SAVE@Work4Homes

Supporting European Housing Tenants in Optimising Resource Consumption

TESTED PROTOTYPES OF ENERGY AWARENESS SERVICES

Deliverable 3.2

(20th of March 2008)

http://save.atwork4homes.eu

Task 2.3 On the basis of requirements information, the final (release 1) selection of service components is made and the specification for SAVE4Homes Energy Awareness Services drawn up for each field trial (see specification content, above). Supported by Domdata the partners will maximise sharing of components across EU borders.

Intelligent Energy Europe

SAVE@Work4Homes - Grant agreement EIE/06/028/SI2.448227

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Supporting European Housing Tenants in Optimising Resource Consumption

Intelligent Energy – Europe (IEE)

SAVE - Key action: VKA2: "Retrofitting of social housing".

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OVERVIEW

The Save@Work4Homes project aims to achieve a very significant reduction in energy consumption in social housing across Europe by providing information and support to tenants enabling them to optimise their energy consumption behaviour.

The six social housing companies, partners in this project, are developing and testing a complementary set of viable and effective Energy Awareness Services.

After analysing tenant and organisational requirements (D2.1), detailed service specifications have been described (D2.2) before constructing prototypes for service components and updated in D2.3.

This is the aim of Work-package 3 *Energy Awareness Services Prototypes* to deal with preparation of services and initial testing, including:

- acquisition of components,
- component modification,
- initiation of involvement of user groups
- and testing of service prototypes.

This work is carried out by the consortium housing providers: NH, Moulins, LTA, NIHE, SUL and VoWo. The group is led by LTA. DomData contributes an energy consumption benchmarking component for online or mobile use.

Depending on the actual status of each pilot site, tasks 3.1 and 3.2 have been described in D3.1 delivered on the 25th of September 2007:

- Task 3.1 The specified service components are developed, acquired, introduced or modified in accordance with the Service Specification for each site.
- Task 3.2 Users are provided with information about the proposed systems. A group of users (employees and/or tenants) is invited to participate in service field trials and uptake.

Tasks 3.3 and tasks 3.4 to be documented in D3.2 are as followed:

- Task 3.3 Service prototypes are introduced to a sample of users in a manner informed by evaluation criteria. The results of this experience are analysed and any required further modifications carried out.
- Task 3.4 Based on input from the operation of the first phase of evaluation, Service Specifications are revised. The revised Service Specifications are implemented and tests of the modified service prototypes are carried out ready for introduction of second release services.

At this stage of the project, partners agreed in their last consortium meeting in January 2008 on the proposition to be made to the European Commission to postpone the end of the project to the end of June 2009. The partners indeed observed that the project should include a second period of evaluation corresponding to the heating period of end of 2008-beginning of 2009. This delay is required for three main reasons:

- the actual status of the pilot site enables to have some results for the current heating period but these results do not cover the whole heating period ;
- the inclusion of a second heating period in the evaluation process will enable to analyze the impact of the pilot sites on energy consumptions on a complete heating period and to compare it to the results observed during the first heating period ;
- the requirements of users among tenants and employees of the social housing companies will be fully collected and taken into account for the second heating period.

In the first part of D3.2, the actual status of every **pilot site** is described.The second part of this deliverable is dedicated to **Energy consumption benchmarking component** for online or mobile use through the contribution of DomData.

1. PREPARATION OF SERVICES AND INITIAL TESTING (SOCIAL HOUSING COMPANIES)

1.1 THE KARLSRUHE FIELD TRIAL – VOLKSWOHNUNG

1.1.1 Outline of survey results of Volkswohnung's tenants

The most important results of the poll of Volkswohnung's tenants that was carried out in February and March 2007 were :

- that our tenants consider themselves as being good or very good informed on environment and energy questions (more than 50 %). Moreover, more than 50 % say that they behave already in an energy-conscious manner (moderate room temperatures, shut down of radiators over night or in rooms that are not used, use of showers instead of bath, use of energy saving lamps). 33 % think that they could save more energy (39 % believe, there neighbours should save more), > 50 % are interested in more information on energy saving and would use (free) Energy Awareness Services; moreover, > 70 % are interested in qualified information on their energy consumption;
- that about 75 % of the households live on 1.500 € per month or less
- that more than 50 % of the households live on their pension and have at least one person in their household that is older than 60 years
- that less than 33 % have a PC at their disposal, 25 % have attendance to internet/e-mail in their household at present.

1.1.2 Choice of media to deliver information

From these results, it was concluded by Volkswohnung that the highest efficiency to influence the energy behaviour of their tenants could be expected from :

- provision of information on the most efficient saving measures and
- to provide them with regular feed-back on their actual consumption rate.

Due to the relatively high average age of the tenants and relatively low availability of PC/Internet and also to collect first practical experiences with the provision of energy awareness services, it was decided to build on conventional means in the first step using printed media as means of information (**brochures** with energy conservation advices specified to the actual technical environment given in the dwelling) combined with direct **personal advice** either in groups or in individual talks made by energy experts of the housing company.

During the later phases of the project and based on the experiences made, made also by other sites of participating housing companies, other approaches are being prepared and will be tested, in particular using **electronic means** in data collection and feed-back dissemination, considering the necessary acceptance and accessibility by our tenants.

1.1.3 Energy Awareness Services – information brochure

As a first step towards developing qualified tools to inform and influence tenants with respect to their energy saving potentials we established a detailed leaflet on potential influences by the tenants on their energy consumptions that is specified to the individual equipment of their building / flat, because corresponding to the different technical standards of the dwellings (kind of heating supply, control devices, ventilation devices) different saving approaches are possible.

At the outset, two printed brochures ("Richtig heizen und lüften – behaglich und gesund wohnen") have been prepared and distributed in March/April 2007 to tenants in two newly (2006) refurbished buildings that have modern equipment in heating control, mechanical ventilation and consumption measurements with two different kinds of control devices (conventional thermostatic valves in one building and programmable electronic control for room temperatures in the other).

Additional versions of such brochures will be written depending on the individual standard of other buildings of Volkswohnung during the next months. Due to our different standards, up to eight or ten different brochures will then be available, that finally are offered to every tenant, that is to say that eventually about 13.000 different brochures will be distributed.

1.1.4 Energy Awareness Services – individual consumption data

Following the results of the questionnaire, tenants are considering it most important to receive qualified information on their energy consumption rate. So far, the majority of Volkswohnung's tenants pay an average monthly rate for the energy (heating, domestic hot water) they consume, that is calculated from their energy costs from last year and receive an annual balance of their actual energy consumption - generated electronically - typically almost one year later, stating if they have overpaid or underpaid their energy consumption in the year before. This balance, following the existing legal requirements on household energy billing, is rather complicated to understand. It is therefore hardly ever read (nor understood) by the tenants and does not contend any information that tells the tenant if he consumes much or little energy compared to a given standard. So there is practically no feed-back on the tenant's behaviour, and if any, it is too late to be of any behavioural influence.

Therefore, the necessity of preparing more qualified (and understandable) information based on individually measured energy consumption and providing it in due time to the consumers is quite clear. If this information is to be based on individual consumption patterns, the capability to measure or at least to calculate this consumption on a regular basis, for instance monthly, must be given. This is the case in dwellings that are supplied by centrally generated heating energy, either by gas/oil-boilers or district heating stations, and where the consumption of heating energy and of domestic hot water is measured individually per building. Furthermore, the balance of heating energy and hot water for every dwelling within the building must be available on the basis of measurements.

In the building stock of Volkswohnung, during recent years a big effort was made to install such systems. Today, almost 80 % of our buildings are already equipped with individual tools that "distribute" the building's heating consumption by measuring the temperature difference between radiator and room air temperature and calculating the heat gain of the room from the radiator using the heating characteristic

of the radiator type that is used. These devices are called “elektronische Heizkostenverteiler” (“electronic assignment of heating costs”).

By this approach, *relative units* of heat supply of every room of the dwelling and – summing up these units for every room - of the whole building can be measured. Using the heating energy consumption of the whole building, that is measured, these units can be used to calculate individual heating balances for every dwelling of the building. This system has to be used instead of regular heat meters, because the dwellings are not supplied by just one supply line, but every room of a dwelling in a multi-storey building is usually supplied by individual vertical supply lines that supply only the rooms lying directly vertically, i.e. all living rooms of all dwellings, all sleeping rooms etc.. Therefore, heat meters for every room of the dwelling that has a radiator would be necessary if a physically exact measurement would be required, which would be by far too expensive.

Unlike heating, the consumption of domestic hot water is measured by one or two heat meters per flat in all buildings / flats of Volkswohnung that are refurbished.

These devices – installed in the dwellings - are equipped with a radio system (see fig. D 3.2-1). In regular time intervals, the measured data are transmitted to a data logger in the building (outside the dwellings) and from there to the central data server of Volkswohnung using a modem.

Whereas so far the data measured by this system are used for annual billing of the consumed energy only, they principally allow also for a more detailed evaluation, for instance every month. Doing that, it would be possible to provide actual information on individual energy consumption per dwelling and to add also more information such as a comparison of all the dwellings in the building or with a theoretical consumption rate due to a detailed demand calculation using standard conditions. This is our second version of EAS that is tested at present. It is able to create information that provides individual consumption data combined with some benchmarks.

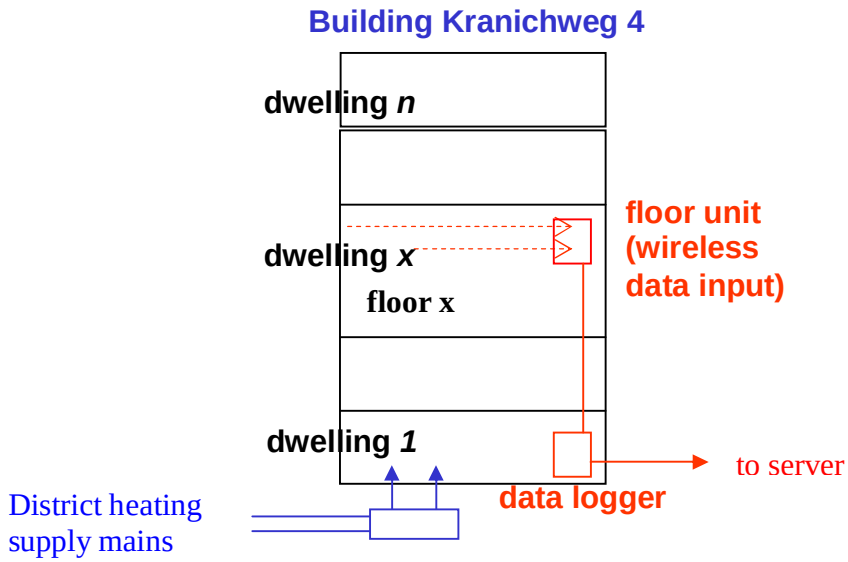


Fig. D 3.2-1: Wireless energy consumption data acquisition system (radiator heat supply, domestic hot water meters)

1.1.5 Energy Awareness Services – detailed measurements

The consumption of heating energy that is measured by the system described above is able to deliver information on the individual energy balance of one dwelling as compared to the other dwellings of the building or to some calculated expectation value. However, no information on the *reasons* for that specific consumption – being it normal, high or low – is delivered. To explain that value, further measurements are necessary, such as room temperature, ventilation behaviour etc. Whereas it does not seem to be affordable that such an extended system can be realized in general, it may be useful to install it in a limited number of dwellings to collect information on user behaviour that may be used also in all other cases where such detailed data are not available and so gaining experiences in applying EAS.

Such a system was developed in cooperation with the University of Applied Sciences in Karlsruhe and used in one of the two buildings mentioned above that have been refurbished last year. Here, sensors measuring room air temperature, humidity, CO_2-concentration, frequency of window opening by the tenants and household electricity consumption have been installed in all rooms of 10 dwellings in Kranichweg 4 (a building with 28 dwellings). All sensors are connected with a data logger in the cellar of the building, where the sensor data are converted into physically meaningful data and stored for eventual data collection by the central server of the University using a modem. Evaluating those data, the dwelling's energy balance according to the EAS described above can be checked and related to the measured user behaviour. Thereby, the measured energy consumption of the individual dwellings can be explained and used for detailed practical advice for the tenants.

This system has been installed after refurbishment at the beginning of 2007 and is now used as a means to explore user behaviour and its relation to energy consumption in that building.

1.1.6 Information feed-back to tenants

The purpose of all that data acquisition is to provide meaningful information to the tenants to achieve an energy saving effect by increased energy conscious behaviour. "Meaningful" means that the tenant is able to draw conclusions from this feed-back according to his "energy performance" (and the energy costs that will result from this). Therefore, it is not "meaningful" for the tenant to learn that the consumption of heating energy in last March was 4.100 kWh, for example. Instead, he will need a possibility to assign that figure either to a benchmark or to some sort of "expected consumption". Two such simple figures would be, for example, the consumption of his flat compared to the consumption of (the mean of) all other dwellings in his building or the consumption of his dwelling compared to the consumption in March last year.

To provide a meaningful comparison, both figures have to be corrected. In the first case, the consumption has to be related to 1 m^2 of living area in the dwelling (the living area is known to the tenant) in order to be able to compare the heating consumption of dwellings that have different living area. In the second case, there must be a correction due to changes in the local climate in last March and the month of March in the year before, which can be done by correcting the heat consumption in

these months according to the “average heating degree days in March” of this specific location (in this case, Karlsruhe).

In Germany, in the context of the introduction of the European building energy certificates that will be obligatory from July 2008, the heating consumption has to be related to an average German climate (defined to be the climate of Würzburg). It would therefore make sense to correct the consumption according to the average degree days in Germany (represented by the climate of Würzburg), since this would allow for an immediate comparison with the building energy certificate (“Energieausweis”) that is also calculated in this way. In this case, when calculating the resulting *energy costs* for the specific dwelling, it must be returned to the local climate data, that result – in the case of Karlsruhe – to less degree days and therefore less heating energy costs than in the German average.

Concluding, the actual heating consumption data for March 2007 shall be divided by the living area and corrected by the mean climate data of Würzburg for March and can then be compared to the actual average of heating demand (kWh/m^2) of the whole building (given by the “Energieausweis”) or of the consumption of the dwelling of last year (also corrected according to the degree days of Würzburg).

Usually, the tenant will not know his monthly energy demand since he will receive his energy bills only annually. Therefore, he needs the consumption information related to the *annual* consumption rate. In the case of *domestic hot water* this can easily be done using the average DHW consumption *per day* from January 1st until the last day of the month that is actually under consideration, for instance March, and multiplying it with 365.

Because of the climate dependency of the heating consumption q_{Month}, it is more difficult to forecast the *annual heating demand* on the basis of the first months of the year, say January - March. Using the degree days approach, the heating demand for the remaining part of the year can be calculated using the heating demand per degree day, experienced from January to March, and multiplying this by the remaining average degree days from April to December (see formula below); the heating demand that is forecasted for the total year is received by adding the measured heating demand from January to March:

$$q_{forecast} = \frac{\sum_{January}^{March} q_{Month}}{\sum_{January}^{March} Kd_{Month}} \cdot \sum_{April}^{December} Kd_{Mean} + \sum_{January}^{March} q_{Month}$$

If there are specific circumstances, such as empty flats in the building, corrections have to be made adequately.

One side-effect of the availability of accurate energy balances on the buildings level is that we learn much about the efficiency of our energy systems and the functioning of their control devices during different operational conditions. It may turn out that this will provide an important possibility to save energy within the heating and DHW system.

1.1.7 First results

In a first release, the measurement devices as described above have been installed in a building that was refurbished in 2006 (Kranichweg 4, Karlsruhe) together with the standard installation of radiator heat flux meters and heat energy meters for DHW consumption. Based on the demand measurements from January until May 2007, the expected demand until December 2007 has been calculated as described above for 9 of the 10 dwellings (one is empty at present) where also detailed measurements are being carried out by the University. Some results are shown in the following:

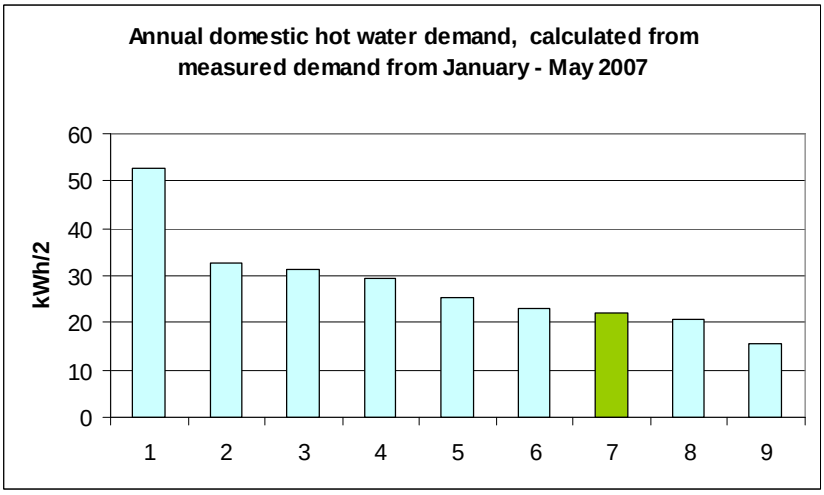


Fig. D3.2-2: Forecasted annual DHW demand for 9 dwellings in 2007, Kranichweg 4.

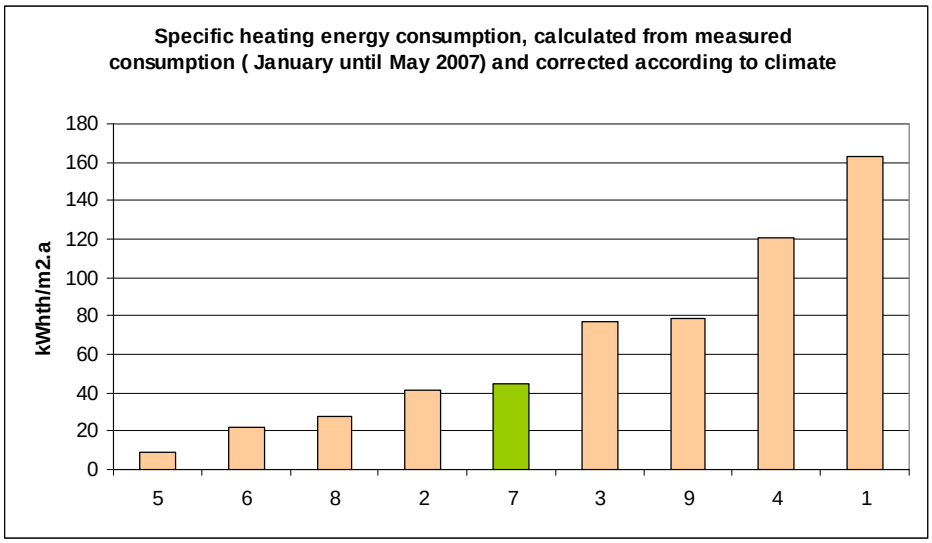


Fig. D3.2-3: Annual heating demand for 9 dwellings, Kranichweg 4, in 2007 based on measured demand from January – May 2007 and forecasted for the entire year 2007, using average degree days from June to December, all corrected with climate data from Würzburg. [1]

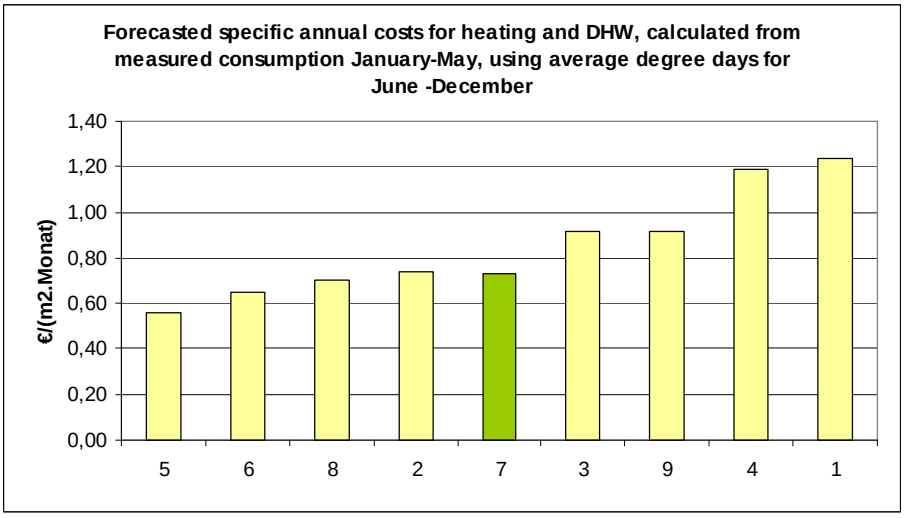


Fig. D3.3-3: Forecasted annual costs for heating and DHW for 9 dwellings, Kranichweg 4 fpr 2007.

In all 3 figures above, one (and the same) specific household is marked with a dark-green colour. It can be seen, that this household is characterized by an energy consumption (heating and DHW) and energy costs that are more or less in the average for this specific building, based on the measured data from January – May 2007. This presentation can be provided to every individual household of the building showing where that household is ranked compared to all other dwellings.

It can also be seen that there are big differences in energy consumption (more than a factor of 3) between different dwellings of the same building. Whereas the average heating demand lies close to the calculated demand (55 resp. 50 kWh/m^2), there are 2 dwellings with a demand much above this average. Influencing those 2 households to achieve a lower demand would improve the specific demand of the whole building appreciably. The aim is to inform and advice the households showing a demand that is significantly higher than the average so that their consumption will be reduced.

The differences in annual energy costs are much lower since, due to the specific calculation algorithm that corresponds to legal assignment of heating costs in Germany, about 50 % of the energy costs are related to living area rather than to the measured energy consumption.

These results demonstrate the potential benefit of this approach. We are now in the phase of communicating these results to the tenants and to make experiences how to increase the energy awareness in those households with high demands. Any effects will be measurable until the end of the year 2007.

[1] Due to the exceptionally mild winter season 2007, the significance of the heating energy demand measurement is lower this year than in regular heating seasons.

These experiences will then be used to extend that approach or an improved version of it also to other dwellings where automatic data input of energy demand is possible.

1.2 THE BERLIN FIELD TRIAL – STADT UND LAND

1.2.1 Description of the service specifications for STADT UND LAND

General aspects on the services:

Services will include a self-evaluation template showing a rating of tenant success in decreasing energy consumption - tenants will provide behaviour parameters themselves. A key component of tenant energy awareness services will be detailed information on building and dwelling status and energy consumption. Tenants will be provided with accurate information about their own consumption, set in comparison with energy use of similar dwellings in a benchmarking approach. To complement this service, information in operating cost invoicing will be improved and made more detailed in a comprehensible way (to be tested and optimised in the project)

To support these services, automatic consumption measurement and consumption data transmission for heating costs (cooperation between housing company and meter-reading company) will be installed at Stadt und Land's own expense. The consumption of electricity in buildings will be evaluated, focussing on corridors, cellar and roof spaces. As appropriate, tenants will be provided with information on energy performance certification of their apartment block, again financed outside the project

Release 1

The Stadt und Land internet presence will be extended to provide a range of suitable information in Internet. For this, manual content and self assessment tool will be integrated. The functions and services of the internet portal are described in the following table. These functions are the realisation of the functionalities described in D 2.2:

STEP: Simple Tenants Energy Portal aimed to facilitate the communication between tenants and the housing companies' teams.

SEPT: Self-assessment Energy consumption Personalised Tool aimed to facilitate the self-assessment by the tenants of their energy consumption

PETS: Personalised Energy Tools for Specific local needs aimed to present the monthly consumption (heating and water) of the tenant

Tenant's Functions (SEPT, PETS and STEP)

Branch	Scope	Content / Function	Remarks
Announcement board [Firma]	Housing company	Announcement board	Both tenants and housing company employees will enter announcements. Housing company employees will be able to delete announcements.
Questions and answers	Tenant	New question	A tenant will select a responsible person (by the topic concern), or he/she will be appointed based on the community one belongs to. Next a tenant will enter a topic, write his message, add his mail address, and optionally telephone number. After the message has been sent, an appropriate employee will be informed per mail.
	Tenant	My questions	The page will present questions asked by the tenant as well as the answers given by employees.
	Community / Building	Community documents/ Energy check	The documents will be entered into the portal by housing company employees in charge. In further versions some data may be imported from ERP system (as values or documents).
	Tenant	Contract data	Tenant's contract data (such as living space) will be presented. Data will be imported from ERP system (as values or documents).
Flat [Objekt/Mieter]	Tenant	Tenant ledger	Tenant's charges, payments and the balance will be presented chronologically. Data will be imported from ERP system (as values).
	Tenant	Rent structure	Rent structure will be presented. Data will be imported from ERP system (as values or documents).
	Tenant	Service charge settlement	Service charge settlements will be presented. Data will be imported from ERP system (as documents).
	Tenant	Tenant documents	Documents (e.g. invoices) referring to tenants will be presented. They will be imported from ERP system.
	Tenant	Resource consumption benchmarking	The flat benchmarking status will be presented based on data imported from ERP system.
SAVE	Tenant	Resource consumption behaviour self assessment survey	Tenant will be asked set of survey questions. The answers will be saved. The results accompanied by explanations prepared by housing company employees will be presented either in a benchmarking form or in relation to expected values.
	Housing organisation	Library	Links leading to pages of tenants interest as well as relevant documents will be presented. The content will be managed by employee in charge.
Library [Ökofibel/Result questionnaire]	Housing organisation	Discussion forum	Both tenants and housing company employees will be able to enter a new post (either as a new topic or assigned to some previous one). Housing company employees will be allowed to delete posts.

Employee's Functions

Branch	Content / Function	Remarks
Questions and answers	Answering tenant questions	All questions will be displayed to all employees, so that everyone can answer every question. The questions will be divided either thematically or according to communities.
SAVE	Resource Consumption Behaviour Self Assessment Survey Preparation	Housing organisation employees will enter questions, answers and explanations of results.
	Resource Consumption Behaviour Self Assessment Survey Analysis	Report on results of the survey will be presented.
	Resource consumption report / analysis	Benchmarking report will be displayed: flats, their energy consumption in relation to the average, minimum and maximum values (like in BekoBench).
Data Administration	Import protocols	Import protocols will be displayed
	User management	Housing company employees in charge will activate / deactivate tenants as users, manage housing company employees as users, and reset passwords.
	Tenant data	After a housing company employee has selected a tenant, data accessible for him will be displayed.
	Data import WohnData(xls) Ableser(xls) Archiv(index+pdf) 1 x Month	It will be possible to import data from ERP system manually or automatically. Data will be imported and stored in XML format. Following data will be imported 1) tenant user data (as values; contact data, assignment to communities) 2) community general data (as values) 3) tenant contract data (as values or documents) 4) tenant resource consumption data (as values; followed by computing benchmarking values, i.e. the minima, the maxima and the averages) 5) tenant ledger data (as values) 6) rent structure data (as values or documents) 7) service charge settlement data (as documents) 8) Energy Check (document)
Content management	Housing company general information	Housing company employees in charge will manage the content of the portal (CMS).

These functionalities will be tested from tenant at home.

Release 2

In release 2 we will use the new developed tenant portal as a base to offer further services for our tenants. Thereby we will focus especially on those tenants who do not have access to the internet or who do not use the tenant portal for whatever reason.

The consumption data which was displayed before on the tenant portal will now be printed as a letter and sent directly to the tenant. It will also include the graph and the benchmark tool. At the best we will be able to provide the service every month, in order to point up the effect of a changing behaviour.

Furthermore information on energy performance and options for improvement will be integrated on an existing mobile platform for property managers enabling software-based assessment to be brought to the door for older or disabled tenants. Thus they will be able to use the Self-Assessment Tool SEPT, too.

In order to comply with the guidelines of data security it is absolutely necessary to obtain the tenant's permission to use his monthly consumption data. According to the current legal status we are only authorized to evaluate the data once a year. This affects the tenant portal as well as the paper based information and the mobile platform for property managers.

1.2.2 Planning of the prototypes

SEPT: Self-assessment Energy consumption Personalised Tool:	until	01.08.2007
PETS: Personalised Energy Tools for Specific local needs:	until	01.09.2007
STEP: Simple Tenants Energy Portal	until	30.09.2007
Training of the users	until	30.09.2007
Start of release 1		01.10.2007
Development of the Software platform for the employees	until	01.04.2008
Development of the paper-based functionalities	until	01.04.2008
Start or release 2		01.04.2008

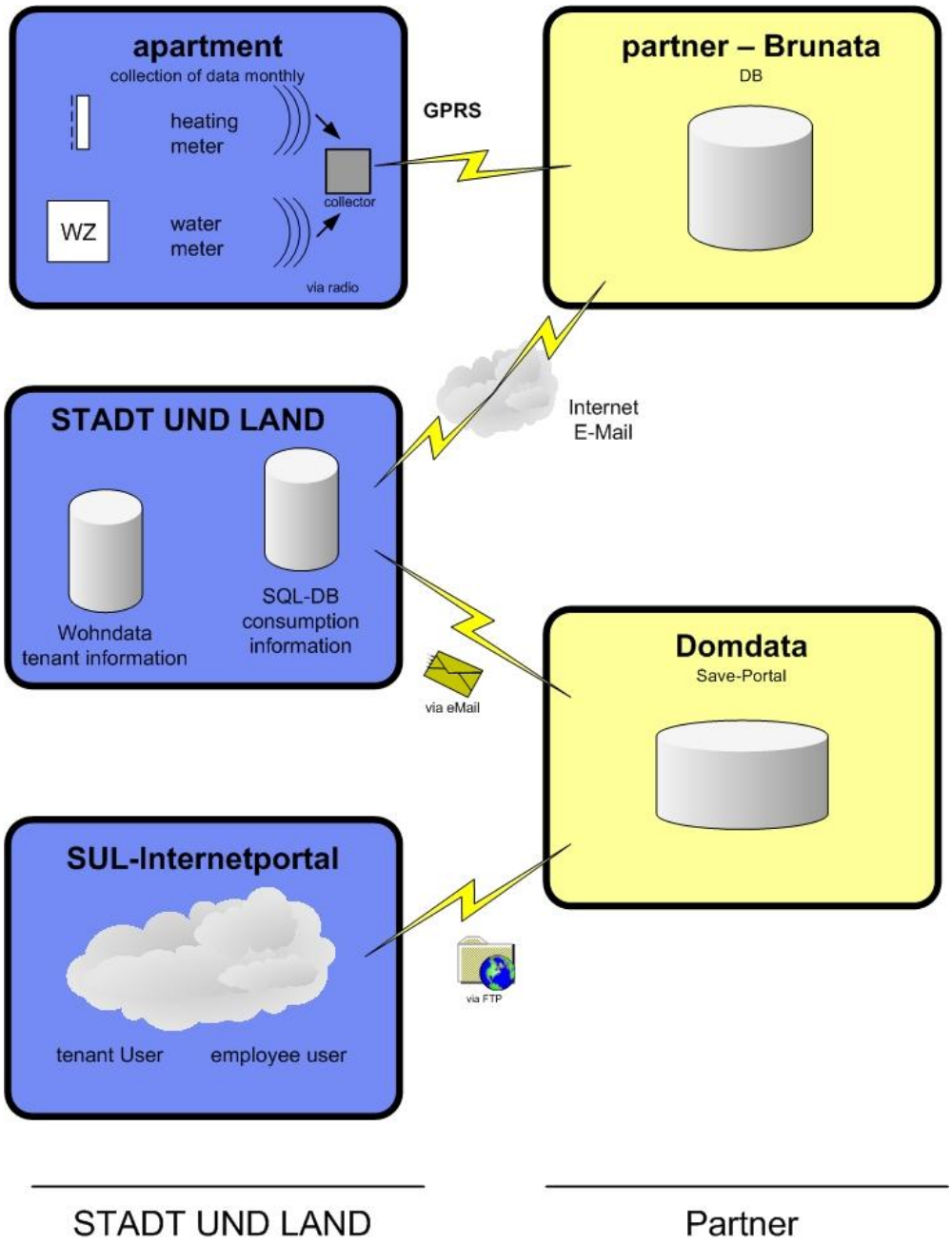
1.2.3 Description of the technical components

Included in this project are 109 dwellings which are located in two different areas. The heaters and also the hot- and cold-water-meters were provided with measuring devices with radio technology. Once in a month the consumption values are collected by a data-collector, which transfers these values via GPRS to the meter-reading company Brunata.

The tenants are provided with the data collected. Furthermore the tenants will be informed about how to save energy and water.

As point of Information there will be an internet portal, which the tenants can access with their personal login, in addition there will be personal meetings and a written summary about the energy profile of every single tenant. The tenants will also get information about the ways how to save energy and the economical handling with the ressource water. As usual the consumption of one dwelling can be

compared to the minimum and maximum values of the house. Besides to the current values, the tenants also have access to the monthly values of 2006.


apartment
collection of data monthly
heating meter
collector
WZ
water meter
via radio
GPRS
partner – Brunata
DB
Internet
E-Mail
STADT UND LAND
Wohndata
tenant information
SQL-DB
consumption
information
via eMail
Domdata
Save-Portal
SUL-Internetportal
via FTP
tenant User
employee user
STADT UND LAND
Partner

1.3 THE ANGERS FIELD TRIAL – LTA

1.3.1 Context / Origins / Objectives

As was described in D3.1, Le Toit Angevin has launched a renovation programme which aims at decreasing the energy and water consumptions, and improving the comfort of their tenants in their dwelling.

In this context, the company took the advantage of the refurbishment in process in the suburb of *La Roseraie (585 dwellings)* to include it as the pilot site in the project Save@Work4Homes. As far as energy consumptions are concerned, the refurbishment consists there in setting double windows, weatherboarding and water-saving devices. The objective within the Save@Work4homes project is to develop consistent Energy Awareness Services to help tenants adapt their behaviour and reinforce the effect of the new equipments.

1.3.2 Specification and process implementation

Description of the specifications of services

The pilot site includes two aspects:

- collection of relevant data
- information of tenants

Collection of relevant data

In most cases, data are not available for the householders but are hosted at the energy provider's. LTA project is then based on the setting of sensors in the dwellings to collect temperature, water and electricity data.

Electricity meters in place were not compatible with sensors.
All electricity meters have thus been replaced and sensors for electricity consumptions have been set thereafter. Mid-January, the installation was completed. Temperature sensors have been set at the end of February.

Sensors for water consumptions remain to be set. In the present situation, sensors already exist to collect information on a monthly basis: this information is collected by the supplier who every month sends the data base to Le Toit Angevin: this information is then recorded in our information system. There is no information available on our web site at the moment.
The question is still not resolved if the water meters in place are compatible with sensors for an automatic transfer of water consumptions data through the PLC infrastructure.

Moreover, while electricity data are collected by Edev, which is a subsidiary of EDF and reported on the web site of Edelia which is also a subsidiary of EDF, there is no reason a priori why water consumptions

should be collected by Edev and reported on the web site of Edelia since these companies have no major activity in the field of water. This question remains also to be resolved. From this answer depends the choice of the support for our portal: Edelia or LTA-DomData ?

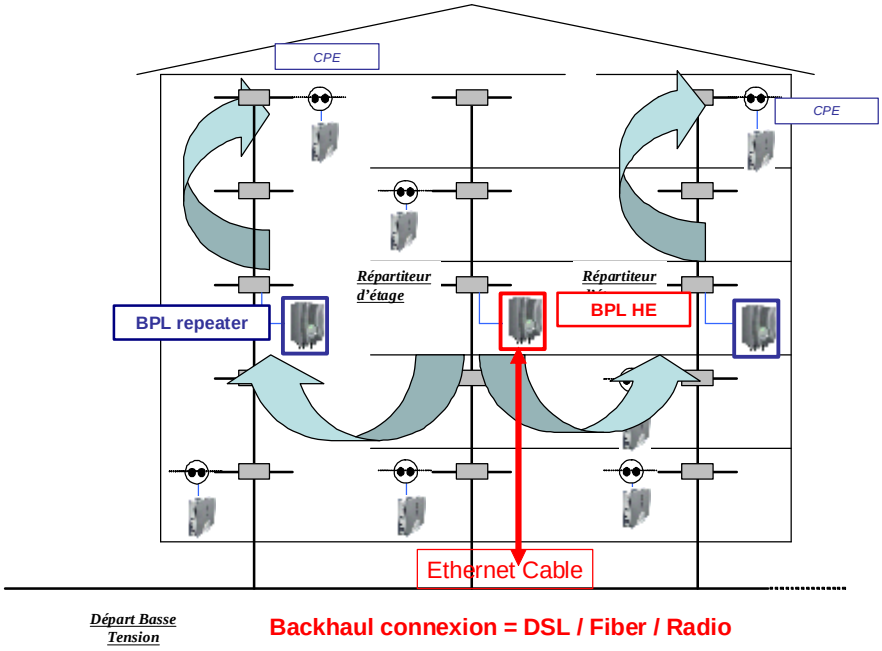
Transmission of data

Of course the data collected have to be measured and transmitted automatically to LTA without any manual intervention. A set of components based on a PLC infrastructure has been installed in the building and linked to the local network so that information can be transferred to LTA.

The PLC infrastructure has been completed at the beginning of February.

The PLC (Power Line Communication) infrastructure

An optical loop reaches each rising main. The optical fibre in each rising main is equipped with an optical line termination (OLT). This termination is connected to a switch including a number of ports identical to the number of dwellings of the rising main. This termination is connected by a Ethernet cable to injector PLC. This PLC injector usually installed in the middle of the rising main provides productive flow of 82 Mega. This flow is to be divided between the number of residences of the main. Sensors data (temperature, water and electricity) are transmitted to the PLC infrastructure through radiowaves.



Information of tenants

Concerning communication of data to tenants, the objectives are:

- to find the relevant means of communication which our tenants will be able to access easily ;

- to identify the relevant way of introducing data so that our tenants may understand them.

Paper is one of the means of communication that can be used and will be certainly used by LTA :

- to create a specific chapter on energy consumptions within our tenant handbook
- to create posters on energy consumptions to be put in the common parts of our dwellings.

Specific **Actions** can also be organised with tenants, staffs and local associations.

These means of communications are adequate to give general information but are not really appropriate to give individual information.

Certainly an **internet portal** is more appropriate to transfer **individual information** especially if it is combined with a **day-to-day updated database**.

The information documented on the internet portal will also be sent to the tenants in the form of **a letter** so that those who do not have access to Internet can anyway have information on their energy consumptions. Sending this written information could also contribute to advertise the portal.

The Internet Portal

The setting of electricity meters combined with sensors in the dwelling has been sub-contracted to the company Edev which is a subsidiary of the group EDF. Within this group the company Edelia proposed a portal dedicated to electricity, water and gas consumptions. Just as what we expected to do within this project, this portal gives daily-updated information to subscribers.

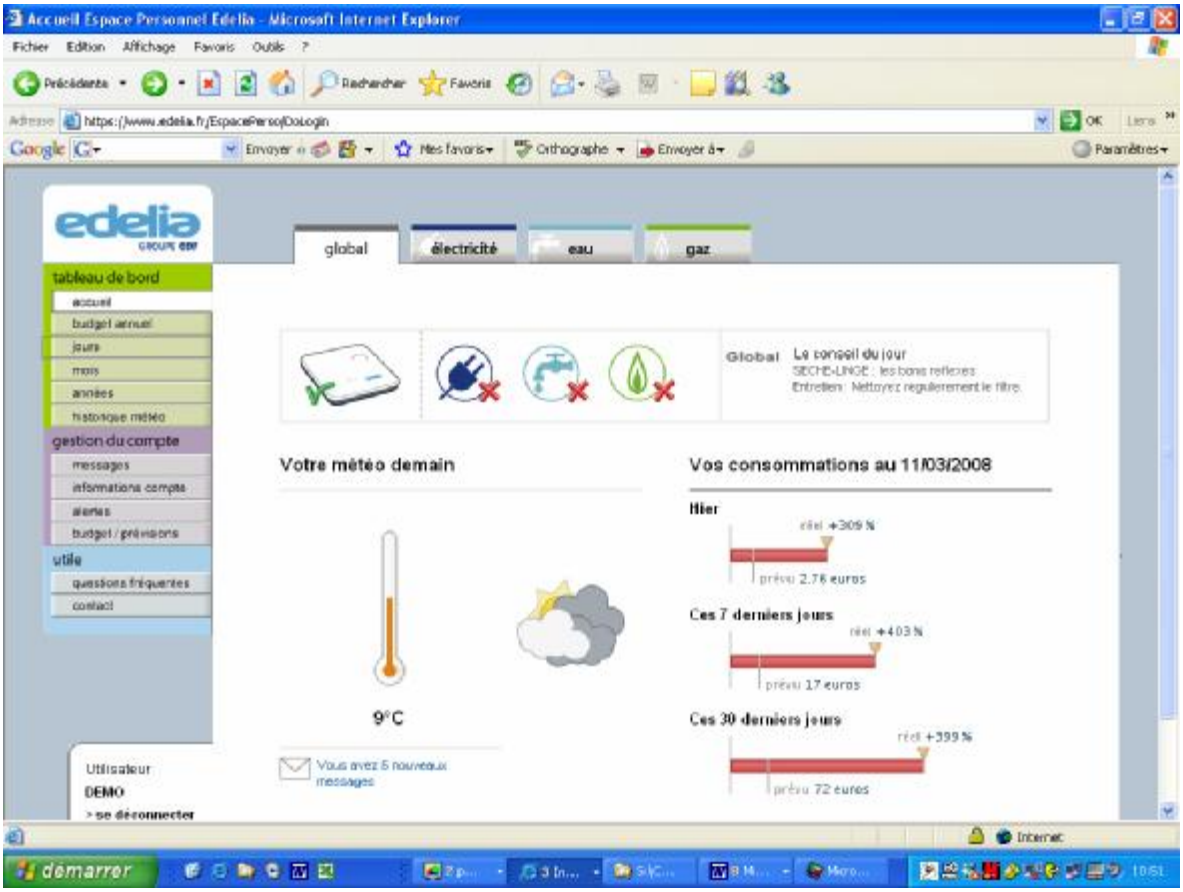
The Edelia portal is already developed and fits to the type of information which is collected by the sensors set on the meters which is an advantage for LTA to get forward within this project and to begin rather rapidly to evaluate the impact of such energy awareness services.

Still the question of the collection of water consumptions data remains to be solved (see above).

The alternative for LTA is to elaborate a completely new portal in collaboration with DomData.

For the moment, a link to the portal of Edelia has been included in LTA website within a specific page dedicated to the energy savings including already advice on the energy awareness behaviours; information on the waste treatment and a specific page on energy consumptions. A link will also be included to the energy performance certificate of the dwellings, the calculation of these certificates being compulsory from July, the 1st 2007 for rented dwellings. Tenants will thus not only have information on their individual consumptions but also know about the energy performance of the buildings.

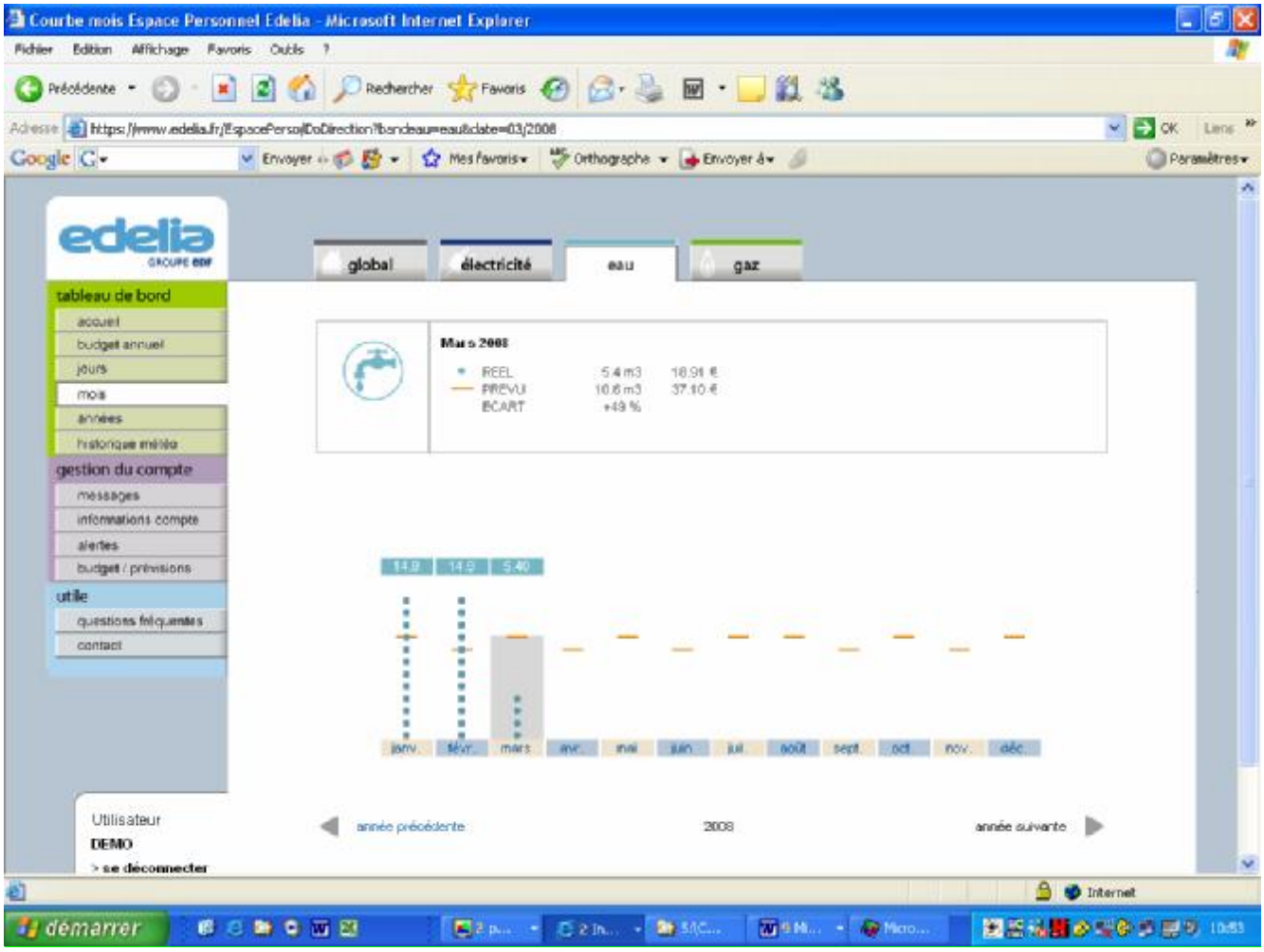
Once tenants have been provided with a password (which is the case for the member of the focus group), tenants will be able to access on the Edelia portal to their actual water and electricity consumptions on a daily, monthly and annually basis with a reference to a unit price and a comparison made with a budget which they have defined. They also have information on the temperature of the day and the days before.



Given what as been documented above, at this stage of the project, we need:

- To finalize our agreement with Edelia to benefit from their portal and to obtain a password for each of our tenants concerned by the pilot site. This agreement should be concluded (or not) in April. We also negotiate with them the possibility to get on our server the data collected from the sensors. Indeed we want not only to make tenants have access to their data but also to have the data collected on our server to be able to draw analyses on the evolution of the consumptions as an explanation of the evolution of the energy bill for tenants.

- To write our specifications to develop a portal on the model proposed by DomData but fitting with the characteristics of our pilot site and particularly with the fact that data are updated automatically on a daily basis and should be presented in comparison with the data collected the day, the month or the year before.



Access to the Internet Portal

Why ?

The project is not reliable if we do not take into account the social digital divide.

In France, it is estimated that among the 4 million social households representing 10 million inhabitants living in social housing, more than 90% have no internet subscription and around 20% have no phone subscription.

For this reason, we support our pilot site by implementing access to Internet at a very low cost in our dwellings.

Facilitating access to internet is a real issue to give a real impact to our pilot site.

It will also give access for our tenants to Internet commodities and online services (education, culture, employment, news, …) in a context where companies and public authorities tend to increase the use of Internet in their relation with their clients or public services users. It is also sometimes a means in decreasing telecommunications expenses and paper use so that energy expenses could be indirectly mastered this way.

Access to Internet will also certainly be a means in implementing new regulations regarding security of

people in their dwellings (fire, alarms…).

How ?

The access to Internet has been implemented without further equipments that those necessary to develop the PLC infrastructure. The implementation is in place since the beginning of February. What is lacking at this stage of the project is as followed.

The modems remain to be distributed to every tenant.

Descriptions of the work of subcontractors and partners

The subcontractor for the electricity meters and sensors was Edev.

As described above, we need to decide which will be the provider for water meters and sensors and to determine if we continue the project with the Edelia portal.

As far as the use of Internet is concerned, LTA plan to work with *La Roseraie* Cybercentre and the town's services to promote the new energy awareness services and other websites as well, which give access to existing familial, cultural (...) services in the suburb of *La Roseraie*.

To support this project, we look for partners to propose tenants recycled computers to be bought at a very low price.

Legal requirements

In our last consortium meeting we agreed to make some investigations about the right for a social housing company to use such data: in France, l'Union Sociale pour l'Habitat is investigating on this subject at the moment and the answer should be available when writing D4.2.

Training of users

Tenants are the direct end users of the new services. At the beginning the only users will be the inhabitants of the residence La Roseraie (300 dwellings). Our objective is to extend the implementation to other buildings if the pilot site proves to work well (technically efficient and useful for tenants).

Employees are not direct users but will have to know the new services to be able to promote them among tenants.

A meeting took place on the 5th of February gathering the general manager of the Le Toit Angevin, the LTA project Save@Work4Homes coordinator, the LTA technical experts working on the project, 4 representatives of tenants (living in the residences concerned by the pilot), the 2 caretakers working there and their managers.

The project was completely accepted and considered as really innovative.

We have to organize the training of the other users. This will be done when distributing the modems once the agreement for the use of the Edelia portal will have been concluded. Then tenants will have their password to access to the Edelia Portal.

Evaluation of the pilot site

The period of evaluation will really begin after a period of use by every tenants concerned by the pilot site.

In April a survey is organised by every social housing company partners in this project. IWU has proposed a draft of the questionnaire in February and the process of validation is in course. The objective is to analyse the impact of the pilot site on the energy behaviours. A second surveys will be organise in a few months to make comparison of the answers between the two periods.

1.4 BELFAST FIELD TRIAL – NIHE

1.4.1 Context

The NI Housing Executive is the Regional Housing Authority for Northern Ireland with a social housing stock of 93,000 properties, having sold some 115,000 dwellings to sitting tenants. It also provides grants to home owners to address unfitness and disrepair in their homes. Since 1996 the Housing Executive has also designated as Northern Ireland's Home Energy Conservation Authority with a target of improving the energy efficiency of the total housing stock. Between 1996 and 2006, the energy efficiency of Northern Ireland's housing stock has been improved by 20%.

One way that the Housing Executive achieves its energy efficiency objective is by replacing both coal fired and electric central heating systems in individual dwellings with natural gas systems or, where gas is not available, with oil fired systems. Both the gas and oil systems include a full range of heating controls to help tenants to manage the system in the most efficient way. The controls include :

- Programmer and Timer
- Room Thermostat
- Hot Water Cylinder Thermostat
- Thermostatic Radiator Valves

Feedback from tenants suggested that some of them had difficulty in understanding how to use the controls effectively. In February and March 2007 we carried out a survey of 100 tenants to ascertain their knowledge on the effective use of their heating controls. The survey confirmed that 38 of them need more in depth advice on this. It was been decided that the most effective way of delivering this is face to face with a qualified energy advisor. Between October 2007 and February 2008, the 38 tenants were

contacted and, where still required, were visited by trained staff who provided more in depth advice on the use of controls.

1.4.2 Specification and process implementation

Description of services

The Housing Executive has a Service Level Agreement with advisers from the Northern Ireland Energy Agency (NIEA) to provide a direct advice service to tenants. One of the programmes run by the NIEA is Heatsmart which is an advice programme for tenants who receive a new heating system and controls or who are new tenants unfamiliar with the existing heating system and its controls. The 38 tenants who said they needed more in-depth advice should already have received a basic advice package at the time that the heating was installed or when they became new tenants. However, given their need for further advice, Heatsmart staff arranged to call out again with these 38 tenants to provide further in-depth instruction on the use of their controls.

Planning

Given that July is a major holiday period in Northern Ireland, it was intended to begin calling out with these tenants during August and complete the process by the end of September 2007. However, on the advice of the Heatsmart manager, it was decided to defer the visits until October 2007 when the heating season begins again for the winter. It was felt that tenants would be more receptive to the advice at a time when they would be using their heating again on a regular basis.

Technical requirements

None

As described above qualified Heatsmart staff provided more in-depth face to face advice on the use of heating controls.

Legal requirements

None

1.4.3 User Testing

Description of User Groups

Tenants who have difficulty understanding use of the controls on their heating systems.

Impact on the organisation of the social housing company

It will help the NI Housing Executive to meet its energy efficiency target whilst alleviating fuel poverty among tenants.

Status of Information/Training

Heatsmart staff are already aware of the type of advice they need to provide.

Results of the first phase of testing

A report will be provided at the beginning of April 2008 because the Heatsmart manager is currently on holidays. However, verbally she reported that the tenants were satisfied with the advice provided.

Difficulties encountered

A verbal report received from the Heatsmart manager before she went on holidays indicated that no major difficulties were encountered.

1.5 THE FRANKFURT FIELD TRIAL – NASSAUISCHE HEIMSTÄTTE

1.5.1 Context / Origins / Objectives

NH together with Domdata will introduce an internet based internet portal which will provide tenant services to their tenants. These services will be:

- Energy consumption data
- Energy self assessment tools
- Contractual data
- Rental conditions
- Bookkeeping data
- Messaging to the landlord
- Knowledge base
- General information….

This will be provided in a trusted and confidential manner via secure access. To ease the burden of the language of foreign tenants and to address the information more detailed the portal will support 6-8 languages. In that manner tenants will be able to access to his/her data independent by time and place.

The aim is to have a portal being very similar to the Stadt&Land portal in Berlin to have a unique opportunity of comparison within the consortium and the country.

Beside this technical installation a brochure will edited. An existing brochure about reducing mildew which is focussed to protect the buildings will be integrated into the new brochure which handles both with energy awareness and also with preventing mildew to keep the dwellings and building in good healthy conditions.

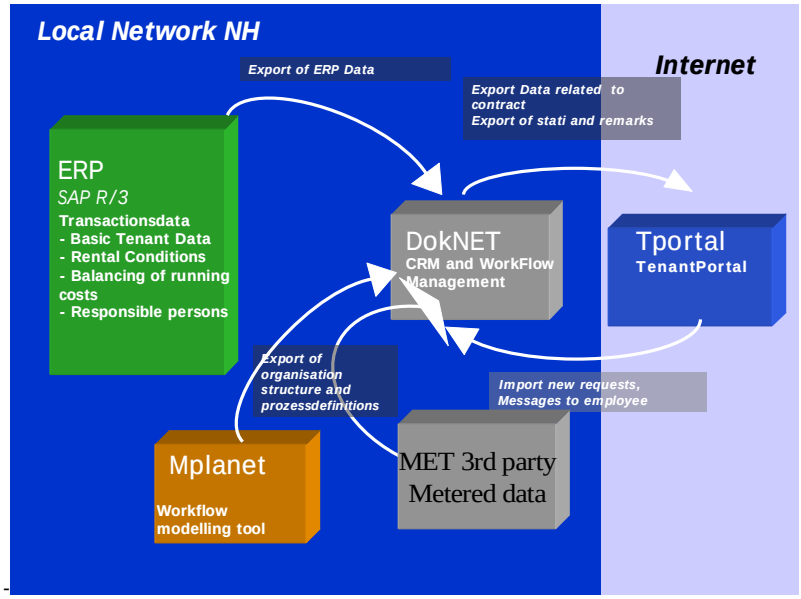
1.5.2 Specification and process implementation

Description of the specifications of services

General data will be extracted from the SAP-ERP system and energy measuring systems to be put to a web server from where the information is provided to the tenant. The tenant will be registered via “Opt in” and can access via a SSL encrypted session to the data. While logging on the language can be selected.

Technical requirements

- A connector (software) to SAP will be necessary.
- An internal server for all non SAP applications will be implemented
- A webserver for the tenants to access to the portal will be placed in a secured zone in the internet



Description of components developed, acquired, introduced

The definition of the data set to be extracted from the ERP System is finished and Domdata starts to prepare the interfaces together with NH The tenant portal is similar to the Stadt&Land portal and will be introduced one monht after introduction in Berlin.

A big amount of time was spent to analyze and validate the heating consumption data. There are existing data from several years and the validation showed a big number of measuring and transmission errors which made a heavy impact for the PETS (Personalised Energy Tool for Specific local needs)

Legal requirements

The tenants wanting to access to their data must sign a rental contract extension. This assures NH an “Opt In” access. NH must give the warranty that regulations of German data protection law are observed.

Beside this there are doubts about the quality of the consumption data. This will lead to a new preparation of the displayed data (to the tenant) and the impacts to running cost billing.

1.5.3 User testing

Description of user groups (Tenants / Employees)

A group of approximately 300 Tenants is selected. All dwellings located in the north of the state of Hessen are connected to broadband cable networks from NH subsidiary MET and are equipped with automatic heating metering.

Due to the changes in the release planning of the consortium the introduction will start with release 2 with a smaller subset of these groups will begin with the site trials. Related to general experiences in introducing software systems the user group should be manageable and not too big. During release two the number will be **increased to approx. 300** participants.

In parallel the brochure of saving energy and preventing mildew is developed and will be provided after an internal negation process both to the non internet using tenants and online oat the portal.

Furthermore some settlements being modernised a few years ago will be compared to non-modernised ones. This shall lead to an extensive overview about opportunities of saving energy.

Impact on the organisation of the social housing company

Direct tenant services at NH are provided by local branch offices. These offices are organized in teams of 2 customer care housing economists and 1 technician caring for approx. 1000-2000 tenants. Two teams from Marburg and Kassel will be responsible for the field trials of the project. At the headquarters for project planning and supporting the branch office teams are different persons from IT department, home automation and heating department, research and social management responsible.

A new very important aspect was raised during the planning of release 2. Existing experiences of the technical staff that rising energy costs lead automatically to reduction heating and rising mildew damages. These damages are mostly very expensive in removing/repair. It will be a big challenge to the project to show the effectness or right correct balance of self assessment tool, brochure and tenant portal concerning the energy behaviour of the tenant.

Status of information / training provided to tenants and employees about the proposed systems

User information and training will take place directly at the beginning of service introduction. Preparation is on schedule.

Most of the employees are involved in the planning process and will be updated by a kick off meeting before the roll out of the portal.

1.6 The Moulins field trial - Moulins Habitat

Since 2005, Moulins Habitat undertook in a policy of rehabilitation of its whole park of expansion slots within the framework of the Project of Urban Renewal on the districts of Moulins-South and Yzeure-Le Plessis, project supported by the National Agency for the Urban Renovation. This commitment is notably translated by a retrenchment policy of energy and the search for a better mastery of maintenance costs. The Save@work4homes project thus constitutes a real opportunity to set up a tool of sensitization but also management aiming not only at minimizing all the consumptions of energy but also at setting up a real tool of follow-up and supervision.

As a matter of fact, as we shall see it below, the experimental system set up within the framework of this project will be made for the benefit of the tenants but also of Moulins Habitat in a concern of sustainable development.

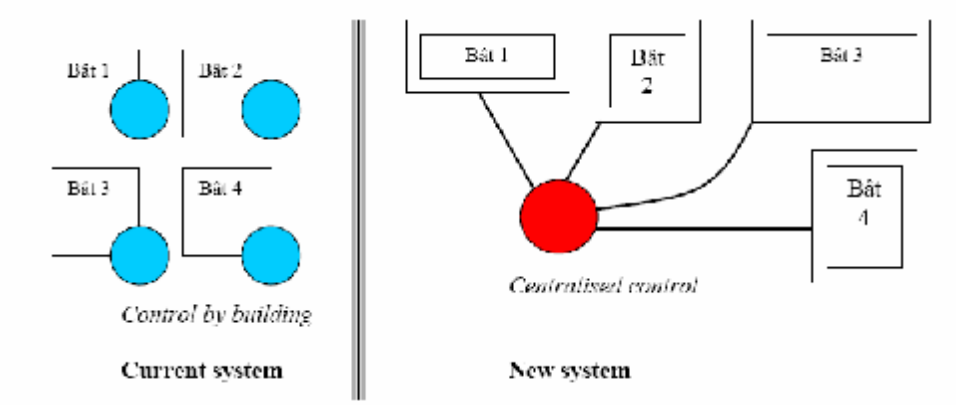
1.6.1 Context, origins and objectives

In the current context of constant increase of the prices of the energy, it seems really necessary to master better expense spending linked to the various consumptions of energy in a concern of reduction of maintenance costs for the benefit of our tenants. However this objective can be reached only in the condition where the landlord and the tenants work in the same sense. The only political will not being enough, Moulins Habitat thus wishes to associate the tenants to this method by making sensitive them in the current necessity of adopting new behaviour and of controlling better not only the expenses linked to the consumption of water but also expense expenses linked to the energy (electricity, gas, heating).

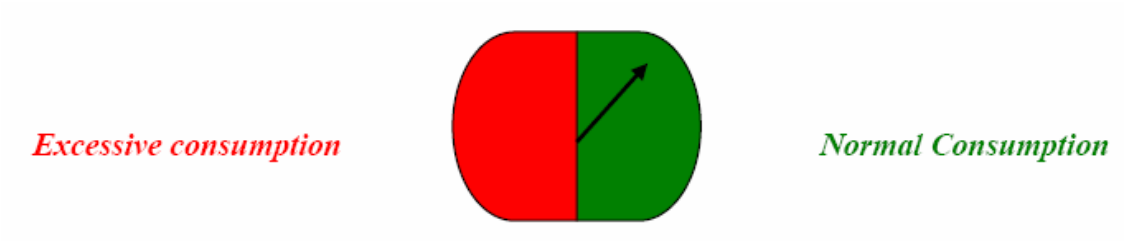
For the record, three essential points of the project of Moulins Habitat are:

- The modernization of the system of control of substations feeding expansion slots not only with heating system but also with sanitary warm water;
- Offer to the tenants a service allowing them to follow their almost real time consumptions by means of an Internet portal to make sensitive them in energy savings;
- Offer in Moulins Habitat the means to oversee its whole patrimony to limit the energy decreases and detect the possible technical hitches such as the leaks.

In this context, it is a question of centralizing the command of heating system and production of sanitary warm water to master better the temperatures by setting up an alarm of alarms and management remote as indicated on the plan below.



At the same time as the modernization of the system of control of the production of heating and sanitary warm water, it will be offered that to every tenant the possibility to follow its consumptions of water and energy by means of an Internet portal which will allow them to follow all their consumptions, to compare their current consumptions with those previous and to follow their "energy" budget. Also they will benefit from advices and from alerts in case of consumption abnormal or excessive.



To note that all this information will lean on networks Web-TV and to Act set up during previous projects.

The objective of this project being above all to make sensitive the tenants in the necessity of energy savings and in the profits that they can pull it, the information which will be transmitted to them will have to be simple to understand and visually talking. To note that the access to this information will be made via a link on the site of Moulins Habitat or via an intranet connection. The services so offered to the tenants also will include the moon communication on the risks represented by an excessive consumption of energy

Besides, such a tool will also allow Moulins Habitat to estimate not only the energy efficiency of the works of rehabilitation and modernization of its park of expansion slots but also to compare the efficiency of the various used constructive modes.

As indicated above, these investments in the modernization and a follow-up strengthened the measures of energy consumption join the Project of Urban Renewal of the districts of Moulins-South and thus a global method of renovation and rehabilitation. To note that the project so led by Moulins Habitat requires that little additional installation in measures it where we lean on the pre-existent infrastructures. Indeed, the Save@work4homes project joins in the continuance of the services offered to the tenants within the framework of the projects Web-TV and Agir.

Having, at first, to work with EDF and EDELIA, Moulins Habitat made a call for tender for « *the supply and the implementation of an experimental system of telemetering and follow-up of consumption of water and energy* ». At the conclusion of this procedure of call for tender, it is finally the VIZELIA company which was retained to achieve this project.

1.6.2 Specification and process implementation

The base of the reflection engaged by Moulins Habitat lives in search for a tool aiming not only at making sensitive the tenants in energy savings and at working on the reduction of maintenance costs as well as on the more just distribution of these last ones but also at endowing the services of the Office of a real tool of supervision.

First of all, concerning the service offered to the tenants, it is not only a question of allowing them a regular and almost real time access to their consumption of water (cold water and warm water sanitary facility, electricity, heating and gas, if need be). It will be a question here not only of allowing the access to the volume of consumption but also of giving the means to the tenants to manage their "energetic" budget by translating the volume of consumption into euros. To note that the history of the consumptions will be kept to allow a real follow-up decorated with a possibility of comparison to estimate the effects of such or such effort at the change usually.

To note that to insure the perpetuity of the service and its use by the tenants, an effort will be made on the follow-up and the update of the information. In this frame, information and advice will regularly be diffused with the users and will be adapted to user's various generations.

Similarly, it will be important to work on the interactivity of the service to allow an exchange between the tenants and the landlord.

Besides, as regards Moulins Habitat, it is a question of being not only equipped with a tool of sensitization but also with a real tool of supervision. So the Facility Green Building application offers in Moulins Habitat the possibility, at first, to have one global vision of the energy consumption of its patrimony and his occupants but also, in the second time, to set up a tool which will allow him:

- to work on the reduction of maintenance costs and on their best distribution;
- to identify the possible problems of overconsumption, too important decreases and if need be the problems of leak;
- to compare the energy efficiency of all the buildings constituting its patrimony;
- to compare and to analyze the results of the campaigns of rehabilitation;
- to compare the efficiency of the various used modes of construction.

Later, the potential of the service proposed by VIZELIA will allow Moulins Habitat to be equipped with a real tool of management generating automatically the alerts and the orders of service not only to the services of Moulins Habitat but also to companies holders of the markets of maintenance. To note that in a concern of efficiency, this tool offers the possibility of modelling in three dimensions the whole patrimony of Moulins Habitat notably to track down exactly the problems requiring an intervention.

Similarly, Moulins Habitat wishes to widen the radius of action of the application to the remote management of the heating systems notably for all which concerns the structures of hosting of its patrimony.

The offer of VIZELIA was thus retained soot to the appeal of offers because of its potential and of the evolutivity of the service. Indeed, at first, it is a question only of being equipped with a tool of telemetering and with follow-up of the consumptions in the profit notably of the tenants but, later, of Moulins Habitat will thus be endowed with a real tool of supervision and with management of its patrimony joining logically after the European project Act.

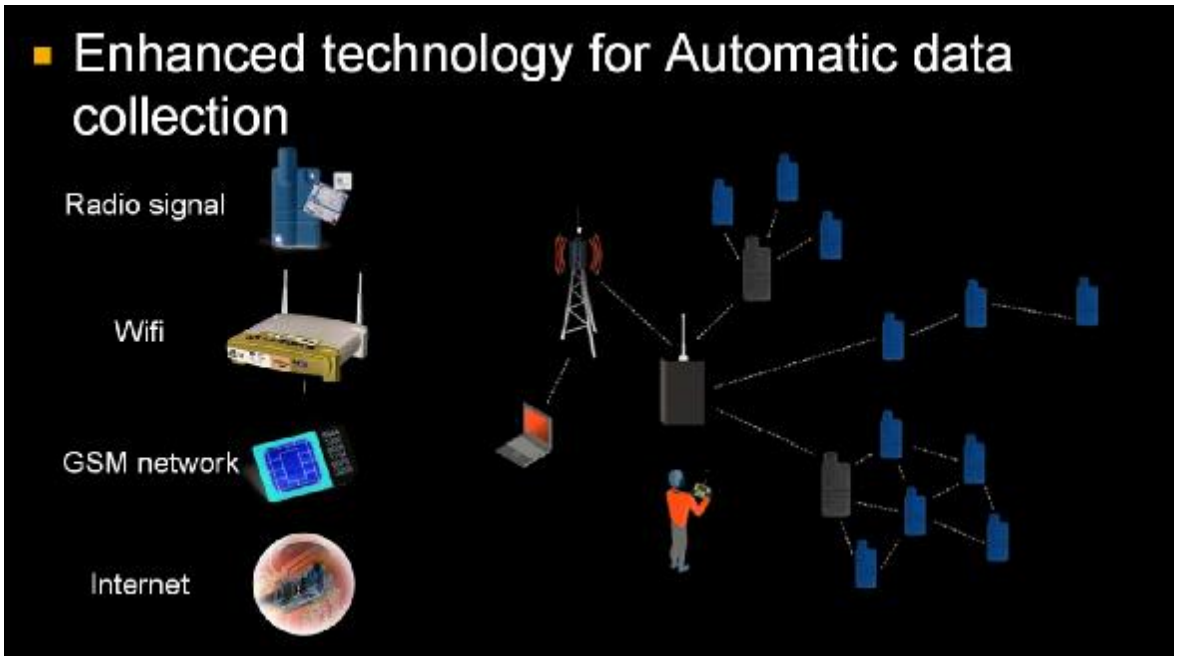
Description of the specifications of services

As indicated above, at first, it will be a question of offering a service of telemering and follow-up of consumption to the profit notably of the tenants of Moulins Habitat. This service will allow the tenants to follow almost real time their consumptions in water and energy:

- On Moulins-South, the tenants can follow their consumptions of electricity, cold water, sanitary warm water as well as the temperature of their flat;
- In city center, the tenants will have, as for them, access to their consumption of electricity, gas and water as well as to the temperature of their expansion slot.

To note that all these data can be crossed between them as well as, if need be, for the heating, for example, with the statements of outside temperature.

The application of all services requires an investment to equip all the expansion slots of the necessary sensors as well as the transmitters of pulses allowing the communication of the collected data. The architecture of the project appears in the following way:

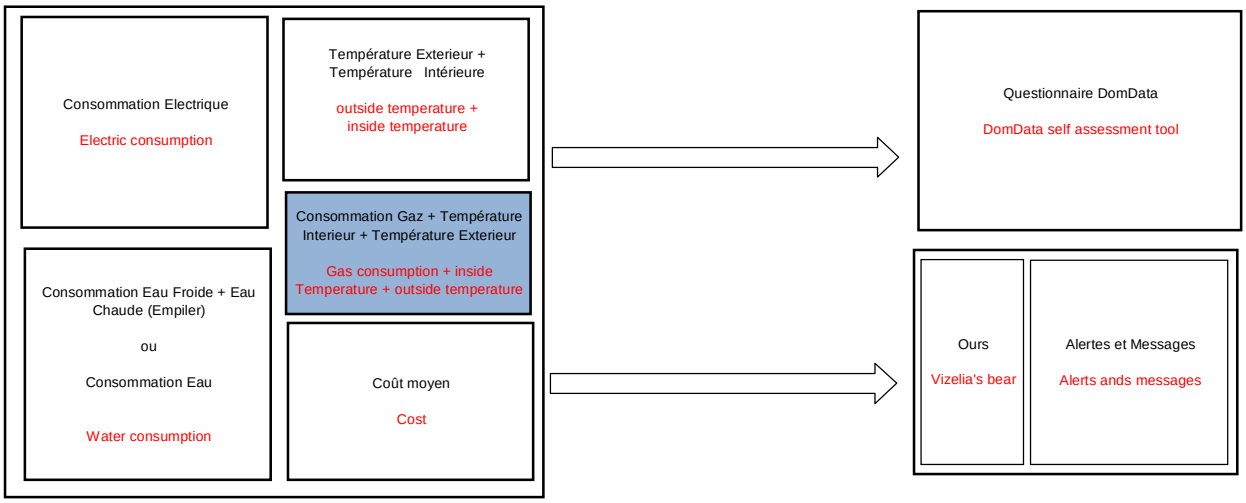


All the data so collected will then be processed with the aim of their communication to the tenants who will have then the possibility of accessing it via an Internet portal.

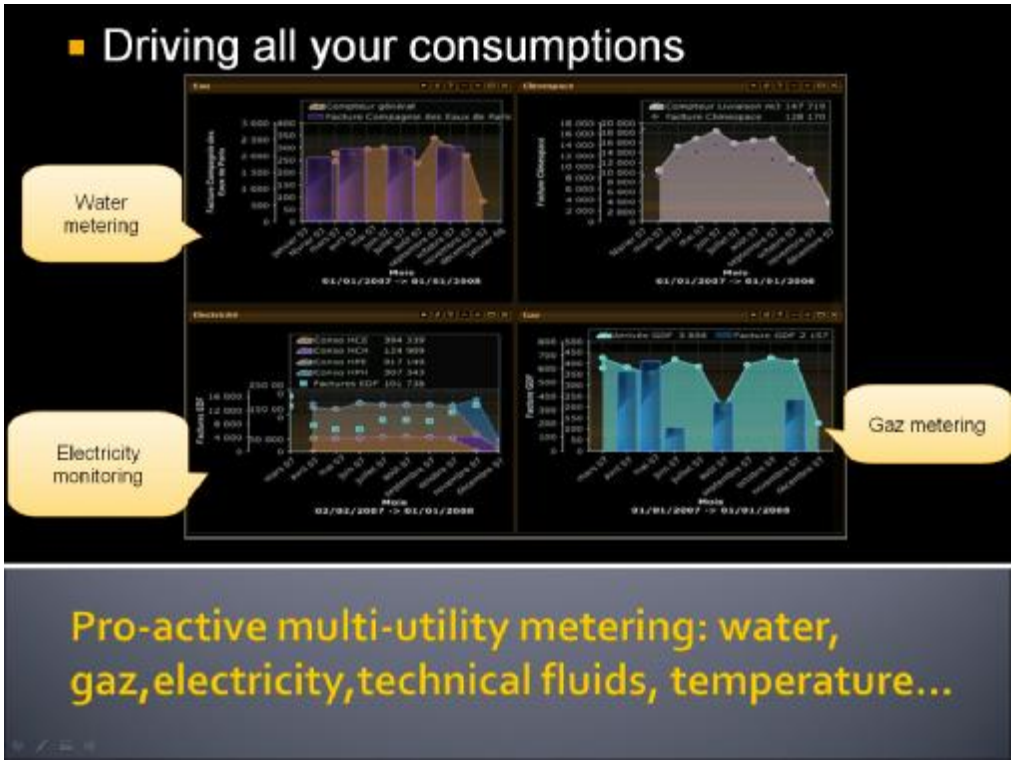
Content of the internet portal

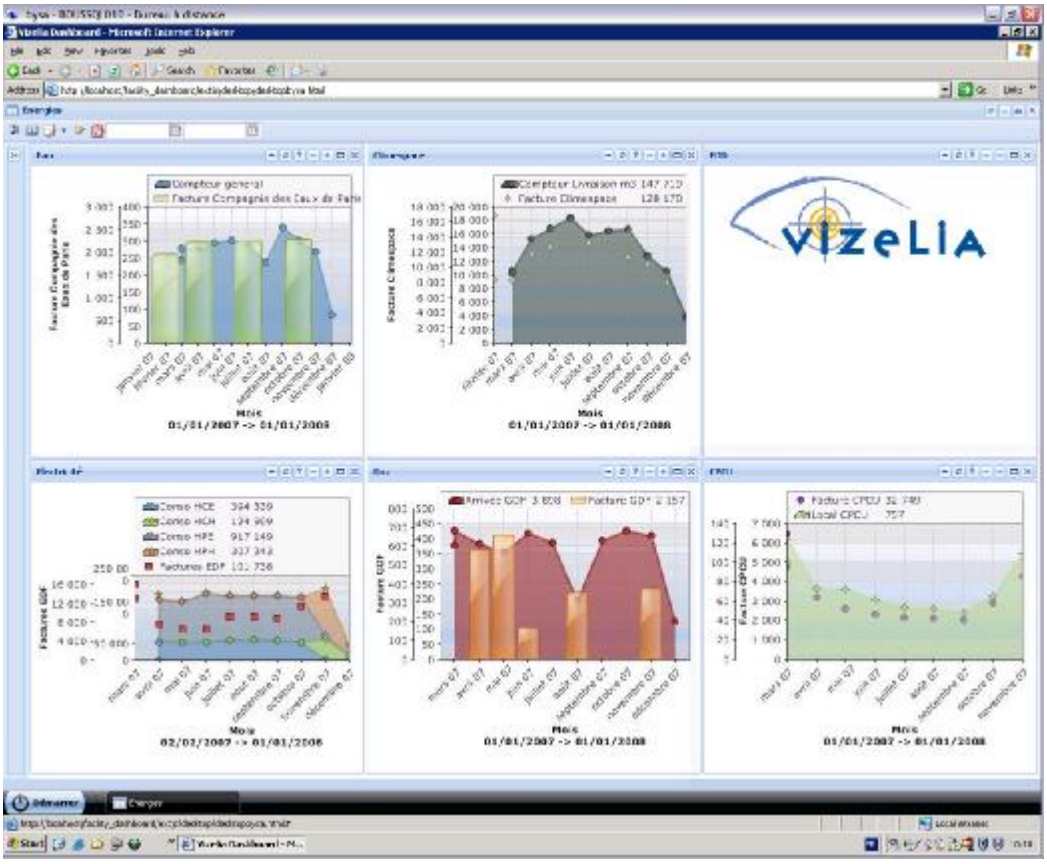
The tenants will thus have access, via an Internet portal to all consumptions in term of consumption of water and energy. To note that, in a concern of aptness, certain data can be crossed between them to put in evidence, for example, the correlation between the temperature of the expansion slot, the outside temperature as well as the consumption of gas in the case of buildings benefiting from an individual boiler.

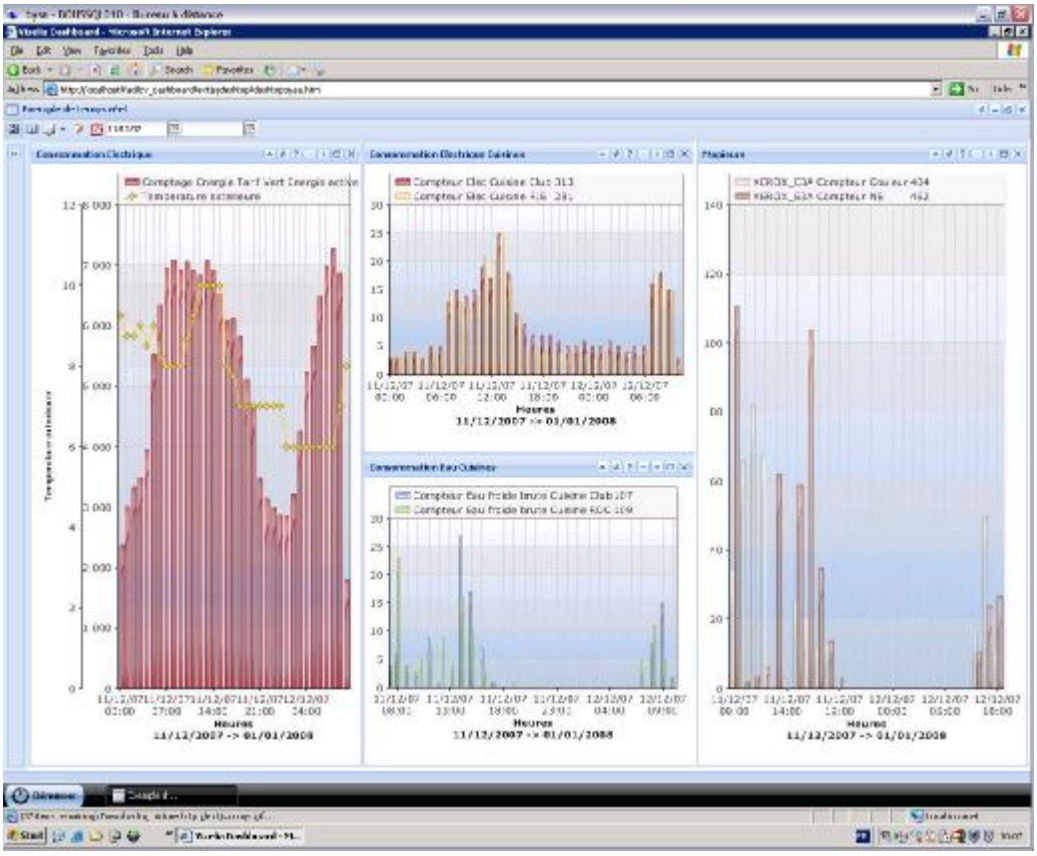
The architecture of the available for consultation page by the tenants will thus be built on the principles exposed below:



The collected data will be processed and shall appear then in the form of graphs simple, legible, clearly understandable and thus accessible to all.


Driving all your consumptions
Water metering
Electricity monitoring
Gaz metering
Pro-active multi-utility metering: water, gaz,electricity,technical fluids, temperature…


vizeLIA



Access to the internet portal

The access to the Internet portal will be made in a individual way. Every tenant will possess a login as well as a personal password. The data appropriate for every expansion slot will be thus available for consultation only by the only occupants. To note that, however Moulins Habitat, within the framework of the supervision of its patrimony, will also have access to all the consumptions to identify the potential problems and generate the necessary alerts.

The ergonomics of the site will allow a grip in simple and fast hand of all the features of the site.

Planning: different steps and deadlines to achieve the prototypes

The project of Moulins Habitat took of the delay on the initially foreseen schedule account held notably legal delays relative to the technical procedure of call for tender but also of the met difficulties. Indeed, the application of the project is dependent on necessary delays with the aim of the replacement of counters in place and unsuitable for the telemetering (electricity and gas).

To limit the delay linked to the delays of replacement of counters, the schedule of application thus decomposes in the following way:

- At first, according to what it was initially foreseen, a first phase of test concerning 7 tenants who 6 representatives of tenants' associations will begin in April and for a duration of three months. To note that considering delays, independent from our will, from replacement of counters "electricity" and "gas", this first phase will concern thus only the temperature of expansion slots as well as the consumption of water;

- In the second time, the network will be widened to 73 other expansion slots with a data collection on all the workstations to know the water, the temperature and the heater, the electricity as well as the gas. To note that this full-scale test will be spread out over 36 months.

To note that considering the state of current promotion of the project the first tests can really begin in April 2008 (second about fifteen).

Description of components developed, acquired, introduced

All the collected data relative to the consumption of water, electricity and gas as well as the appropriate measure of the temperature in every expansion slots will be communicated by wave radio of an antenna GPRS which will transmit them in his turn to a server who will have then for mission to process all these data by crossing them possibly. Every counter will thus have to be equipped with transmitters of pulses to allow the collection of all the data.

To note that the mode of communication of the data by GPRS is only temporary. Indeed, later all these data will then be transmitted via internet.

To note that for the tenants not being equipped in hardware, Moulins Habitat undertakes to set up a system of loan of equipment and it for all the duration of the test. Furthermore, no internet subscription is necessary as far as the tenants have network access Web-TV which allows them to benefit from a free connection. However the use of a modem other one than Netbox will be necessary as far as this last one has no capacities required for the type of language used by the site.

Description of the work of subcontractors and partners

As indicated above, having begun to work on the project Save@work4homes with EDF and her EDELIA subsidiary, Moulins Habitat proceeded to a call for tender at the conclusion of which was finally retained the VIZELIA company.

The offer of VIZELIA, software provider for global building management, indeed presented to give to Moulins Habitat a real software of follow-up and management of its patrimony offering the advantage to combine all the following elements:

- Knowledge database;
- Collaborative tools;
- Dashboards.

So the offer of VIZELIA seduced us by its evolutivity and the extent of the offered features; indeed, the use of this software will not limit itself to the only duration of the project but constitutes rather a real investment for the future.

To achieve this project, VIZELIA is associated to CORONIS, supplier of modules radio to collect all the data relative to the consumptions of water and energy and to transmit them to the server with the aim of their processing. To note that these modules present the advantage to accept the communication in both senses : it is indeed possible not only to collect the data but also to send, in exchange, information to these modules with the aim of a remote management of the installations.

In this stage of the project, the first collected data relative to the consumptions of water and to the internal temperatures of the seat of the Office and the first expansion slot witness{*cookie*} equipped in city center are transmitted to a server based in Montpelier where they are processed.

The CORONIS company gives to the project its knowledge in term of data gatherings by pulses radio and of construction of preliminary network necessary for the use of the potential of the software of VIZELIA.

Legal requirements

To respect the law relative to the data processing and to the protection of the personal freedoms, the offer of this service to the tenants will have to be the object of an agreement of these last ones. For the phase of test, the problem should not settle as far as the attempts will be made on the basis of the voluntary service. But, eventually, it will be necessary of necessities to set up a real system of registration of the tenants wishing to benefit from the service, the registration which will be made in near the services of Moulins Habitat. Indeed, only Moulins Habitat will be able to open the rights of connection by attributing a login as well as a password to the tenants wishing to benefit from this service.

Besides, as regards the relations with the various licensees, the statement of the consumptions of water raises no problem as far as counters are the property of Moulins Habitat.

Concerning the data collection relative to the consumptions of electricity and gas, counters are the property of the licensees concerned to know EDF and GDF. So an agreement has to be also to find with these licensees to be able to place the sensors on the counters which are their property.

1.6.3 User testing

The application of this system of telemetering and follow-up of consumption of water and energy will benefit not only the tenants but also the services of Moulins Habitat. Indeed, the main asset of our project lives in the double use of the system with destination not only end users whom are the tenants but also in Moulins Habitat with the aim of a better management of its patrimony.

Description of to user groups (tenants and employees)

Moulins Habitat chose to associate very quickly tenants' associations as far as the first tests will concern their representatives on concerned districts (Champins, Ilot Thonier, Champmilan and Nomazy) by the experiment of this new tool. All the following associations is so represented: CNL, UDDL and AFOC. The objective being to lean on these associations and to use it as relay for the broadcasting and the development of the service.

So these representatives of tenants' associations can help us to federate the other tenants around the project and thus to develop and to widen the geographic zone of broadcasting of the service.

Besides, it is also necessary to associate the entire staff of Moulins Habitat notably to make sensitive them also in energy saving but also in the interest of the tool of follow-up and management set up within the framework of the project. To note that this is true all the more for our service of relation with the tenants which constitutes a real interface with our tenants. Indeed, to develop the service, it is necessary that the employees of Moulins Habitat know about the potential of the service to assure the broadcasting with our tenants and answer in best the interrogations of these last ones.

Impact to the organization of the social housing company

The application of such a project implies an adaptation of all the services of Moulins Habitat especially since the management of the service will be made internally. Indeed, Moulins Habitat will have the load not only to build the network (organized by the modules of communication and programming) but also to manage logins and passwords attributed to the tenants wishing to benefit from the service. Furthermore, Moulins Habitat will assure the management the every day life of this new service offer so much point of view technical as administrative as far as the Office is proprietary of the license of use.

The Direction of the Development, the pilot of the project, will have at his expense the whole technical management of the system namely: organized by the modules of communication and construction of the network, the management of the portal with follow-up of the data and the exploitation of all the collected data. To note also that eventually the remote management of the heating systems notably of our structures of hosting will be equal lies insurant by the service.

Concerning the Direction of the Relations with the Tenants, it will have for mission to manage to the every day life the follow-up of the service with the tenants.

Status of information - Training provided to tenants and employees about the proposed systems

- Intranet (Web-TV and Agir);
- Internet,
- Moulins Habitat's magazine "La Vie des Quartiers",
- Information meetings ;
- Brochures about energy savings;
- Exhibition
- …

Tenants

According to the result of the first inquiry realized during the boot of the project, it is important to envisage another mode of communication than the only one carried by internet.

In this context, it is notably planned to publish regularly in « La Vie des Quartiers » articles notably aiming at promoting the offered service but also and especially at informing and at making sensitive the tenants in energy savings. Also will be distributed brochures realized with EDF aiming at informing and at advising the tenants as for their management of their energy consumption. Besides, it is also planned to organize an exhibition, in the office of Moulins Habitat but also at the Maison Objectif Sud, on the sustainable development and the energy savings. Exhibition in which will participate various actors such as the licensees (EDF), VIZELIA, the manufacturers of boilers, solar cells, …

Also maybe let us shall owe envisage the broadcasting by mail of the follow-up of consumption of buildings even expansion slots for the tenants who wish it.

Employees

The entire staff of Moulins Habitat will be also informed about the contents and about the headway of the project. A training to the software is also foreseen within the framework of the market concluded with VIZELIA.

Results of the first phase of testing

Considering the delay, we are not still capable of supplying however result it is. However we can imagine to be able to supply the first true results from May 2008.

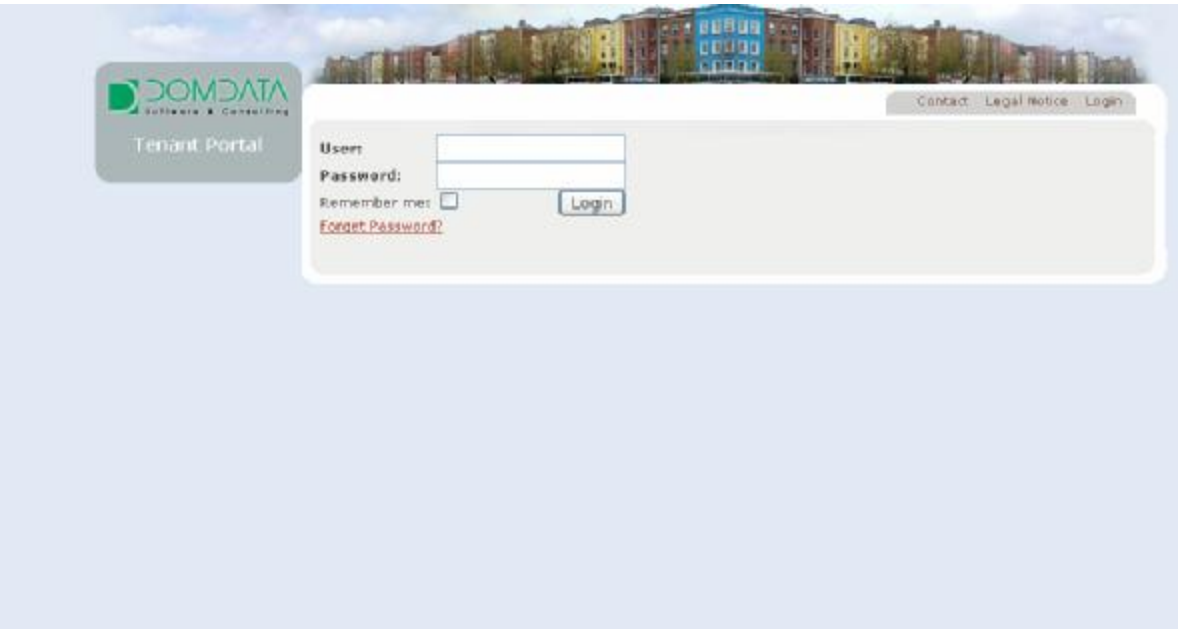
Difficulties encountered

No particular difficulty for the moment.

2 ENERGY CONSUMPTION BENCHMARKING COMPONENT FOR ONLINE OR MOBILE USE – DOMDATA.

The tenant portal containing SAVE modules is available for tests under save.domdata.com. Currently it comprises only the Utility Consumption Self Assessment Tool.

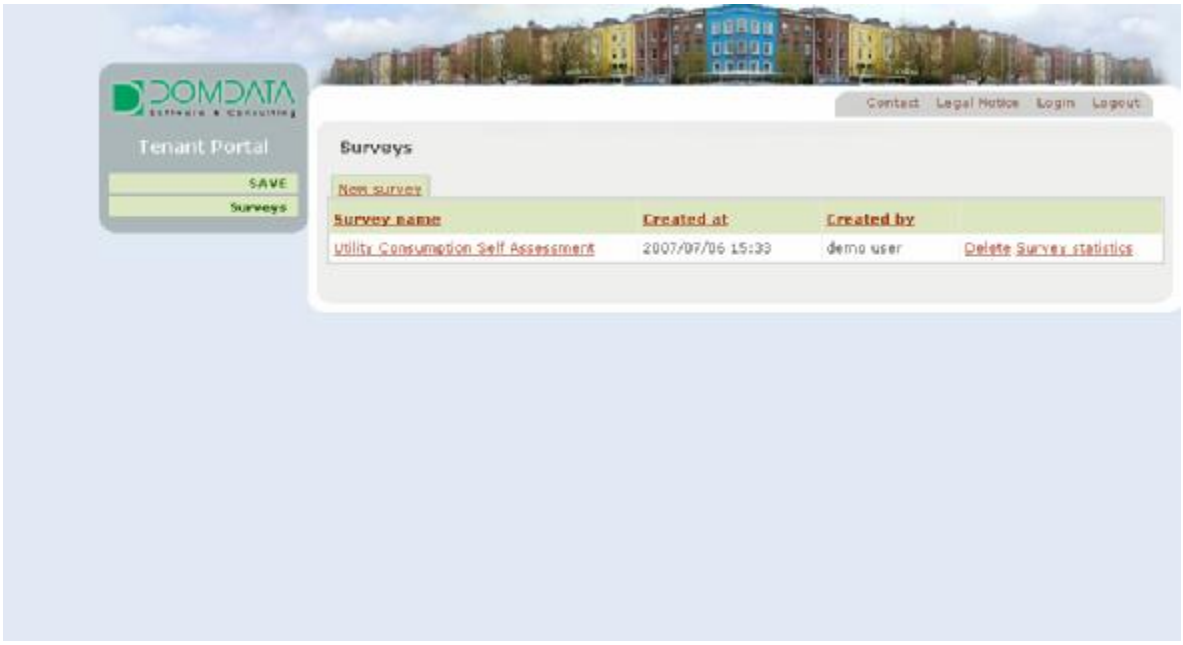
2.1 Logging into the portal



In order to start working with the portal a user must log in entering his id and password[2]. After the entered data have been verified, appropriate menu items are displayed in the left-hand menu.

2.2 Managing surveys (for employees only)

2.2.1 Surveys

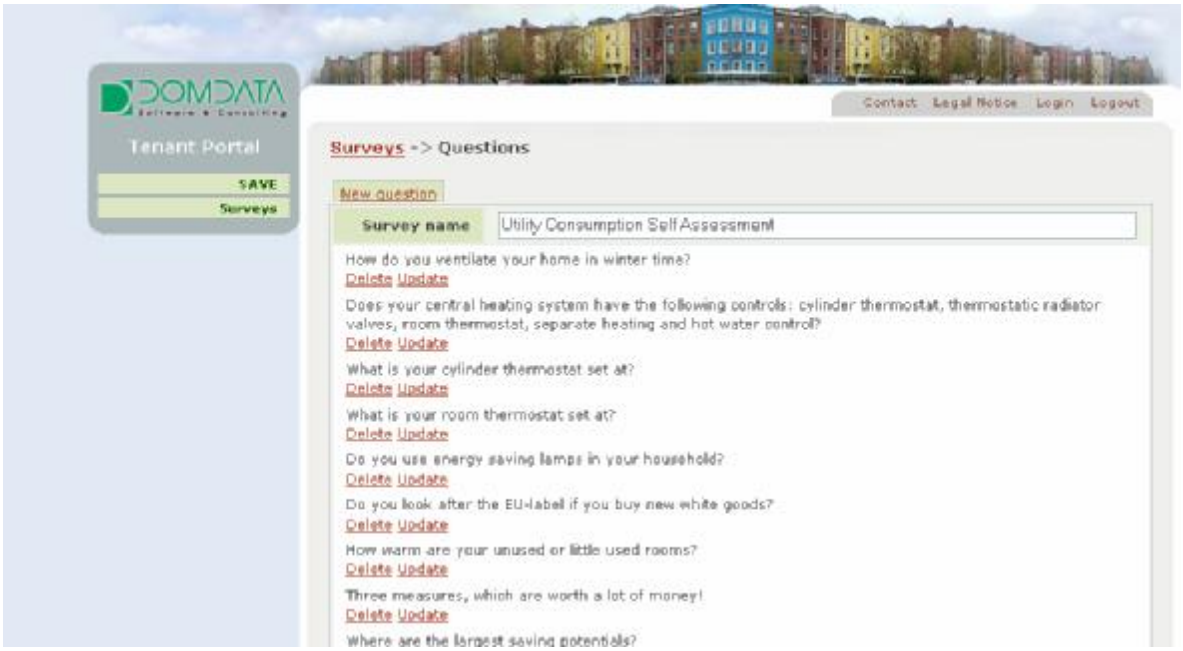


An employee can

- create a new survey
- modify an existing survey
- delete a survey

by selecting an appropriate link.

2.2.2 Questions

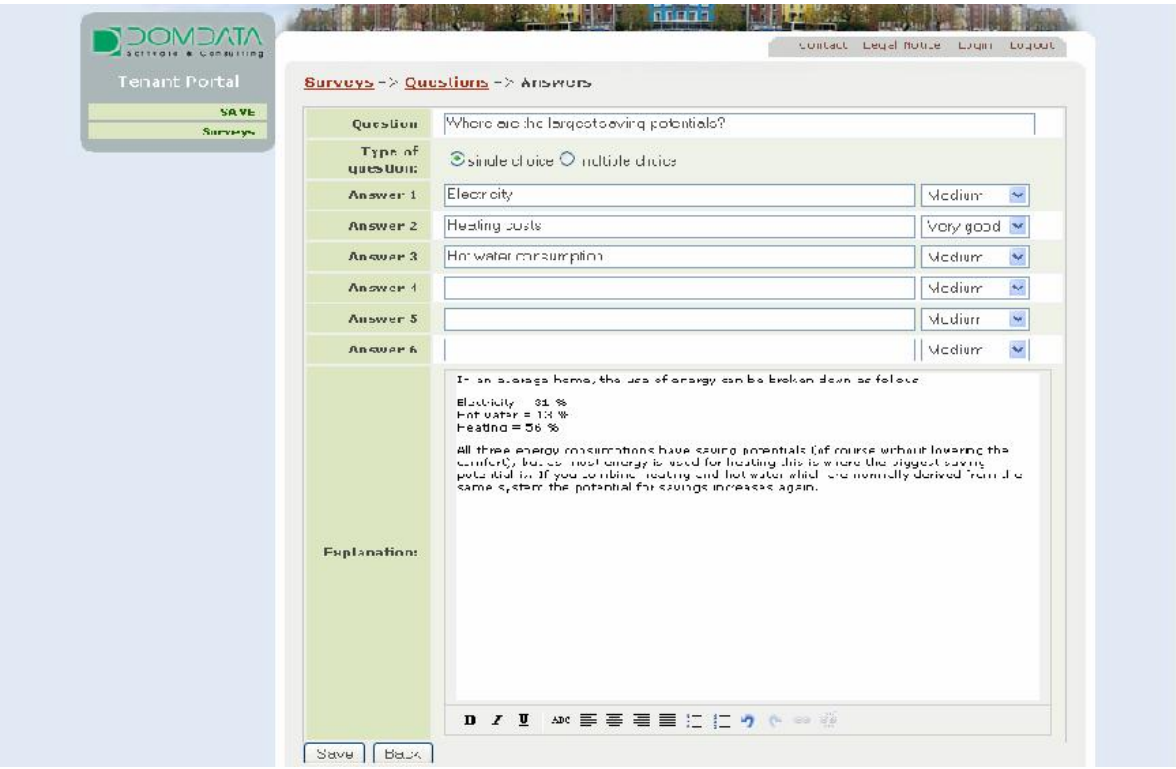


An employee can

- create a new question
- modify an existing question
- delete a question

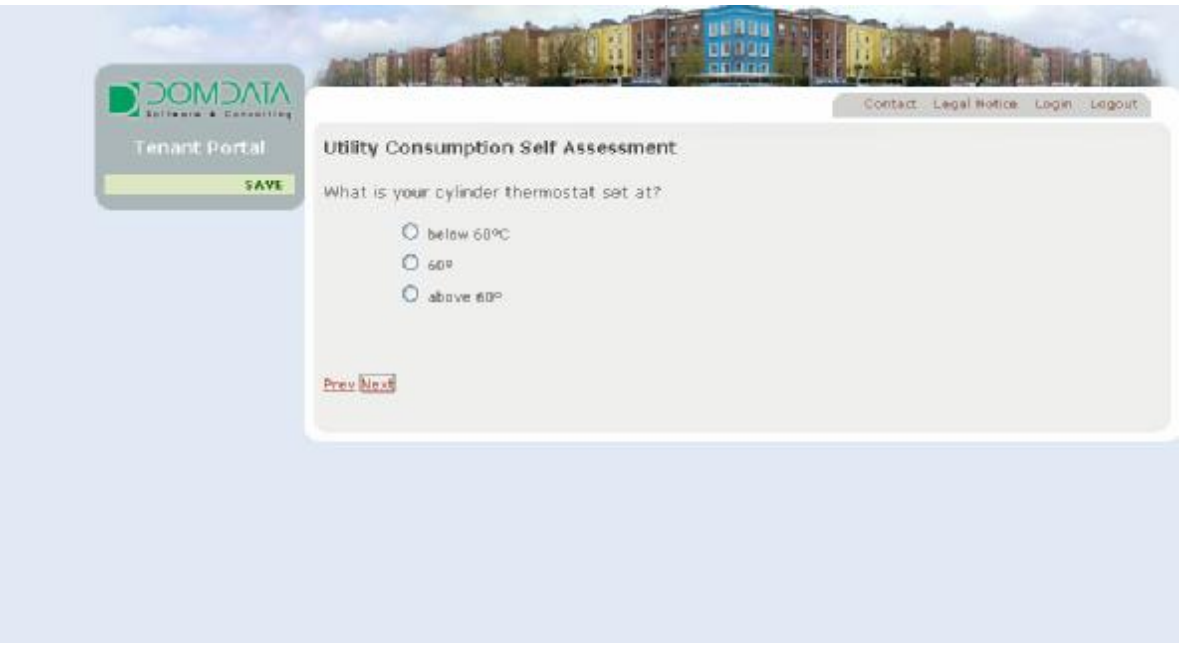
by selecting an appropriate link.

2.2.3 Answers

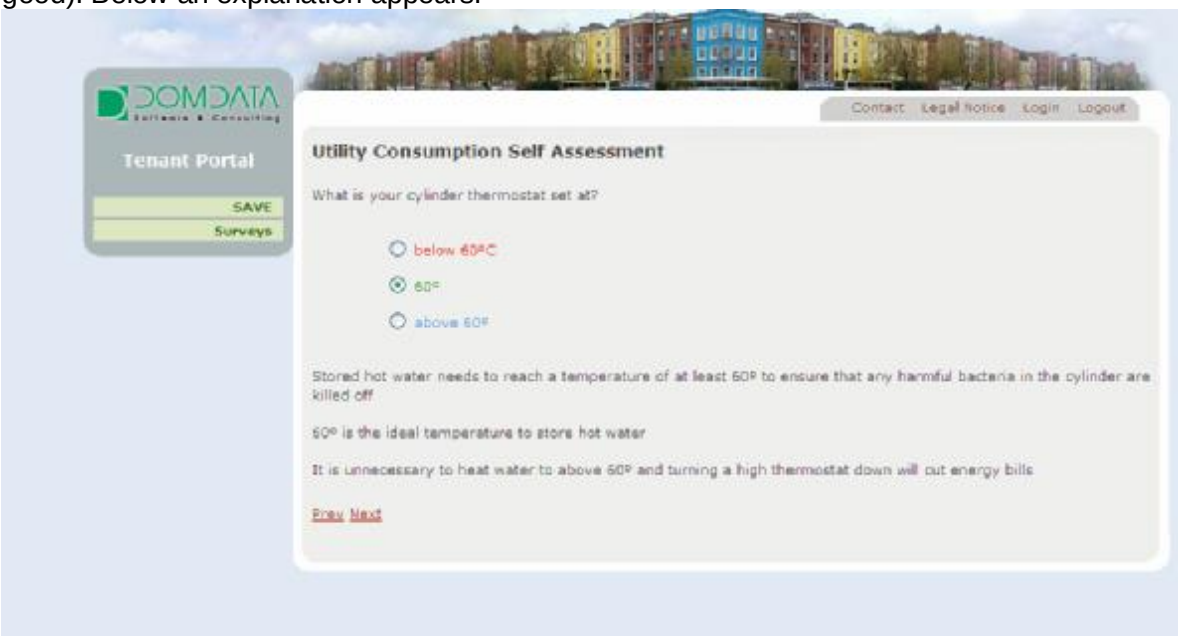


An employee enters a question, possible answers, evaluates each answer (very good, good, medium, bad, very bad) and the explanation for the case.

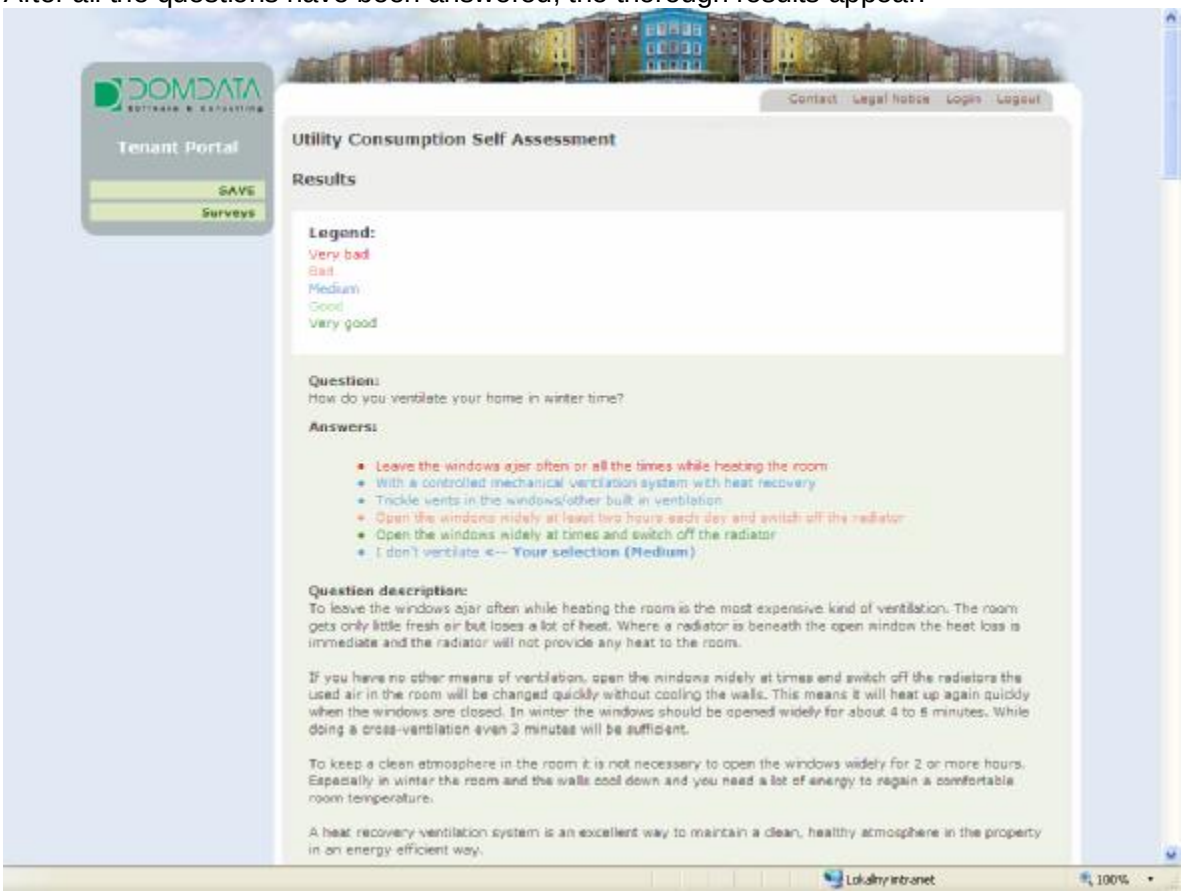
2.3 Self assessment (common function)



If a tenant has entered the portal, he will be asked a set of questions. When he has selected an answer, all the answers will get coloured indicating how good the answer was (e.g. red – very bad, green – very good). Below an explanation appears.



After all the questions have been answered, the thorough results appear:



At the very bottom there is an overall score.

2.4 Energy usage

2.4.1 Heating usage

A tenant is able to see a usage of heating in its flat. Depending on data coming from the ERP system, the portal presents it in a tabular form. Data from several counters can be shown (depending on the capabilities of a ERP solution). A flash chart is displayed for better understanding of the values. The chart shows values at specific points. A tenant can narrow the period of time for which the data is shown. A caretaker of the page can prepare tips with explanation what does the shown information mean.

2.4.2 Warm and cold water usage

Depending on capabilities of the ERP solution, warm and cold water usage can shown. Data is presented in tabular form and also on a chart. The way of displaying the information is similar to the above - heating usage. Type of the chart is configurable.

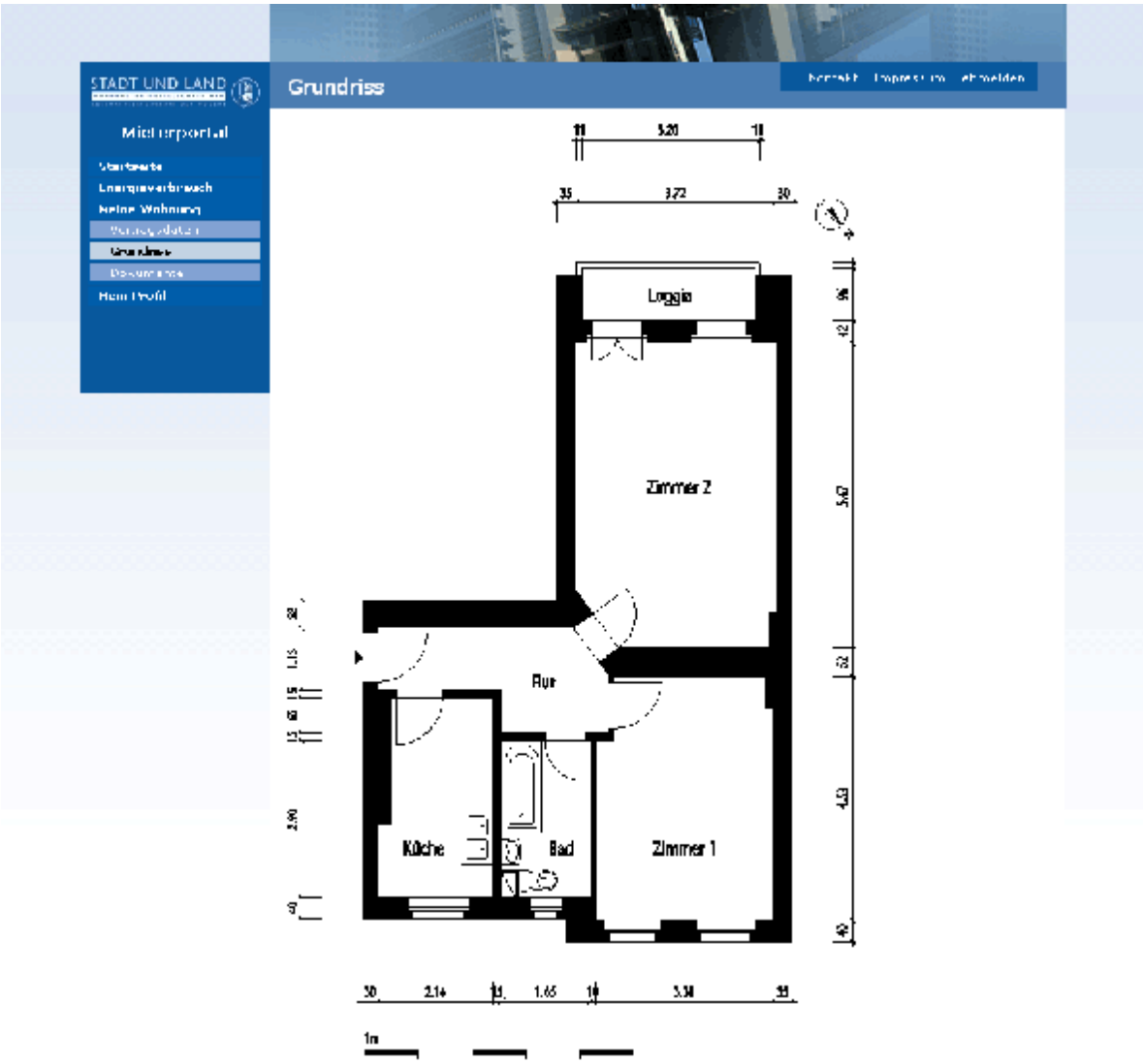
2.5 Presentation of information about the flat

2.5.1 Agreement data

Tenant agreement data is show together with some basic financial information. Depending on ERP system, the range of data shown may differ.

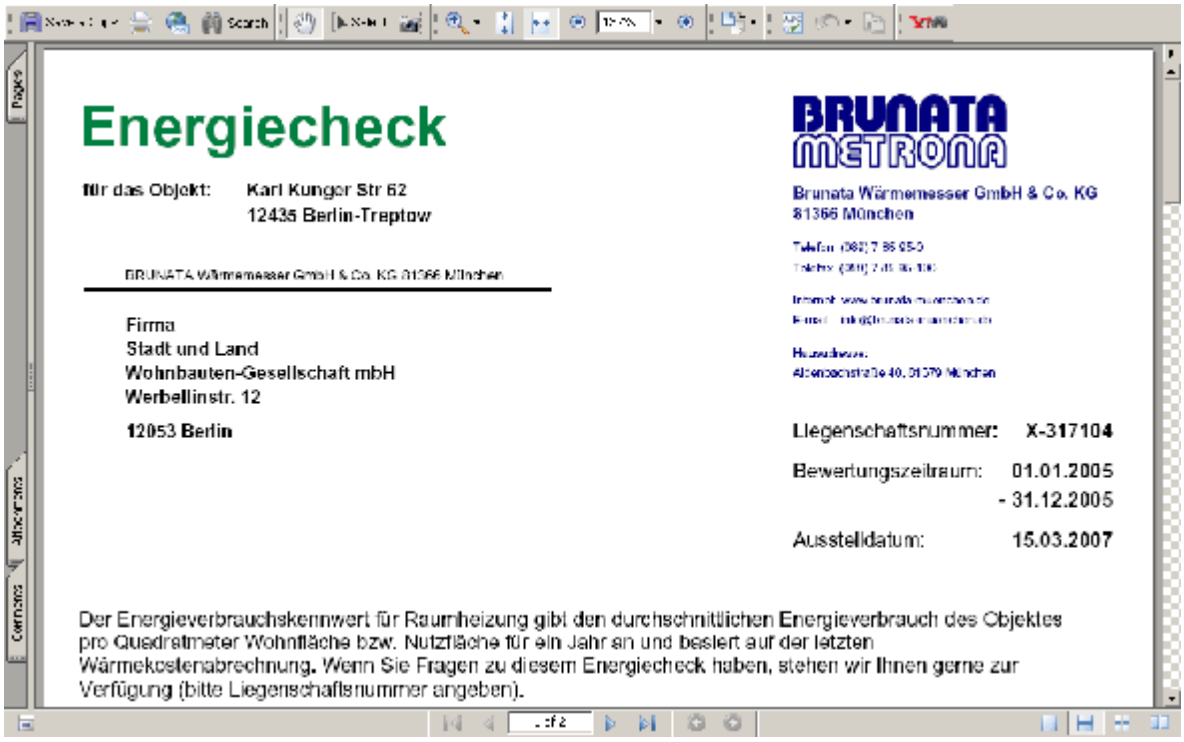
2.5.2 Layout of the flat

The DomData Tenant Portal allows to show drawings containing the layout of the tenants' flat. This function depends on an ERP system – if it contains such information and has a capability to export it.



2.5.3 Important documents

This section allows to show a list of important documents – separate for each tenant – and provides access to their content. An example – “Energiecheck” document which is obligatory in Germany.



Energiecheck

für das Objekt: Karl Kunger Str 62
12435 Berlin-Treptow

BRUNATA Wärmemesser GmbH & Co. KG 81366 München

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Stadt und Land
Wohnbauten-Gesellschaft mbH
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BRUNATA METRONA

Brunata Wärmemesser GmbH & Co. KG
81366 München

Liegenschaftsnummer: X-317104

Bewertungszeitraum: 01.01.2005
- 31.12.2005

Ausstelldatum: 15.03.2007

Der Energieverbrauchskennwert für Raumheizung gibt den durchschnittlichen Energieverbrauch des Objektes pro Quadratmeter Wohnfläche bzw. Nutzfläche für ein Jahr an und basiert auf der letzten Wärmekostenabrechnung. Wenn Sie Fragen zu diesem Energiecheck haben, stehen wir Ihnen gerne zur Verfügung (bitte Liegenschaftsnummer angeben).

2.6 User profile

User profile section allows a tenant to:

- set/change its e-mail
- modify the password used for logging into the tenant portal
- set names for heating counters – to have a real name (Kitchen, Living Room, …)_ instead of the number of a counter.