alperia's district heating plant), visit demonstrations and simulations and generally exchange views and ideas.

6.2.2 DID WE REACH THE STAKEHOLDER GROUP WITH THIS RANGE OF ACTIVITIES? – CHALLENGES

The discussion in Pafos showed that the stakeholder group “pupils and youth” was strongly focused on in the project, especially in Innsbruck due to the refurbishment of three primary schools. The activities already performed can be seen as a success. The involvement of teachers within activities can be improved. The consortium will continue to focus on “pupils and youth” and is planning new events in 2018, e. g. a participation at the next “Uni Kids Day in Innsbruck”.

Reaching the stakeholder group “general public” was not the main focus in Innsbruck and Bolzano, which should be changed in the remaining project years. The CasaClima-Tour in Bolzano and South Tyrol was very successful and reached, beside professionals, also the interested general public. The active participation at already existing events for the general public like the “long nights of research” is highly recommended and should be more in the focus of the whole consortium.

The main challenge for both stakeholder groups are the funding sources. Partners had no budget reserved to organize and conduct the above described events. Additional cost for expenditure of time and personnel had to be covered by the participating consortial partner and were not covered by the project funding. That was a reason for some partners not to participate.

The motivation of the SINFONIA schools to participate in the workshop program was not as high as expected. The topic of the educational offer had to fit into the teachers study plans. Furthermore, there already is a dense network of free extracurricular activities on which teachers can fall back.



6.2.3 WHAT CAN BE RECOMMENDED TO OTHER CITIES? - IDEAS FOR THE UPCOMING PROJECT YEARS

Regarding young people as the future citizens it is very important to keep them in the process. When schools are part of smart city refurbishments it is very recommendable to use the opportunity of sharing the knowledge with the school's pupils. Pupils are the adults of tomorrow and serve as important multipliers for smart city topics.

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. Hence, the involvement of external educational institutions with a focus on e. g. energy or mobility can be very beneficial to smart city projects.

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 and smart city measures in general.

Finally, the active participation at already existing events for the general public like the "long nights of research" is highly recommended and should be more in the focus of the whole consortium.

During the workshop in Pafos partners discussed about possibilities to improve the offer of involvement measures for the stakeholder "youth" and the "general public". The following ideas were collected during the workshop:

For the stakeholder group "youth":

- ▶ To invite technical schools to building sites
- ▶ To develop permanent posters / small exhibitions in schools before and after refurbishments on energy issues
- ▶ To organize an event during summer in a refurbished school for pupils and their parents (to visualize the steps of refurbishment)
- ▶ To better involve headmasters and teachers (more communication necessary)
- ▶ To use social media – games and apps on energy issues
- ▶ To train pupils as „energy guides“ in their classes (on user behaviour) – as already performed in Bolzano
- ▶ To organize a competition between schools or classes regarding energy use
- ▶ To push overlapping subjects on energy issues for older pupils in schools



For the stakeholder group "general public":

- ▶ To reach them via pupils / schools
- ▶ Print and press – social media
- ▶ To transport SINFONIA as part of sustainability / energy issues in the regions / cities
- ▶ To organize “the Energytour” in South Tyrol also for Northern Tyrol
- ▶ Getting the commitment of the city council on energy topics is essential - > for press / PR etc
- ▶ Involving other organisations like „Alpine clubs“ or church institutions to promote the topics “energy, PV, etc.”

6.3 CHALLENGES & FINDINGS RELATED TO THE INVOLVEMENT OF THE STAKEHOLDER GROUP POLITICIANS IN THE DEMO CITIES

6.3.1 WHAT HAS BEEN DONE SO FAR FOR POLITICIANS?

▶ Press conferences

Content and aim of the activity: Press conferences were held in both cities at the beginning of the project as well as later in the project, when the first measures started or were completed. Press conferences are on the one hand useful to inform politicians about the progress of the project and on the other hand to involve them in an active way.

Stakeholder groups intended to reach: Politicians, general public, companies

How often took this activity place: 11.09.2014 - The operational phase starts - BOZ, EURAC, IPES, SEL, Casaclima // 23.09.2014 Kick-off press conference Ibk // 30.6.2016 - Presentation of refurbishment projects of IPES and MoB // 29.11.2016 - Power to heat, IKB // 15.2.2017 - half time of the project, presentation of the film, vicemajor of Ibk and MagIbk /

Scope: Local and regional

Recommended project period for initiation of the activity: Project start, implementation and project end

Recommendations: Press conferences are important to present the citizens activities in the demo cities and to get political commitment as well as a positive public perception for the project. It can be recommended to organize press releases and press conferences more frequently.

▶ Organisation of Infodays and other events

Content and aim of the activity: From the very beginning of the project, a broad variety of infodays was organized in both cities. Smart city dialogues, exchange meetings & excursions with partner cities or cluster companies, presentations in the city council, etc. had the aim, to proactively inform about the content, the goals, the outcomes and the challenges of the project on the one hand and



enable exchange between the affected stakeholders on the other hand.

Stakeholder groups intended to reach: Politicians, public authorities, designers, social housing companies, general public, companies

How often took this activity place : Ibk, 21.10.14 – SINFONIA Info-Event, Ibk partners plus Eurac / Wohnplus Akademie 24.3.15 – SAT, NHT in Innsbruck / Smart City Dialog 20.4.15 Innsbruck – SAT, IIG, NHT ; PHI / Smart City Info Day Ibk-IKB, 21.5.15 / Meeting of Cluster Companies – SAT – 23.6.15, Ibk / Smart Cities : Chancen in der Euregio. 28.1.16, Bolzano. SAT & Eurac / Exchange meeting with city of Grenoble, 19.9.2016 in Ibk on sustainable buildings / Participation on the Smart Cities and Communities Info Day 2015 – 12.5.2015, Brussels, greenovate / 15.02.2017 - presentation in the City Council of Innsbruck / Dialog at the Innsbruck exhibition: SINFONIA - smart specialisation - smart city projects, 9.5.2016 / Presentation at the "Innsbruck circle": "SINFONIA - smart communities", 26.04.2017 / Information on SINFONIA for the public at a total of 20 district days (10 in the fall 2016, 10 in the spring 2017) / Inspection and photo session "refurbishment primary school Angergasse as part of SINFONIA

Scope: Local & regional

Recommended project period for initiation of the activity : project start, implementation & project end

Recommendations: Infodays are highly recommended to reach politicians, the general public as well as the professional audience to inform in a proactive way about the goals, the progress and the results of the project.

The target group of the first SINFONIA infoevent in Ibk was too big. It would have been better to separate it into several smaller groups dedicated to single target groups. e.g. politicians, tenants from SINFONIA buildings etc. Summing up it can be recommended to organise infoevents together with press releases more frequent in order to raise peoples awareness to projects like SINFONIA.

► **Monitoring advisory board Innsbruck**

Content and aim of the activity: The monitoring advisory board was introduced in Innsbruck, in order to regularly inform political players on a regional level. This board was organized by the district leader SAT - relevant stakeholder from the regional administration, the city administration and other institutions affected with energy relevant issues were invited.

Stakeholder groups intended to reach : politicians, public authorities

How often took this activity place : 06.08.2015 / 08.10.2015 / 09.12.2015 / 16.03.2016 / 05.10.2015 / 03.11.2017

Scope: Local and regional

In which project period is it good, to do this activity: Project start, implementation and project end

Recommendations: As SINFONIA is a large and politically affected project, the introduction of a monitoring advisory board was seen as important in Innsbruck, in order to communicate project goals, outcomes and challenges also to a wider political audience. A monitoring advisory board is a good possibility to get regular contact with the political administration at regional level proactively and inform about the progress of the project. It can be recommended, to organize it twice a year, starting with the beginning of the project. More frequent meetings can not be recommended, as



there should be valuable input at every meeting to have good discussions. A combination of presentations with a site-visit is also a good way to get interaction of various stakeholder. In Bolzano no monitoring advisory board was introduced.

► Organization of site visits & study tours

Content and aim of the activity: A guided tour to SINFONIA demonstration measures (refurbishment sites, district heating network, smart district, etc.) was organised by the district leaders or other project partners, accompanied by a general presentation of the SINFONIA project and specific thematic presentations. These site-visits took place for Early Adopter Cities, interested professional audience, delegations of companies etc.

Stakeholder groups intended to reach: Companies, professional audience, Early Adopter Cities

How often took this activity place: AVT Forum, 20.9.2016, Innsbruck / EAC Rosenheim visits Innsbruck 13.10.2016 / Austrian Chamber of foreign trade in Padua, visit with a delegation of architects & civil engineers 16.02.2017 in Innsbruck

Scope: Local, regional and european

Recommended project period for initiation of the activity: Implementation and project end

Recommendations: Study visits are very effective and recommendable, as experts and professionals talk on site on specific issues and challenges.

6.3.2 DID WE REACH THE STAKEHOLDER GROUP WITH THIS RANGE OF ACTIVITIES? - CHALLENGES

Municipal politicians are important stakeholders in the smart city context as projects like Sinfonia want to develop “their” city. It is essential to gain the support of the mayor in order to prepare a proposal for a smart city project and in duration of the whole project. However, because of legislative periods which might not get along with the project cycle the responsible politicians as well as the municipal council might change. In Bolzano this was the case – after elections a different mayor from another party than the former one and therefore other areas of interest. Therefore a constant communication is hard to establish or has to be arranged even several times!!

In both cities the project partners agreed, that it is of major importance to foster official as well as unofficial relationships to local and regional politicians, like the mayor, vice mayor and the city council. Regular explanations of the goals of the project as well as demonstration (eg municipal council) of the progress in the implementation of the project is inevitable to get and maintain political support. Within the consortium it can be recommended, to define responsible persons, who have already experiences and connections to politicians, or introduce the coordinator, – these persons should continue their activities in a proactive way with the main messages of the SINFONIA project. To present positive stories in an active way is extremely necessary for a good project communication.



In both cities a contact was established to the responsible politicians, e.g. the vice-major in Innsbruck, the responsible person for housing, etc.. More contact to the city council, e.g. by yearly presentations of the progress and by actively inviting them to building sites / site visits can be recommended.

6.3.3 WHAT CAN BE RECOMMENDED TO OTHER CITIES? - IDEAS FOR THE UPCOMING PROJECT YEARS

During the workshop in Pafos partners discussed about possibilities to improve the offer of involvement measures for “politicians”. The following ideas and recommendations were collected during the workshop:

- ▶ Keep in mind that in a five year’s project the political authorities may change.
- ▶ Immediately get in contact politicians
- ▶ Regularly present project highlights to the city council (proactive).
- ▶ Organize visits of building sites, finalized implementation measures, etc. for politicians.
- ▶ Focus on a big picture – as outlined in the calls of H2020.
- ▶ Why do we do „SINFONIA“ – explain again and again!
- ▶ Stress positive outcomes for cities and the local economy.
- ▶ Highlight benefits for citizens.

6.4 CHALLENGES & FINDINGS RELATED TO THE INVOLVEMENT OF THE STAKEHOLDER GROUP SCIENTIFIC COMMUNITY – PROFESSIONAL AUDIENCE IN THE DEMO CITIES

6.4.1 WHAT HAS BEEN DONE SO FAR FOR THE SCIENTIFIC COMMUNITY – PROFESSIONAL AUDIENCE?

▶ Participation at international scientific conferences, workshops and exhibitions

Content and aim of the activity: Presentations about SINFONIA and Smart Cities on various occasions. Two events are explained in detail:

At the annual "International Passive House Conference" poster presentations at the exhibition, presentations of project results in conference sessions and in 2017, a dedicated SINFONIA session with different presentations from SINFONIA partners.

The Urban software institute (USI) participated at conferences, workshops and exhibitions of the German Smart City Forum in order to maintain and increase the dialogue between cities, research institutes, industry and the EU. Since 2013 regular international expert meetings, workshops and exhibitions were held. The forum is intended to facilitate further exchange, mutual learning and lively



discussions. USI chairs those meetings. Furthermore personnel of USI, MAGIBK and SAT participated as speakers/guests.

Stakeholder groups intended to reach: Professional audience, scientific community, companies

How often did this activity took place: 2014 : 3 // 2015: 7 // 2016 : 6

Scope: Regional & european

Recommended project period for initiation of the activity: Project start, implementation and end, dissemination

Recommendations: It is important, whether a SINFONIA partner is a speaker, participates in a workshop or presents a poster refers to SINFONIA and presents highlights as well as challenges. The consortium underlines the positive results of such activities although the evaluation of outreach is difficult. For common goals, e. g. increase of renewables, reduction of CO₂ emissions etc., a constant knowledge exchange between scientific partners is valuable in order to speed up the development of successful solutions.

The participation in form of scientific presentations can be recommended. It is good to combine scientific presentations and poster presentations at a stand, where a much higher interest can be seen after the presentation. Furthermore, the exchange with other ongoing projects with similar project issues is valuable.

► CasaClimaTour

Content and aim of the activity: CasaClima organized several events all over the Province of Bolzano and Italy. The aim of these workshops was to inform the stakeholders on important aspects related to sustainability and energy efficiency of smart buildings and districts, and to highlight the SINFONIA project as a good practice example. The events were either scheduled in the evening (Province of Bolzano) or during the day (rest of Italy). The organisation of the meetings was supported by the municipalities.

Stakeholder groups intended to reach: public authorities, designers, students, craftsmen, general public, etc.

How often did this activity take place: San Genesio 29.11.2016 / Appiano 07.12.2016 / Vipiteno 08.03.2017 / Terento 22.03.2017 / Nova Ponente 29.03.2017 / Corvara 05.04.2017 / Merano 16.05.2017 / Civitavecchia 06.11.15 / Parma 26.04.2016 / Genova 27.04.2016 / Torino 28.04.2016 / Bologna 19.05.2016 / Belluno 26.05.2016 / Naples 27.09.16 / Matera 28.09.2016 / Lecce 29.09.2016 / Rome 23.11.2016 / Bari 23.02.2017 / Sanremo 09.03.2017 / Bergamo 16.03.2017 / Roseto Degli Abruzzi 06.04.2017

Scope: local and regional

Recommended project period for initiation of the activity: project implementation and end

Recommendations: The very specific purpose of the presentations was to provide people with very relevant and useful information that could have been applied in their activity. The success of this dissemination format was underlined by the large number of people attending the meetings, also in small villages. Many people contributed to the final discussions with questions on practical



application of the reported measures. The events will be repeated in other municipalities of the Province of Bolzano.

► Participation at International fairs

Content and aim of the activity: Presentation of SINFONIA with a poster at a stand or an oral presentation to people visiting the stand and other exhibitors

Stakeholder groups intended to reach: Scientific community, companies, professional audience interested in the topic 'Smart City' (cities and local authorities, developers and real estate, providers of retrofitting solutions, energy utilities, providers of IT solutions, engineering and consulting companies, etc.)

How often took this activity place: BAU 01/2015 & 01/2017 Munich, pHI / Smart City Expo World Congress 11/2016 Barcelona, Technofi / Klimahouse fair 01/2016 Bolzano – all partners / German trade fair DEUBAUKOM Essen 01/2016, PHI / EXPO Real München 10/2015, SAT, MagIbk / CONSTRUMAT FAIR 05/2015 Barcelona, GIE

Scope: regional and european

Recommended project period for initiation of the activity: Project implementation and end, dissemination

Recommendations: In general, a recommendable action - poster presentations at fairs are a good possibility to reach a huge number of people. However, the number of people reading the poster in detail is quite small. This activity is a good opportunity to get people in touch with project activities, expected results etc.

The discussions and conferences were a valuable source of information to identify the needs of cities when it comes to planning long term urban refurbishment. However, in some cases it might be a bit too early to present concrete project results which limited the impact.

Within the consortium it can be wise to discuss which results are available for such presentations in which project period.

6.4.2 DID WE REACH THE STAKEHOLDER GROUP WITH THIS RANGE OF ACTIVITIES? - CHALLENGES

The biggest challenge in reaching professional stakeholders in the beginning is the definition of which stakeholders are professional for the results of Sinfonia. This was elaborated in D6.1a and as there are many partners with different backgrounds participating also different stakeholders are considered professional for each partner.

The participation at international scientific conferences, at thematic workshops and exhibitions with information of SINFONIA (good PR materials necessary) is crucial to communicate the project goals



and results to the scientific community, to discuss challenges, main outcomes, etc. Active internal and external communication was done by various partners within the consortium and was seen as positive. The organisation of specific courses and lectures at different universities for students and professionals is important for the scientific discussion.

Study tours and study visits support knowledge exchange and are a good way to either see similar construction sights in other cities or to invite interested stakeholders or partners to the own sites.

The participation at fairs was seen critical. It is not evident for all partners, that a major outcome is given by this activity.

6.4.3 WHAT CAN BE RECOMMENDED TO OTHER CITIES? - IDEAS FOR THE UPCOMING PROJECT YEARS

During the workshop in Pafos partners discussed about possibilities to improve the offer of involvement measures for the “scientific community – professional audience”. The following ideas and recommendations were collected during the workshop:

- ▶ Present project results as soon as you have some.
- ▶ Organize dedicated workshops/sessions about the project in the language of the country.
- ▶ Involve students e. g. by lectures.
- ▶ Collect already existing presentation material and distribute it amongst the involved partners.

6.5 CONCLUSIO AND COMPARISON BETWEEN INNSBRUCK AND BOLZANO

If a project consortium starts thinking about “public perception” – and how it can be measured – four main questions should be considered:

“Who” / “How” / “When” / “Where”

At the very beginning of a project, it should be defined **who** the main stakeholders are that are needed for the successful implementation of the project (this was elaborated in D6.1a). Based on this, activities tailored to the selected stakeholder groups can be designed. It is important to differentiate between internal and external stakeholders (**how**). Along the time line of the project implementation activities need to change based on the progress of the project (**when**) – some activities are more useful in the beginning, others in the end of a project.



And finally, activities should address stakeholders on different levels – local, regional, national, european (**where**).

Similarities and differences between Innsbruck and Bolzano

In Innsbruck, there was a stronger focus on the involvement of young people and especially pupils than in Bolzano. This goes along with the refurbishment of three elementary schools in Innsbruck. In Bolzano, no school building is refurbished within the scope of SINFONIA.

In the beginning of the project, partners in Innsbruck had to handle an unfavorable public perception of demonstration measures which was picked up by the local newspapers with critical headlines. This adverse press about SINFONIA made clear that previous efforts to communicate the advantages of envisaged measures to the city's inhabitants had not been sufficient. In both demo cities, the initial focus on the stakeholder "general public" was insufficient. This led to the establishment of Local communication team in Innsbruck and Bolzano to set a stronger focus on the engagement of local stakeholders.

The participation at scientific conferences and fairs is embedded in the daily routine of some partners reflecting their professional background. In both demo cities, the involvement of the scientific community was satisfying.

As well in Innsbruck as in Bolzano, partners could establish a good basis for interaction and contact with politicians characterized by confidence and reliance towards the project. To involve politicians on the provincial level the monitoring advisory board for political players on a regional level was established in Innsbruck. The board was organized by the district lead of Innsbruck. Relevant stakeholder from the regional administration, the city administration and other institutions affected with energy relevant issues are invited to the regular meetings. As SINFONIA is a large and politically affected project, the introduction of a monitoring advisory board was considered important in Innsbruck. It aimed at the communication of project goals, outcomes and challenges to a wider political audience. This was developed but this has to go on – actively organise activities to keep politicians involved.

Concerning the coordination of various involvement activities between the partners of the SINFONIA consortium, in both cities is potential for improvement. The Local Communication Teams could be a suitable instrument that should receive more attention.



Annex: DOCUMENT INFORMATION

SINFONIA DELIVERABLE FACT SHEET	
PROJECT START DATE	1 June 2014
PROJECT DURATION	60 months
PROJECT WEBSITE	http://www.sinfonia-smartcities.eu
DOCUMENT	
DELIVERABLE NUMBER:	6.3
DELIVERABLE TITLE:	Report on transnational challenges and recommendations for local stakeholder involvement and consumer/tenant orientation
DUE DATE OF DELIVERABLE:	November 2017
ACTUAL SUBMISSION DATE:	March 2018 – revision November 2018
EDITORS:	
AUTHORS:	SAT (Brigitte Berger, Klaus Kleewein)
REVIEWERS:	UIBK (ALPS), RISE
PARTICIPATING BENEFICIARIES:	UIBK (ALPS), NHT, IIG, IKB, TIGAS, MagIbk, RISE, TEC, EURAC, MoB, IPES, ALPERIA, CASACLIMA, ZABALA
WORK PACKAGE NO.:	6
WORK PACKAGE TITLE:	Local stakeholder involvement, evaluation & follow up in demo cities
WORK PACKAGE LEADER:	UIBK (alpS)
WORK PACKAGE PARTICIPANTS:	All
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CO (CONFIDENTIAL, ONLY FOR MEMBERS OF THE CONSORTIUM INCLUDING THE COMMISSION SERVICES)	
PU (PUBLIC)	x
PP (RESTRICTED TO OTHER PROGRAMME PARTICIPANTS, (INCLUDING THE COMMISSION SERVICES))	
RE (RESTRICTED TO A GROUP SPECIFIED BY THE CONSORTIUM INCLUDING THE COMMISSION SERVICES)	
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