



TEMPLATES STEP 1. MARKET SEGMENTATION FOR VALENCIA CITY PROJECT

| | | | |
|----------------------------------|----------------------------------|--|--------------------------|
| <p>Market segmentation 1</p> | A. The overall strategy | Which are your targeted buildings? Which building typology should be renovated first to get greatest effectiveness in the impacts through the renovation process? Which are your targeted subjects? Which user's profiles should be targeted to get the greatest effectiveness in the onboarding and engagement with the renovation process? Which are your targeted suppliers? Which segment of suppliers should be targeted to get the greatest effectiveness in the implementation quality and user satisfaction? | <input type="checkbox"/> |
| | B. The top-down approach | Which are your official/ statistical data sources? How can you combine and filter them in order to qualify, quantify and measure your targets? | <input type="checkbox"/> |
| | C. The bottom-up approach | Which are your participatory processes? What kind of information you got from them? How can you use these data to derive/ extrapolate market behaviour, needs or expectations? | <input type="checkbox"/> |
| | D. The opportunity | What would move citizens into renovation? Why would move suppliers into the energy renovation? | <input type="checkbox"/> |

Figure 1. Test materials for step 1

This step (and its sub-steps) aims to map demand and supply side of the **Valencian renovation market** towards designing an OSS service in its context. The document is an example of the application of the templates to Valencia (Spain) and serves as model for the transferability of the Citizen Hub concept. Additional information is available in [D2.1. Demand & supply side mapping: Methodology & results from the 2 pilots](#) and its corresponding spreadsheet.

The list of documents submitted for Step 1 in Valencia is described below:

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| E. | Summary | - 7 - |





A. Presentation

| 1 Presentation | | | |
|--|--|---|---|
| Before starting this journey, present yourself and your friends: | | | |
| Organization | Activity | Geographical scope | Contact |
| VCE | providing the OSS service | Municipality of Valencia | alejandro.gomez@canviclimatic.org http://canviclimatic.org/es/ |
| IVE | supports the network of OSS offices through knowledge, expertise and tools for deep renovation | Region of Valencia (NUTS2 ES52) | asanchis@five.es mnavarro@five.es lramirez@five.es https://www.five.es/ |
| VRCP | main contact point with communities of individual owners | Region of Valencia (NUTS2 ES52) Castellon & Valencia (NUTS3 ES522 & ES523) Alicante (NUTS3 ES521) | gerencia@icafv.es contadorcensor@icafv.es https://aaffvalencia.es/ |
| Unió de Consumidors de la Comunitat Valenciana | representing the demand side | Region of Valencia (NUTS2 ES52) | |
| Asociación Valenciana de Consumidores y Usuarios (AVACU) | representing the demand side | Region of Valencia (NUTS2 ES52) | |
| Ajuntament d'Onda | representing the public sector | Municipality of Onda | |
| Ajuntament de Gandia | representing the public sector | Municipality of Gandia | |
| Ajuntament d'Alcoi | representing the public sector | Municipality of Alcoi | |
| Diputació de València | representing the public sector | Valencia Province (NUTS3 ES523) | |
| Promociones e Iniciativas Municipales de Elche (PIMESA) | representing the public sector | Municipality of Elche | |
| Federació Valenciana de Municipis i Províncies (FVMP) | representing the public sector | Region of Valencia (NUTS2 ES52) | |
| Conselleria d'Habitatge i Arquitectura Bioclimàtica | representing the public sector | Region of Valencia (NUTS2 ES52) | |
| Basque Government - Environment, Territorial Planning and Housing | representing the public sector | Basque Country (NUTS2 ES21) | |
| Consejo Valenciano de Colegios de Agentes de la Propiedad Inmobiliaria (API) | representing the supply side | Region of Valencia (NUTS2 ES52) | |
| Asociación española de Gestores Públicos de Vivienda y suelo (AVS) | representing the supply side | Spain (ES) | |
| Colegio Oficial de Arquitectos de la Comunidad Valenciana (COACV) | representing the supply side | Region of Valencia (NUTS2 ES52) | |
| Colegio Territorial de arquitectos de Castellón (CTAC) | representing the supply side | Castellon Province (NUTS3 ES522) | |
| Colegio Oficial Ingenieros Industriales (IICV) - contacto VCE | representing the supply side | Region of Valencia (NUTS2 ES52) | |
| COGITI - contacto VCE | representing the supply side | Region of Valencia (NUTS2 ES52) | |
| Unión Profesional (contacto VRCP) | representing the supply side | Region of Valencia (NUTS2 ES52) | |
| Asociación Valenciana de Empresas del Sector Energético (AVAESEN) | representing the supply side | Region of Valencia (NUTS2 ES52) | |
| Asociación de empresas Promotoras de Valencia (APROVA) | representing the supply side | Region of Valencia (NUTS2 ES52) | |
| Federación Valenciana de Empresarios de la construcción (FEVEC) | representing the supply side | Region of Valencia (NUTS2 ES52) | |
| Asociación de Promotores Inmobiliarios de la Provincia de Alicante (PROVIA) | representing the supply side | Castellon Province (NUTS3 ES522) | |
| Plataforma Tecnológica Española de Construcción (PTEC) | representing the supply side | Spain (ES) | |
| ATECYR – Spanish Technical Association of Air Conditioning and Refrigeration | representing the supply side | Spain (ES) | |





B. Objectives

| 2 Objectives | |
|--|--|
| Now, draft the main objectives pursued through the implementation of the OSS concept. This is important to orientate the search below. | |
| My first objective is to | boost renovation rate |
| Also, I would like to | ensure quality of those renovation |
| And, if possible, I would try to | involve and aware demand side on the renovation benefits for the long term |
| | eradicate energy poverty |
| add rows if needed... | |

C. Study area

| 3 Study area | | | |
|---|--------------------------|------------|-----------------------|
| This one is important to define your limits | | | |
| Do you already have a physical office in place? | | | |
| YES | | | |
| define geographical area around it: | | | |
| | name | code | comment |
| Meters from the office: | | | |
| Districts: | Poblados Maritimos | 4625011 | CP 46011 aprox |
| | Camins al Grau | 4625012 | CP 46023 aprox |
| | Algüros | 4625013 | CP 46021, 46022 aprox |
| add rows if needed... | | | |
| The whole city: | | | |
| add rows if needed... | | | |
| NO | | | |
| define the wider geographical area under your scope: | | | |
| | name | code | comment |
| Districts: | | | |
| add rows if needed... | | | |
| The whole city: | Municipality of valencia | 4625000 | |
| add rows if needed... | | | |
| The whole region: | Comunidad Valenciana | NUTS2 ES52 | |
| add rows if needed... | | | |

D. Mapping

D.1. Object (buildings)

| 4 Mapping | |
|---|--|
| 1 Buildings | |
| The objective for mapping and segment buildings is to get the greatest effectiveness in the impacts achieved through the renovation process | |
| First collect information about your building stock context (regulations, history, grants schemes, bureaucracy, or other programs related to buildings): | |
| building regulations around 1980; mandatory IEE for 50 years old buildings; EP Certificates not so extended, just when owner wants to rent or sell; good climate so usually no heating systems and bad insulation (mostly windows); protecting from sun heat should be important; mostly condominiums with difficult collective decision making; grants for some components; tax benefits for some components | |





Then select your characterization criteria:

| | |
|---|--|
| component approach for step-by-step renovation replicability | morphology approach for integral renovation replicability |
|---|--|

And list the attributes related to previous approach that you would need to analyse:

| Attribute | availability | thresholds/ cat. | source | format | granularity | date | comments |
|----------------------|--------------|-------------------|---------------------|-----------|-------------------|------|---|
| age | Y | 50 | INE - cadaster | xls - shp | building | | |
| quality | Y | 6 | INE - cadaster | xls - shp | building | | |
| energy efficiency | Y | E | ICV | WMS | building/dwelling | | excel table under request |
| roof space | Y | 30 | cadaster | shp | building | | to be cooked in the future |
| heating & DHW | Y | NO; gas or butane | Valencia statistics | xls | districts | | |
| orientation | N | SE to SW | | | | | flat city, so homogeneously distributed |
| TABULA | Y | AB, MFH, TH, SFH | cadaster | shp | building | | |
| add row if needed... | | | | | | | |

Now is time to mix, overlap, cluster: define your typologies, keeping in mind which context circumstances or potential impact related to your approach are interesting for you:

| Typology | Attribute (interval) | Attribute (interval) | Attribute (interval) | Attribute (interval) | Attribute (interval) | solution COMPLEXITY | comments |
|-----------------------|----------------------------|----------------------|----------------------|----------------------|----------------------|---------------------|---------------------------|
| old | age (> 50) | TAB (MFH) | | | | high | for IEE analysis |
| all bad quality roof | quality (> 6) | TAB (TH) | | | | low | roof intervention? |
| inefficient | EP (> E) | | | | | medium | for EPC analysis |
| no heating | heating (NO; not electric) | | | | | low | |
| pot PV | roof (> 30) | | | | | low | |
| no windows | all res | | | | | low | |
| sunscreen? | orient (S to W) | TAB (AB) | | | | low | have all the orientations |
| add rows if needed... | | | | | | | |

And finally, you need to quantify (& locate):

| Typology | 4625011 (Poblados Maritimos) | 4625012 (Camins al Grau) | 4625013 (Algiros) | City | Rate | IMPACT | comments |
|-----------------------|------------------------------|--------------------------|-------------------|--------|------|-----------|----------------------|
| old | 1.889 | 813 | 241 | 13.923 | 21 | high | |
| all bad roof | 1.288 | 6 | 0 | 2.061 | 63 | very high | |
| inefficient | 551 | 375 | 261 | 5.309 | 22 | high | |
| 'no' heating | 413 | 20 | 162 | 2.531 | 23 | high | all city (grants) |
| pot PV | 5.840 | 3.352 | 1.910 | 59.210 | 19 | medium | roofs, not buildings |
| no windows | 4.441 | 1.339 | 636 | 28.440 | 23 | high | all city (grants) |
| sunscreen? | 109 | 100 | 299 | 2.904 | 17 | medium | |
| add rows if needed... | | | | | | | |
| Res buildings | 4.441 | 1.339 | 636 | 28.440 | | | |
| Rate | 29 | 26 | 47 | | | | |

According to previous data, select your QUICK WINS* zones and/or typologies:

| | | | | | | |
|-------------|--------------|---------|------------|--|--|--|
| Typologies: | all bad roof | pot PV | sunscreen? | | | |
| Zones: | 4625011 | 4625012 | 4625013 | | | |





D.2. Subject (citizens, owners, occupants...)

| | | | | | | | |
|---|-----------------------|----------------------|---------------------------------|----------------------|----------------------|---|--|
| 4 Mapping | | | | | | | |
| 2 Demand side | | | | | | | |
| The objective for mapping and segment people is to get the greatest effectiveness in the onboarding, involving and engagement with the renovation process | | | | | | | |
| First collect information about your demographic context (regulations, history, habits, traditions, problems...): | | | | | | | |
| | | | | | | | |
| Then select your characterization criteria: | | | | | | | |
| Economic approach, for affordability | | | Social approach, for motivation | | | Organizational approach, for simplification | |
| And list the attributes related to previous approach that you would need to analyse: | | | | | | | |
| Attribute | availability | thresholds/ cat. | source | format | granularity | date | Other |
| age | Y | women | INE | xls | district (SC) | | |
| gender | Y | 36-60 | INE | xls | district (SC) | | |
| income | Y | <7500 | INE | web Map service | district (SC) | | |
| household size | Y | 1; 2; >2 /children) | INE | xls | district | | |
| vulnerability | Y | Y | calab.es | web Map service | district (SC) | | |
| visits/ inquiries | Y | | OSS | xls | person | | |
| propert admin? | | Y | VRCP | | building | | |
| add rows if needed... | | | | | | | |
| Now is time to mix, overlap, cluster: define your profiles, keeping in mind which context circumstances or potential drivers related to your approach are interesting for you: | | | | | | | |
| Profile | Attribute (interval) | Attribute (interval) | Attribute (interval) | Attribute (interval) | Attribute (interval) | solution COMPLEXITY | comments |
| local hero | visits (Q4) | | | | | low | |
| power couples or with children | size (<3) | children (NO) | income (high) | | | medium | |
| | size (>2) | children (YES) | | | | high | |
| absent landlord | | | | | | medium | |
| vulnerable | | | | | | low | |
| condominium | property admin? (YES) | | | | | high | with proper tools, AF could lower this |
| add rows if needed... | | | | | | | |
| And finally, you need to quantify (& locate): | | | | | | | |
| Profile | Area/ District | Area/ District | Area/ District | City | Rate | IMPACT | comments |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| add rows if needed... | | | | | | | |
| Households | | | | | | | |
| Rate | | | | | | | |
| | | | | | | | |
| According to previous data, select your target profiles: | | | | | | | |
| Profiles: | | | | | | | |





D. 3. Means (products, services, tools...)

| | | | | | | | |
|---|----------------------|----------------------|----------------------|--|----------------------|---------------------|----------|
| 4 Mapping | | | | | | | |
| 3 Supply side | | | | | | | |
| The objective for mapping and segment suppliers is to get the greatest effectiveness in the implementation quality and user satisfaction through the renovation process | | | | | | | |
| First collect information about your construction sector context (regulations, history, market, business, traditions, problems...): | | | | | | | |
| | | | | | | | |
| Then select your characterization criteria: | | | | | | | |
| Process approach, for accompanying and providing customized solutions (based on the strategies to be defined from the buildings' typologies analysis). This approach is much related with the morphological approach for building characterization, intended for a full deep renovation. | | | | Solution approach, for providing specific products and/or services to be defined from the buildings' typologies analysis. This approach is much related with the components approach for building characterization, intended for a step-by-step renovation. | | | |
| And list the attributes related to previous approach that you would need to analyse: | | | | | | | |
| Attribute | availability | thresholds/ cat. | source | format | granularity | date | Other |
| | | | | | | | |
| | | | | | | | |
| add rows if needed... | | | | | | | |
| Now is time to mix, overlap, cluster: define your supplier's profiles, keeping in mind which context circumstances or benefits related to your approach are interesting for you: | | | | | | | |
| Profile | Attribute (interval) | Attribute (interval) | Attribute (interval) | Attribute (interval) | Attribute (interval) | solution COMPLEXITY | comments |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| add rows if needed... | | | | | | | |
| And finally, you need to quantify (& locate): | | | | | | | |
| Profile | Area/ District | Area/ District | Area/ District | City | Rate | IMPACT | comments |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| add rows if needed... | | | | | | | |
| Households | | | | | | | |
| Rate | | | | | | | |
| According to previous data, select your target profiles: | | | | | | | |
| Profiles: | | | | | | | |





E. Summary

| 3 Summary | | | | | | | | | | | | |
|--|------------|-----------|-----------------------|------------|------------|-------------|-------------------------|--------------|----------------------|------------|------------------------|--------------|
| This last step consists of putting everything together to have a better overview | | | | | | | | | | | | |
| Table | | | | | | | | | | | | |
| Zones | Area (km2) | Dwellings | Residential Buildings | Population | households | Contractors | Focus Building Typology | N Building T | Focus Demand profile | N Demand p | Focus Supplier profile | N Supplier P |
| 46011 | 3,968 | 31.135 | 4.441 | 58.440 | 24.255 | 22.097 | all bad roof | 1.288 | | | | |
| 46023 | 2,367 | 30.950 | 1.339 | 64.335 | 25.925 | 22.097 | pot PV | 350 | | | | |
| 46021 | 2,978 | 22.100 | 636 | 38.160 | 15.835 | 22.097 | sunscreen? | 299 | | | | |
| Energy Office Area | 9,313 | 84.185 | 6.416 | 160.935 | 66.015 | 22.097 | old | 2.943 | | | | |
| Valencia | 134,650 | 419.955 | 28.440 | 790.755 | 328.975 | | old; inefficient | 13.923 | | | | |
| Valencia Reg. | | | | | | 22.097 | grants | | | | | |
| add row if needed... | | | | | | | To solutions | | To comunity | | To network | |





TEMPLATES STEP 2. DEMAND SIDE FOCUS FOR VALENCIA CITY PROJECT

| | | |
|----------------------------|--|--------------------------|
| Demand side focus 2 | E. The communication strategy How to drive demand side motivation into the market opportunity? | <input type="checkbox"/> |
| | F. The motivation Which are the motivations of homeowners? Which is the correct message to guide demand interests into OSS context opportunity? Which channels should be used to reach our targeted audience? | <input type="checkbox"/> |
| | G. The marketing materials Which are the correct marketing materials and activities to resonate with the different targets motivations and clearly deliver the message? | <input type="checkbox"/> |
| | H. The community Which are your local well-known existing places and channels for distributing and exploiting the marketing materials? Which are your local stakeholders and potential allies to fine-tune campaigns and implement specific actions? | <input type="checkbox"/> |

Figure 1. Test materials for step 2

This step (and its sub-steps) aims to **design a proper long-term communication strategy and build an involved and durable stakeholders’ community in Valencia**. The document is an example of the application of the templates to Valencia (Spain) and serves as model for the transferability of the Citizen Hub concept. It involves the four sub-steps (from E to H). more information is available in [D2.2. Guideline for long-term citizen engagement](#).

The list of documents submitted for **Step 2 in Valencia** is described below:

| | |
|---|--------------|
| A. Needs, motivations & barriers | - 2 - |
| A.1. Targeted Buildings | - 2 - |
| A.2. Targeted population | - 2 - |
| B. Campaign strategy design | - 3 - |
| B.1. Targeted Buildings | - 3 - |
| B.2. Targeted Population | - 4 - |
| C.Community Building | - 6 - |
| C.1. Targeted stakeholders | - 6 - |
| D.Summary | - 7 - |





A. Needs, motivations & barriers

Before starting this journey, have your Mapping tables at hand.

A.1. Targeted Buildings¹

A.2. Targeted population

| Profile | Characterization | Motivation | Opportunities | Probability of success | Objective | Drivers (Messages) |
|------------------------------|---|-------------------|--|------------------------|-------------------------|---|
| single occupant | household size = 1 person AND (age<35 OR age>65) | necessity | Almost none | Low | | |
| Couples (+ single occupant?) | household size = 2 person AND (age>35 AND age<65) AND family type = without children (OR household size = 1 person AND age BETWEEN 35 AND 65) | live and pleasure | When things wear out or go wrong; At the time of purchasing; When re-purposing a space or extending the home / Open to incentive schemes and polices that generate income for the homeowner or add value to the property; Will choose to use specialist professionals to ensure a quality job / The order of retrofit will be driven by aesthetic priorities, e.g. the desire for new kitchen may lead to a new boiler | High | renovation | Power (choose, complaint, rate) |
| Families with children | household size >= 2 person AND family type = with children | live and a home | When things wear out or go wrong; At the time of purchasing; When re-purposing a space or extending the home / Within the regular cycle of decorating and refurbishment; The order of retrofit will be driven by health and comfort priorities | High | renovation | Access (to information, services, tools) |
| Multiple occupants | household size >= 3 person AND family type = without children AND age < 35 | necessity | Almost none | Very low | | |
| Absent landlord | tenancy = rental scheme | step-up | Open to the use of finance schemes if these are cost-effective within the context of 'improving to sell'; Unlikely to consider technologies with long payback times unless the cost of installation is passed on | Medium | replication | Stuff (revenue) |
| "local heroes" | (detect and promote from other users' profiles) | project | Interested in 'clever' energy saving technologies (caring about the character of the home being maintained) | Very high | influence | Status (recognition) |
| "antagonists" | (when limited to financial issues – look into vulnerable profiles) | shelter | Limited to when grants are available; Will undertake consequential improvements if dictated by grant scheme | Low | | |
| Condominiums (several types) | (mix of previous profiles sharing property and making collective decisions) | various | | | Various (including RES) | |

Figure 2. Demand side mapping and involvement (Valencia city pilot)

¹ This activity was not carried out for the pilot project in Valencia.



B. Campaign strategy design

B.1. Targeted Buildings

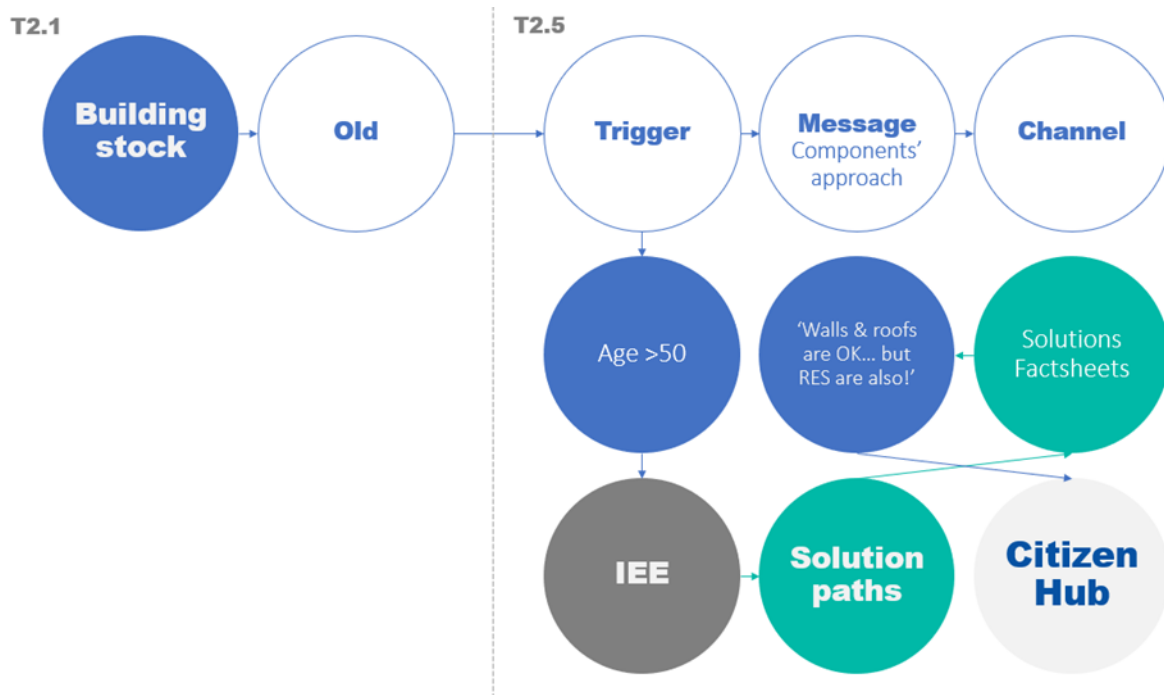


Figure 3. Communication strategy itinerary according to building typology 'old' (Valencia city pilot)

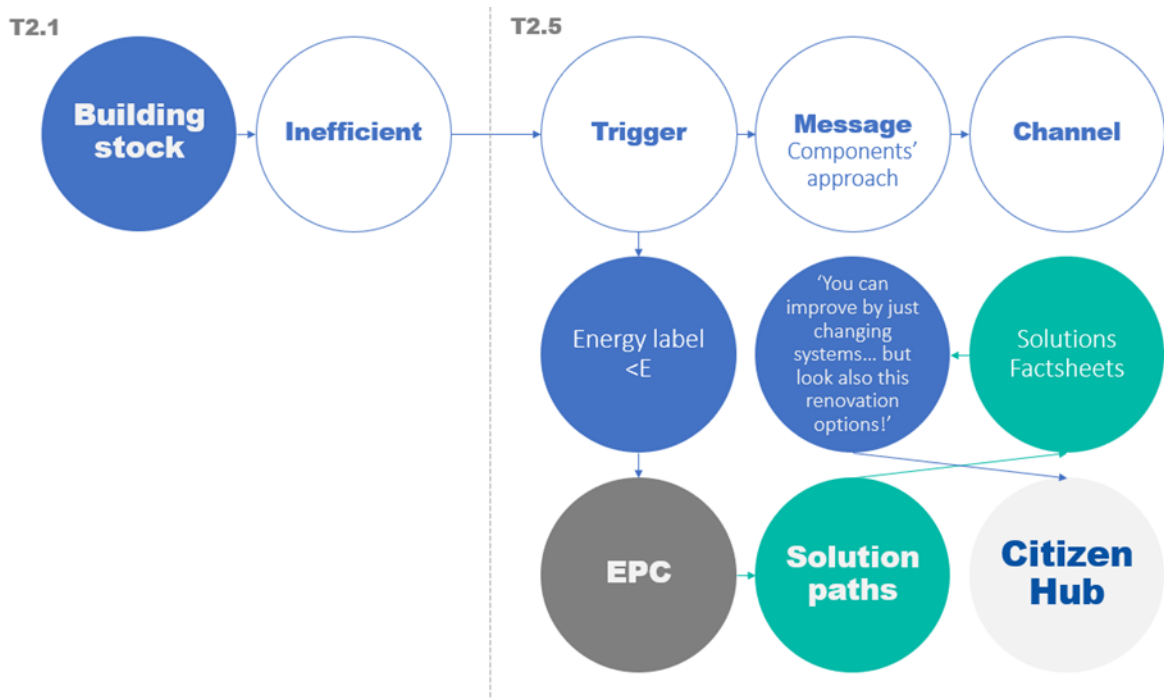


Figure 4.- Communication strategy itinerary according to building typology 'inefficient' (Valencia city pilot)



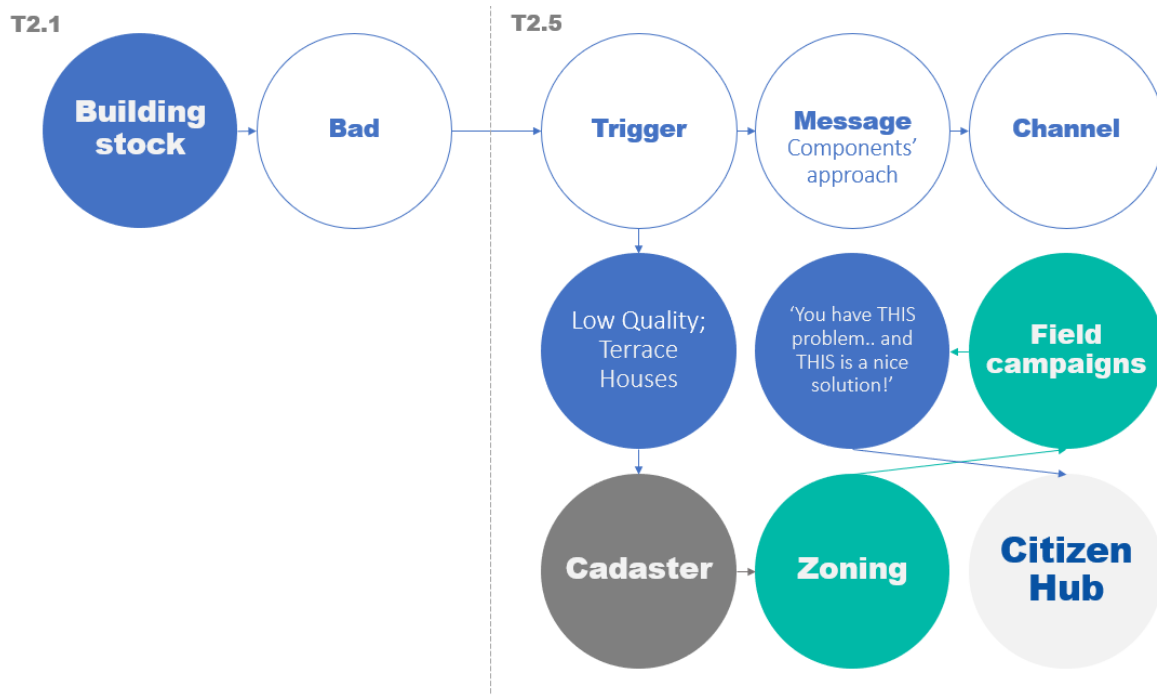


Figure 5.- Communication strategy itinerary according to building typology 'bad' (Valencia city pilot)

B.2. Targeted Population

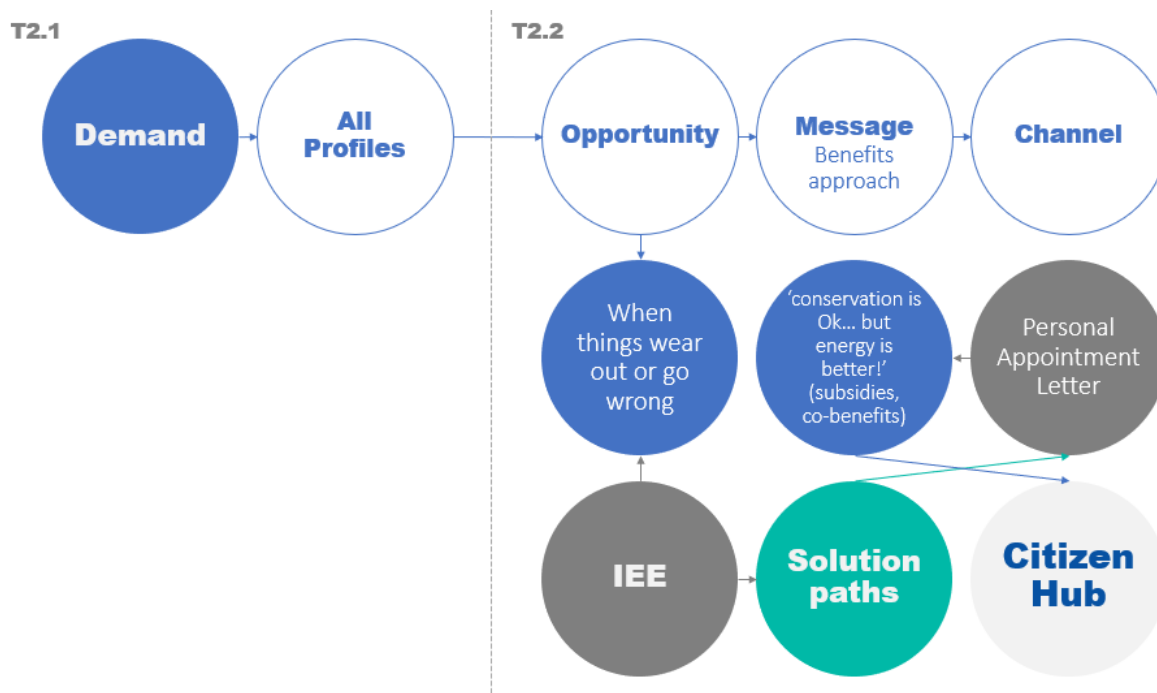


Figure 6.- Itinerary for things wore out or gone wrong (Valencia city pilot)



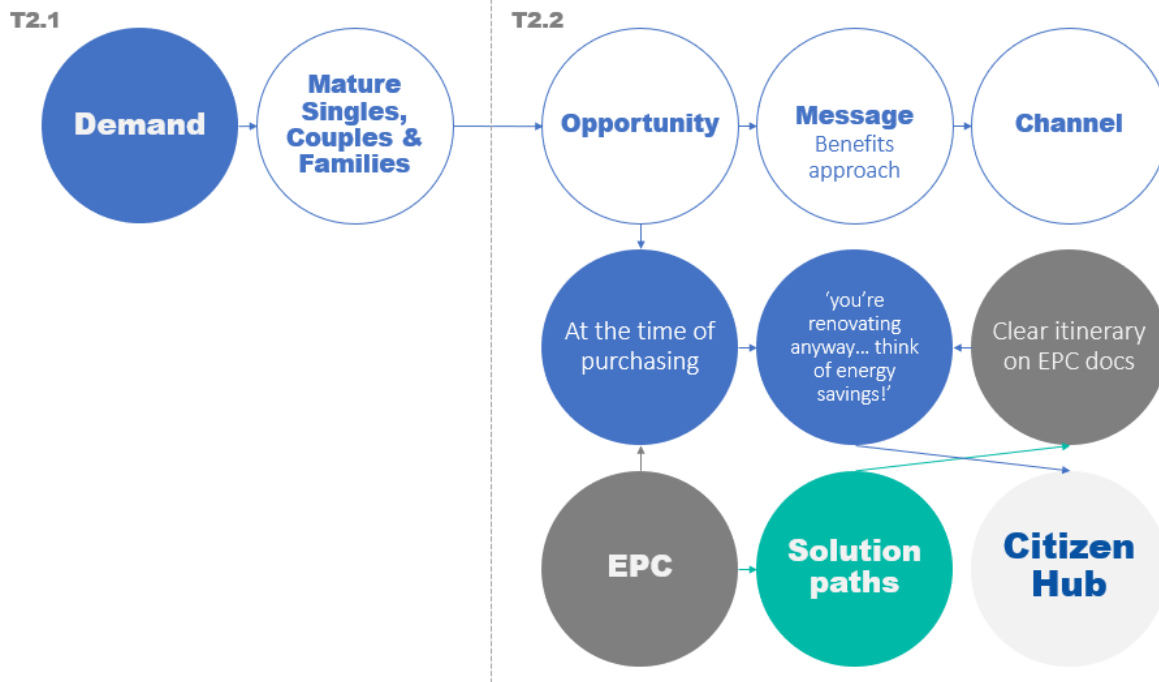


Figure 7.- Itinerary for the time of purchasing (Valencia city pilot)

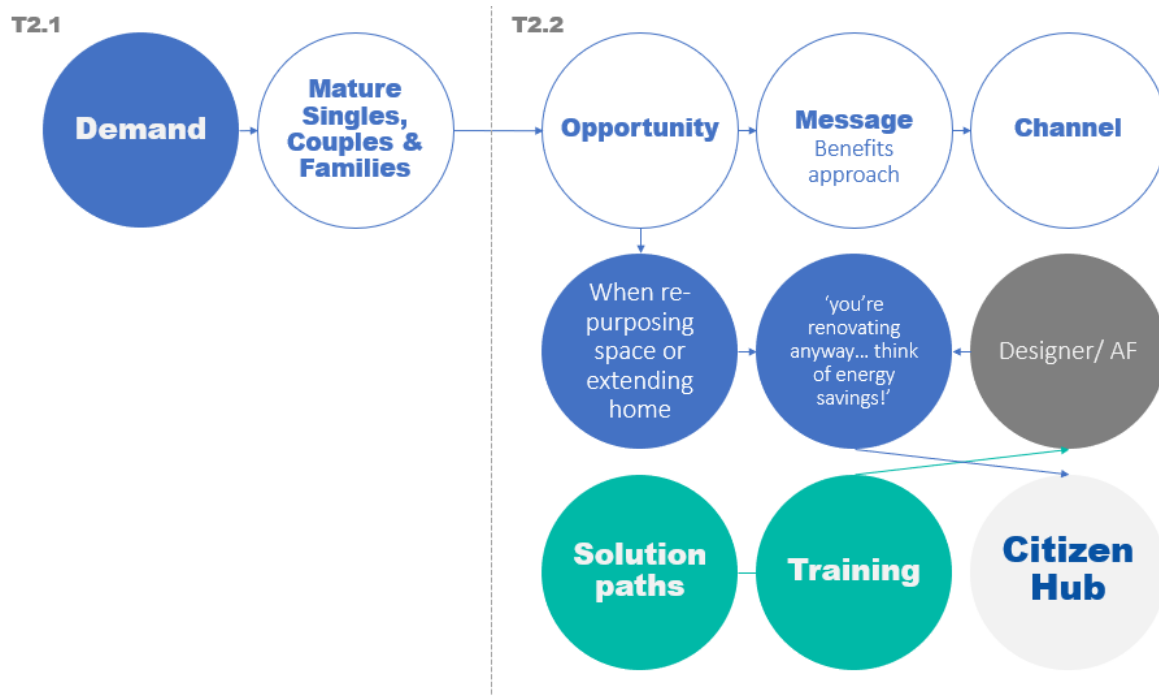


Figure 8.- Itinerary for the time to re-purposing (Valencia city pilot)



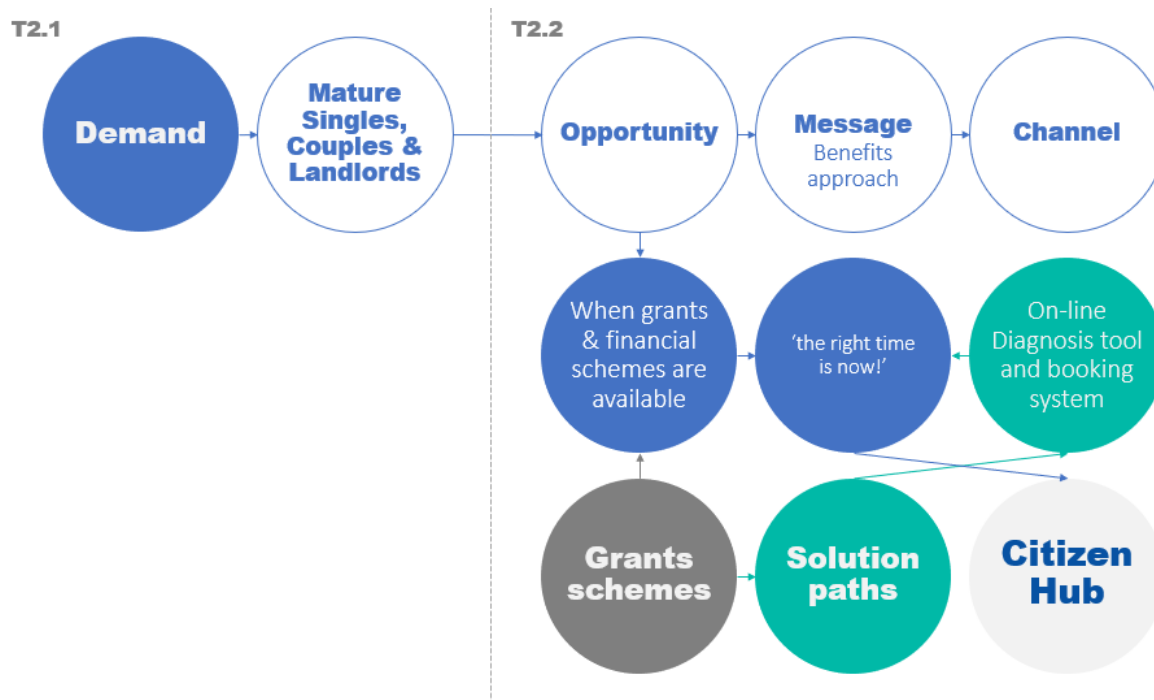


Figure 9.- Itinerary for advantageous financial schemes (Valencia city pilot)

C. Community Building

C.1. Targeted stakeholders

| Demand side – Private AB: Building owners and organizations (association of final users and consumers) | | | |
|--|--|------------|--|
| Consumers associations | Unió de Consumidors de la Comunitat Valenciana | NB, Assoc. | 2 associacions, through VCE contacts |
| | Asociación Valenciana de Consumidores y Usuarios (AVACU) | | 2 associacions, through IVE contacts |
| condos | 2 condominiums, through VRCP members | SS | Municipal service assigned to vulnerable population in the neighbourhood |

Table 1.- Spanish Private Sector Demand side AB (Valencia city pilot)

| Demand side – Public AB: City councils, local governments, and regional/ national organizations such as Public Housing Providers or Associations of public condominium members | | | |
|--|---|---------------|---|
| Local government | Federació Valenciana de Municipis i Províncies (FVMP) | Regional gov. | Conselleria d’Habitatge i Arquitectura Bioclimàtica |
| | Promociones e Iniciativas Municipales de Elche (PIMESA) | | Basque Government - Environment, Territorial Planning and Housing |
| | Ajuntament d’Alcoi | | |
| | Ajuntament de Gandia | | |
| | Ajuntament d’Onda | | |
| | Diputació de València | | |

Table 2.- Spanish Public Sector Demand side AB (Valencia city pilot)





D. Summary

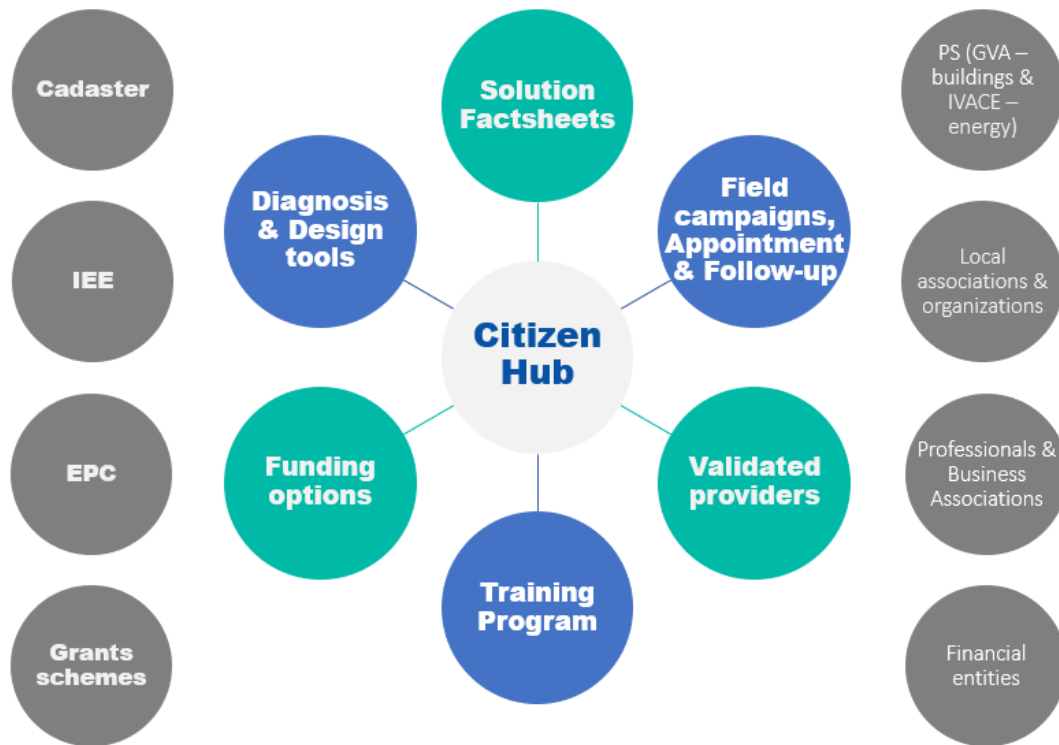


Figure 10.- Valencia citizen engagement ecosystem (Valencia city pilot)





TEMPLATES STEP 3. SUPPLY SIDE FOCUS FOR VALENCIA CITY PROJECT

| | | | | | |
|--|--------------------------------------|---|--------------------------|--|--|
| | I. The collaboration strategy | How to drive supply side motivation into the market opportunity? | <input type="checkbox"/> | | |
| | J. The motivation | Which are the motivations of the supply side profiles for engaging in the OSS renovation services network? Which is the message to orient supply capacities within the OSS context opportunity? Which are the correct channels to ensure their participation? | <input type="checkbox"/> | | |
| | K. The network | Which measures can avoid the current fragmented market and lack of coordination? How can a services network be built? | <input type="checkbox"/> | | |
| | L. The packs | Which packs of solutions are applicable in your context to ease the decision making and allow for a fair and reliable comparison? | <input type="checkbox"/> | | |

Figure 1. Test materials for step 3

This step (and its sub-steps) aims to define **Valencian context supply side offer in order to design a proper long-term collaboration strategy and build an involved, durable stakeholders’ network**. The document is an example of the application of the templates to Valencia (Spain) and serves as model for the transferability of the Citizen Hub concept. More information is available in [D2.3.- Citizen Hub protocol for supply side community building and network creation](#) and [D2.5. Suitable renovation packages and supporting services for the two pilots](#).

The list of documents submitted for **Step 3 in Valencia** is described below:

- STEP 3.1.- SUPPLY SIDE INVOLVEMENT - 2 -**
- A. Activities, size & roles - 2 -**
 - A.1. Targeted suppliers’ Solutions - 2 -
 - A.2. Targeted suppliers’ capacities - 2 -
 - A.3. Targeted suppliers’ roles - 2 -
- B. Campaign strategy design - 3 -**
 - B.1. Targeted Suppliers - 3 -
- C. Services network - 5 -**
 - C.1. Targeted stakeholders - 5 -
- D. Summary - 5 -**
- STEP 3.2- OFFER DESIGN - 6 -**
- A. Verification of the mapping outcomes - 6 -**
 - A.1. Targeted Buildings - 6 -
 - A.2. Targeted population - 7 -
 - A.3. Targeted Providers - 7 -
- B. Renovation packages - 8 -**
 - B. 1. Measures - 8 -
 - B.2. Scenarios - 9 -
- C. The Citizen Hub offer - 10 -**
 - C.1. Network - 10 -
 - C.2. Financial solutions - 10 -
 - C.3. Solution packs - 10 -





STEP 3.1.- SUPPLY SIDE INVOLVEMENT

A. Activities, size & roles

A.1. Targeted suppliers' Solutions

| Object (service provided) | Subject (providing a service) | Role (in the renovation process) |
|---------------------------------------|-------------------------------|----------------------------------|
| Walls (windows, shadows & insulation) | The informal | The facilitator |
| Roofs (insulation) | The professional | The reseller |
| Heating | The SME | The installer |
| Renewable energy sources | The big company | The all-in |

Table 1.- Providers' segmentation matrix (Valencia city pilot)

A.2. Targeted suppliers' capacities

| Profile | Characterization | Motivation | Opportunities | Probability of success | Objective | Drivers (Messages) |
|--------------------------------------|---|---------------|--|------------------------|-------------|--|
| The informal 'bungler' | Size =1person AND p-age >40 AND legal entity =NULL AND recognition =low | | Almost none | Low | activation | |
| The informal 'handyman' | Size =1person AND p-age >40 AND legal entity =NULL AND recognition =high | Secure work | Detected by SS or mouth to ear; when asking for a subsidy; when buying materials at DIY stores; in local social events: local dissemination campaigns addressing benefits and helping fulfilling requirements (lowering complexity) | Medium | activation | Status (recognition, validation, security) |
| Young prepared | Size <3person AND (p-age <40 OR E-age <5) AND e-level =high AND role =facilitator | Better work | When attending a training; when asking a product provider about a specific solution; when updating association data/quota; when processing subsidies or authorizations; when uploading documents or fulfilling requirements for finalizing administrative processes (authorizations, subsidies, certificates...) | Very High | renovation | Access (knowledge, resources, tools) |
| Experienced installer | Size <3person AND (p-age >40 OR E-age >5) AND role =installer | New service | When attending a product presentation; when updating association data/quota; when working for PS; when uploading documents or fulfilling requirements for finalizing administrative processes (certificates...) | High | renovation | Access (knowledge, resources, tools) |
| Settled (prepared & experienced) SME | Size >=3person AND (p-age >40 OR E-age >5) AND Size>€€€ | New locations | When attending a product presentation; when updating association data/quota; when working for PS; when uploading documents or fulfilling requirements for finalizing administrative processes (certificates...) | Medium | replication | Access (knowledge, resources, tools) |
| Big all-in company | Size >10person AND (p-age >40 OR E-age >5) AND Size>€€€ AND role =reseller | More work | Almost none | Low ? | Replication | Power (choose client, set solution) |
| ... | | | | | | Stuff (publicity, clients...) |

Figure 2.- Supply side mapping and involvement (Valencia city pilot)

A.3. Targeted suppliers' roles¹

¹ This activity has not been included the pilot project in Valencia.



B. Campaign strategy design

B.1. Targeted Suppliers

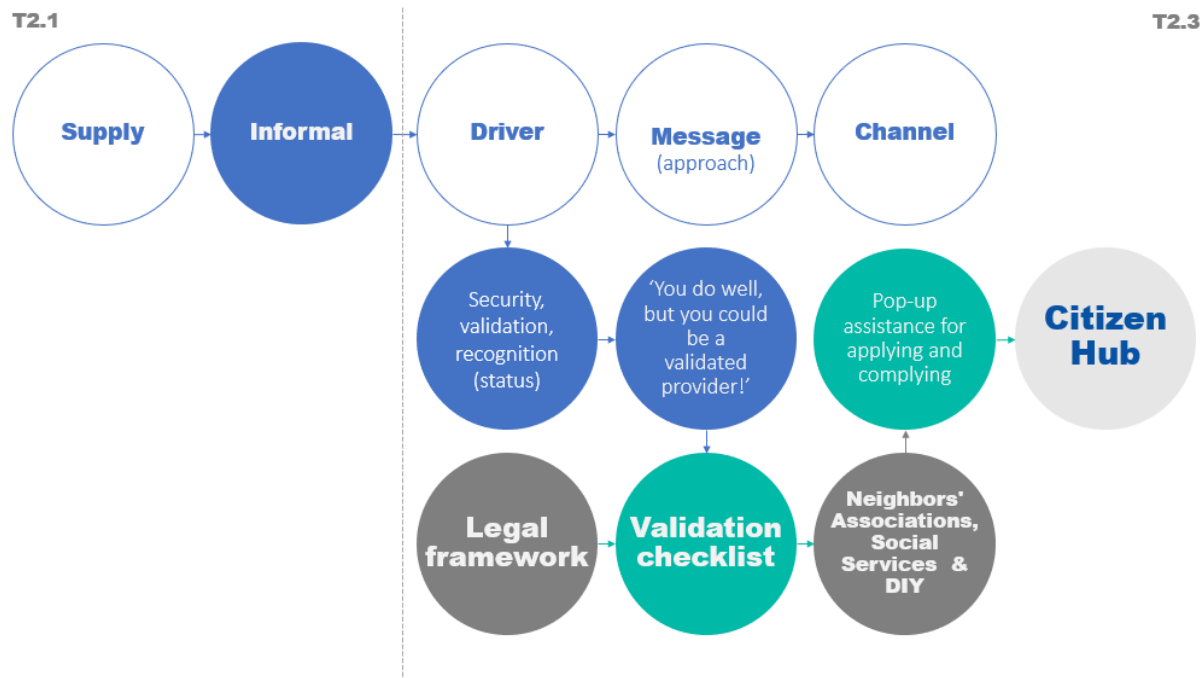


Figure 3.- Collaboration strategy itinerary according to supply side profile 'informal (Valencia city pilot)'



Figure 4.- Collaboration strategy itinerary according to supply side profile 'professional' (Valencia city pilot)



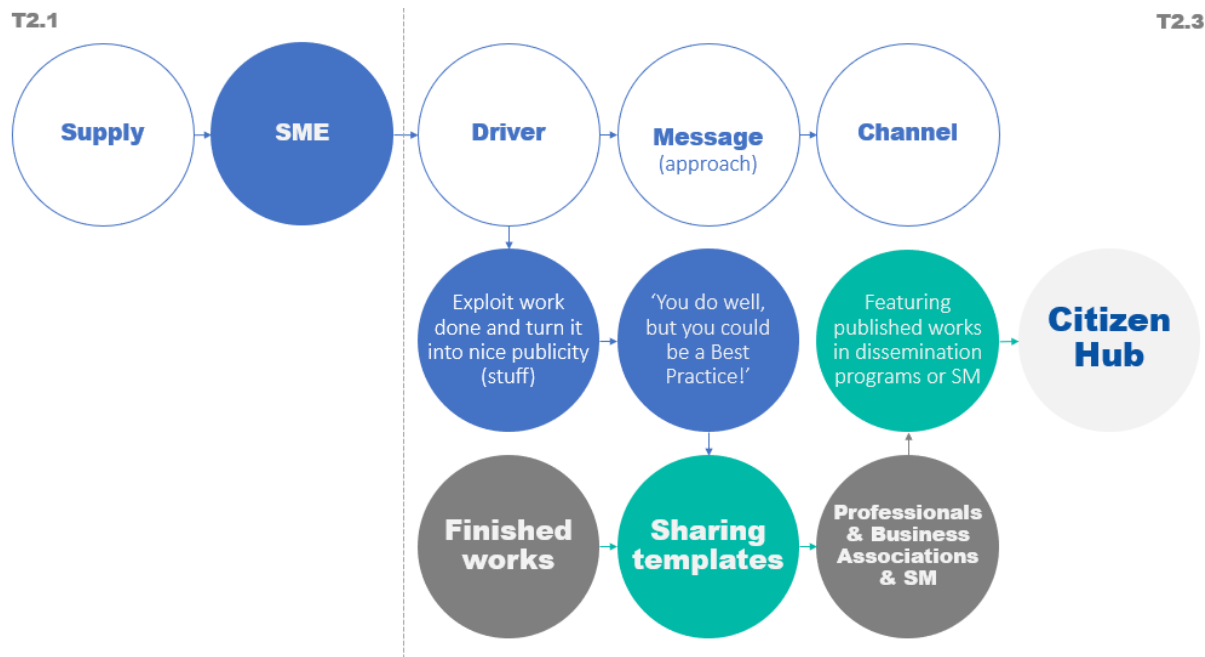


Figure 5.- Collaboration strategy itinerary according to supply side profile 'SME' (Valencia city pilot)

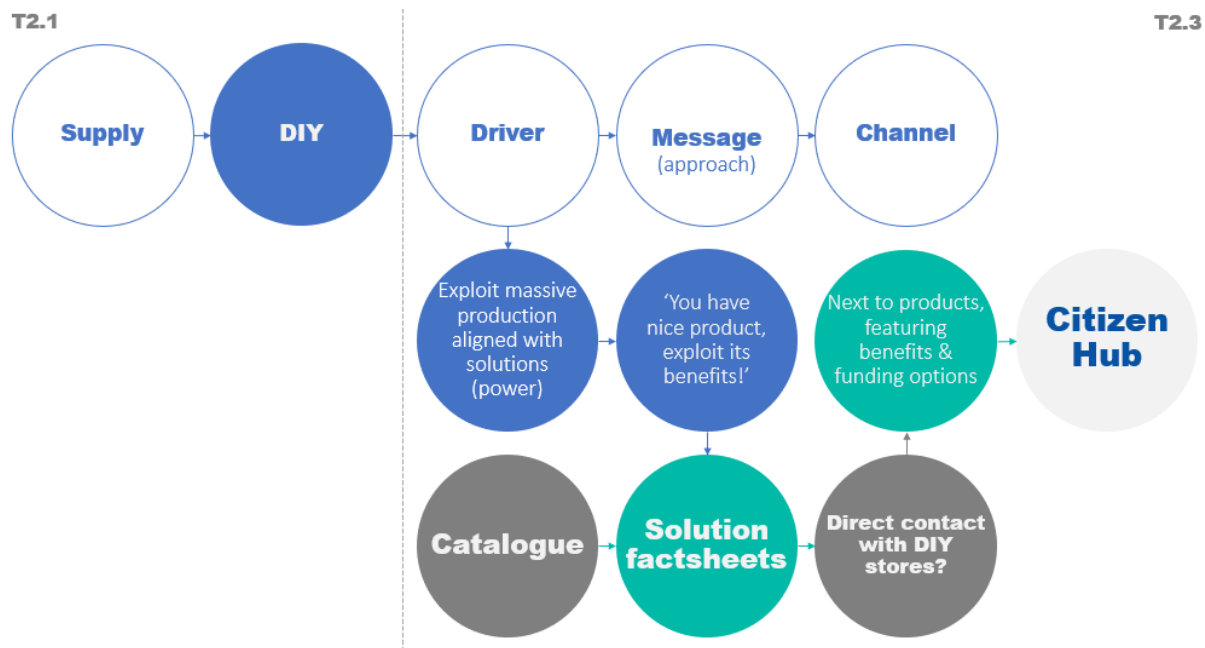


Figure 6.- Collaboration strategy itinerary according to supply side profile 'DIY store' (Valencia city pilot)





C. Services network

C.1. Targeted stakeholders

| Supply side AB: Producers, suppliers, contractors etc. with good reputation and references on local level | | | |
|---|--|----------|--|
| Property Managers | VRCP – Colegio de administradores de fincas | Business | Asociación Valenciana de Empresas del Sector Energético (AVAESEN) |
| | Consejo Valenciano de Colegios de Agentes de la Propiedad Inmobiliaria (API) | | Asociación de empresas Promotoras de Valencia (APROVA) |
| | Asociación española de Gestores Públicos de Vivienda y suelo (AVS) | | Federación Valenciana de Empresarios de la construcción (FEVEC) |
| Professionals | Colegio Oficial de Arquitectos de la Comunidad Valenciana (COACV) | | Asociación de Promotores Inmobiliarios de la Provincia de Alicante (PROVIA) |
| | Colegio Territorial de arquitectos de Castellón (CTAC) | | Plataforma Tecnológica Española de Construcción (PTEC) |
| | Colegio Oficial Ingenieros Industriales (IICV) - contacto VCE | | ATECYR – Spanish Technical Association of Air Conditioning and Refrigeration |
| | COGITI - contacto VCE | | SENSEDI – Best technologies for buildings |
| Unión Profesional | SIBER – Ventilation systems | | |

Table 2.- Spanish Supply side AB (Valencia city pilot)

D. Summary

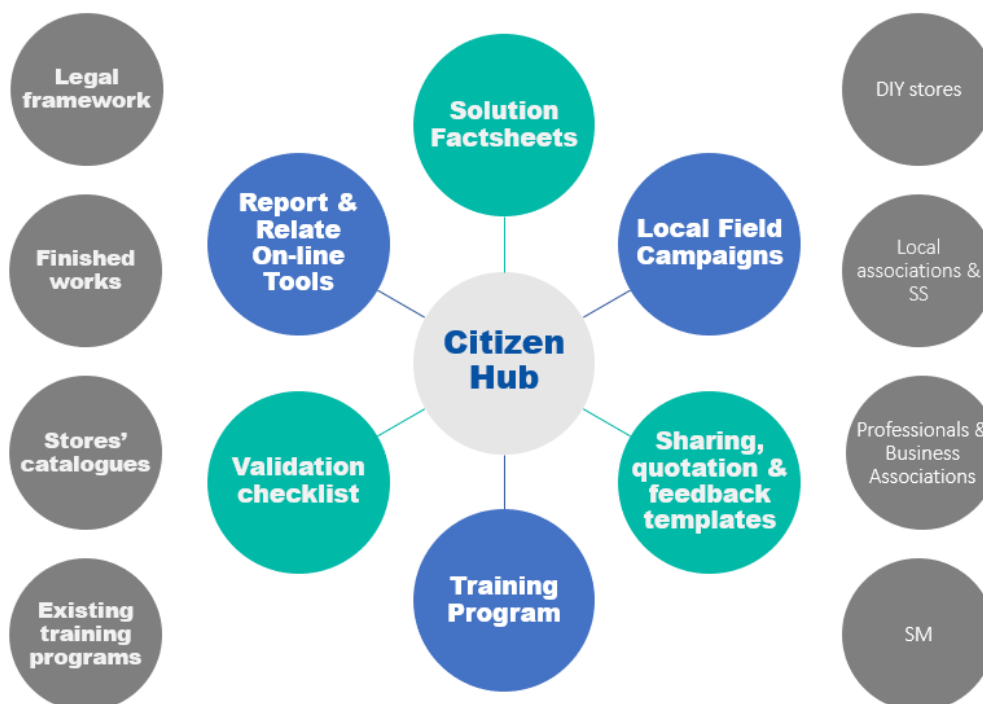


Figure 7.- Valencia supply side engagement ecosystem (Valencia city pilot)



STEP 3.2- OFFER DESIGN

A. Verification of the mapping outcomes

A.1. Targeted Buildings

| Edificio tipo | Categoría: | Características | Superficies (m ²) | |
|---------------|--|---|-------------------------------|--|
| | Bloque de viviendas | N.º de viviendas | 18 | Fachada 1 |
| | Zona climática: B3 | N.º de viviendas por planta | 2 | Fachada 2 |
| | Período de construcción: Entre 1960 y 1979 | N.º de plantas | 9 | Medianera |
| | | Superficie por vivienda (m ²) | 108 | Cubierta plana |
| | | N.º de estancias | 3 | Cubierta inclinada |
| | | N.º de baños | 2 | Suelo en contacto con el terreno |
| | | | | Suelo en contacto con recinto no habitable |
| | | | | Suelo en contacto con el exterior |



1. Tu edificio se corresponde con el tipo:



Edificio de viviendas

2. Sus características constructivas son:

Cubierta



Cubierta plana, forjado unidireccional viguetas pretensadas

Suelo



Forjado unidireccional de viguetas pretensadas

Fachada

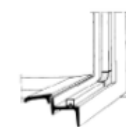


Muro capuchino, ladrillo y cámara de aire



Muro de ladrillo de una hoja revestido

Ventana



Marco metálico, vidrio monolítico, sin rotura de puente térmico

3. Selecciona las instalaciones más frecuentes en tu edificio:

Aire acondicionado frío calor y Calentador de Gas Natural

Agua caliente



Calentador de Gas Natural (rendimiento 0,8)

Calefacción



Equipo Split (Reversible)

Refrigeración



Equipo Split (Reversible)

Figure 8.- Targeted building characterization (Valencia city pilot)

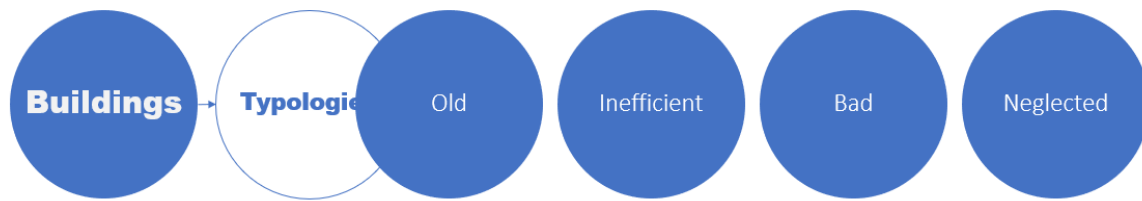


Figure 9.- building stock typologies for Valencia pilot (Valencia city pilot)

A.2. Targeted population

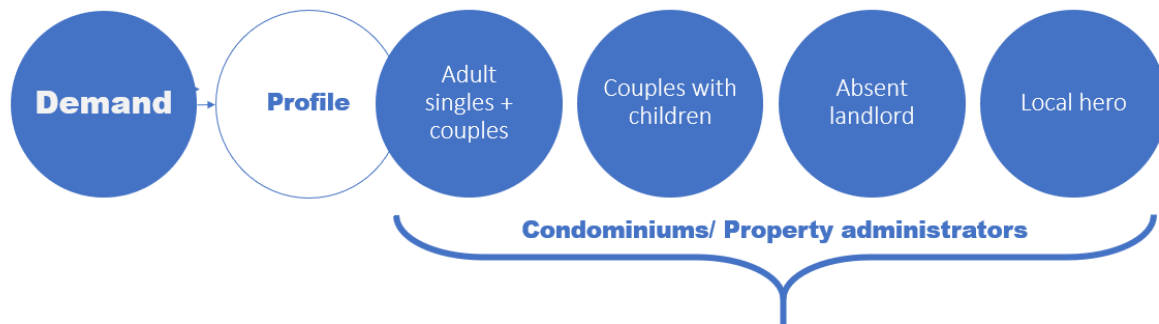


Figure 10.- demand side profiles for Valencia pilot (Valencia city pilot)

A.3. Targeted Providers

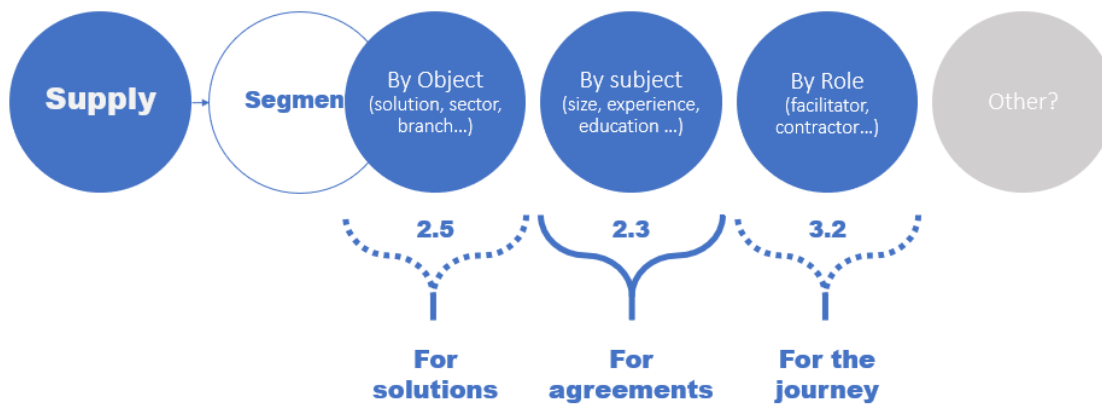


Figure 11.- Supply side segmentation purposes (Valencia city pilot)





B. Renovation packages

B. 1. Measures

| Category | | |
|---------------------|---|---------------------------------|
| Name | Description | Driver |
| Envelope | Building skin, potentially solving acoustic and/or thermal insulation, and aesthetics | comfort, health, savings, value |
| RES | New equipment in the generation side, for CO2 and EPnr savings | sustainability |
| Technology | New equipment in the consumption side, more efficient | sustainability, savings |
| Behaviour | Operation of the different 'smaller' systems, such as basic home automation, appliances or lightning can make a difference in comfort and consumption | Comfort, health, savings |
| ... | | |
| Class | | |
| Name | Description | Driver |
| External addition | Application from the outside part of the living areas | Disruption |
| Element replacement | Changing one kind of element more or less independent from the envelope which involves minimum 'wet' works | Disruption, grants |
| System addition | Installation of local energy source taking advantage of local conditions | Disruption, grants |
| System replacement | Changing DHW and/or cooling/heating system for a more efficient one (Aerothermal heat pump) | Disruption, grants |
| Training | Learning some tips and tricks to lower consumption and gain comfort! | Disruption, |
| ... | | |

Table 3. Potential attributes according to targeted buildings analysis (Valencia city pilot)

| Variables | | |
|--|---|---------------------------|
| Name | Description | Driver |
| Non-energy reno Cost | Cost of priority works for the user (conservation and/or accessibility), in € | Duty |
| Energy reno Cost | Cost of energy renovation works (needed to access grant scheme), in € | Savings, access to grants |
| Cost inc. funding | Final cost for user (energy and non-energy, discounting the grant) | Savings |
| Energy demand | Estimated energy needed to maintain the home in comfort conditions, depending on the thermal envelope, in kWh/m2y | Comfort, access to grants |
| Primary energy consumption (non-renewable) | Estimated energy consumed to maintain the home in comfort conditions, depending on the systems, in kWh/m2y (comparable variable not depending on energy source) | Savings, energy bills |
| CO2 emissions | Translation from PE,nr according to an energy factor | sustainability |
| Time out of comfort | Hours a year on which is impossible to maintain a home in comfort conditions, according to envelope and systems | Comfort |
| Number of formalities | Permits needed to undertake the renovation | Disruption, distrust |
| Number of contracts | Number of professionals needed to contract to design/perform the renovation works | Disruption, distrust |
| ... | | |

Table 4. Measurable (and accessible) variables (Valencia city pilot)





| Measure | Attributes | | | Variables | | | |
|---------|------------|------------|--------------------|--------------|--------|--------|---------|
| | Name | Class | Category | €/dwell | Energy | CO2 | Comfort |
| rCV | Windows | Envelope | Window replacement | 7.816 € | M | M | M |
| rAE_03 | Walls | Envelope | External addition | 7.019 € | H | H | H |
| rAE_02 | Roof | Envelope | External addition | 1.019 € | L | L | L |
| rAE_01 | Floor | Envelope | External addition | 759 € | L | L | L |
| BC_A | DHW HP | Technology | System replacement | 1.705 € | M | M | M |
| BC_ACR | W/H/C HP | Technology | System replacement | 11.583 € | H | H | H |
| rPV | PV panels | RES | System addition | 4.185 € | H | H | L |
| w | Workshop | Behaviour | Training | 0 € | L | L | M |
| ... | | | | | | | |
| | | | | Improvement: | Low | Medium | High |

Table 5.- Solution definition scheme (Valencia city pilot)

B.2. Scenarios

| | Attributes | | Variables | | | | |
|-----|------------|------------------------------|-----------|------------|--------|-------|---------|
| | Measures | Strategy | Cost | With Grant | Energy | CO2 | Comfort |
| 00 | | Do nothing | 0,00 | 0 | 115,62 | 21,55 | 823 |
| 02 | rCV | Comfort/ Aesthetics | 16.618,42 | 9.971,05 | 81,34 | 13,80 | 101 |
| | rAE_01 | | | | | | |
| | rAE_02 | | | | | | |
| | rAE_03 | | | | | | |
| 03 | BC_ACR | Disruption | 11.583,21 | 6.949,93 | 64,29 | 10,89 | 19 |
| 05 | rCV | Disruption/ Comfort | 9.522,04 | 9.522,04 | 84,83 | 14,85 | 625 |
| | BC_A | | | | | | |
| 06 | rPV | Emissions | 4.185,17 | 2.511,10 | 79,66 | 15,46 | 823 |
| 007 | rCV | True believers | 26.055,02 | 7.255,02 | 30,06 | 6,44 | 8 |
| | rAE_01 | | | | | | |
| | rAE_02 | | | | | | |
| | rAE_03 | | | | | | |
| | BC_ACR | | | | | | |
| 09 | 02+07 | Comfort/ Aesthetics | 20.803,60 | 4.160,72 | 27,57 | 4,69 | 101 |
| 10 | 03+07 | Disruption/ savings | 15.768,38 | 3.153,67 | 25,88 | 4,80 | 19 |
| 12 | 05+07 | Disruption/ Comfort/ savings | 13.707,22 | 4.797,53 | 47,11 | 8,45 | 625 |
| 13 | 06+07 | True believers | 30.240,19 | 11.440,19 | 3,23 | 0,55 | 8 |

Table 6.- Scenario definition scheme (Valencia city pilot)





C. The Citizen Hub offer

C.1. Network

| Supply side AB: Producers, suppliers, contractors etc. with good reputation and references on local level | | | |
|---|--|----------|--|
| Property Managers | VRCP – Colegio de administradores de fincas | Business | Asociación Valenciana de Empresas del Sector Energético (AVAESEN) |
| | Consejo Valenciano de Colegios de Agentes de la Propiedad Inmobiliaria (API) | | Asociación de empresas Promotoras de Valencia (APROVA) |
| | Asociación española de Gestores Públicos de Vivienda y suelo (AVS) | | Federación Valenciana de Empresarios de la construcción (FEVEC) |
| Professionals | Colegio Oficial de Arquitectos de la Comunidad Valenciana (COACV) | | Asociación de Promotores Inmobiliarios de la Provincia de Alicante (PROVIA) |
| | Colegio Territorial de arquitectos de Castellón (CTAC) | | Plataforma Tecnológica Española de Construcción (PTEC) |
| | Colegio Oficial Ingenieros Industriales (IICV) - contacto VCE | | ATECYR – Spanish Technical Association of Air Conditioning and Refrigeration |
| | COGITI - contacto VCE | | SENSEDI – Best technologies for buildings |
| | Unión Profesional | | SIBER – Ventilation systems |

Table 7.- Spanish Supply side AB (Valencia city pilot)

C.2. Financial solutions

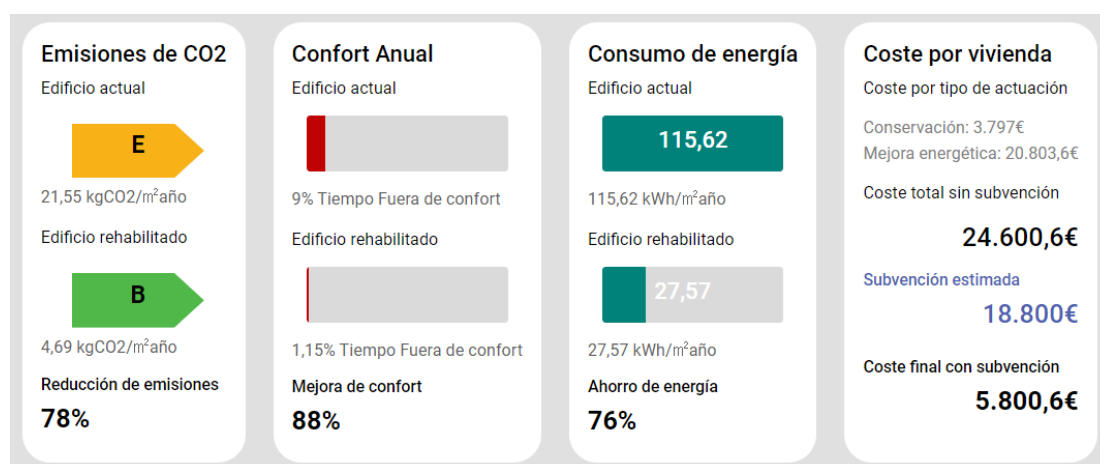


Figure 12.- Scenario 09 with accessibility costs included (Valencia city pilot)

C.3. Solution packs²

² This activity has not been included the pilot project in Valencia.





TEMPLATES STEP 4. THE STH CUSTOMER JOURNEY FOR VALENCIA CITY PROJECT

| | | | |
|-----------------------------------|-----------------------------------|--|--------------------------|
| 4 The Sth customer journey | M. The assistance strategy | Which is your customer journey framework? Which functionalities do you intend to provide? | <input type="checkbox"/> |
| | N. The Services | Which are the existing local needs that will define the touchpoints and the sub-stops? Which are the existing resources (services, tools or activities) solving these touchpoints? Which are the gaps that will be developed to complete the assistance? | <input type="checkbox"/> |
| | O. The tools | Which tools are required to solve each service? | <input type="checkbox"/> |
| | P. The Staff | Which are the objectives and target groups for the training programme of your OSS? | <input type="checkbox"/> |

Table 1. Test materials for step 4

This step (and its sub-steps) aims to define **Valencian local context implementation strategy in order to design a proper long-term smooth experience customer journey** harmonized with the Sth validated framework. The document is an example of the application of the templates to Valencia (Spain) and serves as model for the transferability of the Citizen Hub concept. More information is available in [D3.2 Strategy & structure to implement the Citizen Hub concept for the two pilots](#), [D2.4.- Mapped suitable protocols and methods for quality control of the renovation works \(including skills definition\) and for buildings performance monitoring.](#), and in [D3.6. Training program for the Citizen hub staff in the two pilots.](#)

The list of documents submitted for **Step 4 in Valencia** is described below:

- STEP 4.1. – IMPLEMENTATION STRATEGY - 2 -**
- A. The customer journey framework - 2 -**
- B. Your customer Journey - 3 -**
- STEP 4.2 - SUPPORTING SERVICES MAP - 7 -**
- A. The existing resources in place - 7 -**
- A. 1. Training - 7 -
- A.2. Certification - 7 -
- A.3. Monitoring - 7 -
- B. The Citizen Hub supporting services proposal - 7 -**
- B.1. Services Model - 7 -
- B.2. Services Menu - 7 -
- C. The Citizen Hub roll-out proposal - 8 -**
- C.1. Decentralization strategy (pop-up) - 8 -
- STEP 4.3. - STH DOCUMENT 7. STAFF TRAINING DESIGN METHODOLOGY - 9 -**
- A. Skills - 9 -**
- B. Contents - 9 -**
- C. Resources - 10 -**
- D. Program - 11 -**
- E. Budget - 12 -**





STEP 4.1. – IMPLEMENTATION STRATEGY

A. The customer journey framework

| Stop 0 - ON-BOARDING | | | | |
|---------------------------------|--|--|---------------------------------------|----------------------------------|
| | AWARENESS | | INTERACTION | |
| demand | friendly solutions & checklist | best practices, regulations, grants, FIs | citizen school workshops | |
| supply | | | | |
| Stop 1 - EVALUATION | | | | |
| | SELF EVALUATION | | ASSISTED EVALUATION | |
| demand | friendly tool | | personal appointment | |
| supply | | | EPC, design tools, solution templates | |
| Stop 2 - DESIGN & FORMALIZATION | | | | |
| | DESIGN | SELECTION | FORMALIZATION | |
| demand | | | | |
| supply | technical solutions & checklist | registries & lists | contract templates | |
| Stop 3 - REALIZATION | | | | |
| | TRAINING | ASSESSMENT | MEDIATION | QUALITY ASSURANCE |
| demand | micro-training workshops | workplan checklist | citizen school personal appointment | follow-up report & questionnaire |
| supply | evaluation for registries & lists | workplan template | | |
| Stop 4 - VALIDATION | | | | |
| | FEEDBACK | COMPARISON | MONITORING | CERTIFICATION |
| demand | satisfaction/ complaints/ sharing questionnaires | friendly tool, EPC | before-after | best practices |
| supply | | 2 best practices | 2 best practices | |

Figure 1.- customer journey & functionalities (Valencia city pilot)





B. Your customer Journey

| | | Stop 0 - ON-BOARDING | | | |
|--------|-------------|--|---|---|--|
| | | RAISING AWARENESS | | INTERACTION | |
| | | Functionalities | Tools | Functionalities | Tools |
| ACTORS | Demand side | Repository of user-friendly material (guides, videos, etc.) to raise awareness about the benefits of retrofitting, sustainability and circularity concepts, etc. | Some of the videos in: https://www.turnkey-retrofit.eu/photos-and-videos/album-1/ | Contact with technicians / other demand-side actors to solve technical doubts / ask about their experiences | LISTS OF PROFESSIONALS. Chartered architects: https://www.coacv.org/es/arquitectos/arquitectos-coacv/ Trained in retrofitting/specific areas: https://www.five.es/formacion/listados-de-profesionales/ |
| | | Single portal centralizing the regulations in force to know the legal framework | To be incorporated in a user-friendly way: REGULATIONS AT NATIONAL LEVEL: https://www.mitma.gob.es/arquitectura-vivienda-y-suelo/normativa REGULATIONS AT REGIONAL LEVEL: https://habitatge.gva.es/es/web/vivienda-y- | Direct contact with corresponding authorities to solve doubts about the legal framework | Tool for communication between demand side and OSS staff on demand |
| | | Single portal centralizing the available subsidies for standard actions (simulator?) | SUBSIDIES AT REGIONAL LEVEL (possibility of include them in form of pre-test/simulator?): | Direct contact with corresponding authorities to solve doubts about available incentives | Tool for communication between demand side and OSS staff on demand |
| | | Single portal centralizing financial institutions with specific products for retrofitting, also aimed at homeowners' associations (pre-test on financing options?) | LIST OF FIS AT NATIONAL LEVEL (possibility of include this in form of a pre-test/simulator?): https://www.idae.es/ayudas-y-financiacion/para-la-rehabilitacion-de-edificios/programa-pree-rehabilitacion-energetica-de/prestamos-para-complementar- | Direct contact financial entities to solve doubts about financing | Tool for communication between demand side and OSS staff on demand |
| | Supply side | Repository of user-friendly material (guides, videos, etc.) to know demand side needs | CIRCULARITY EVALUATION. Dwelling scale: https://www.circularhomes.eu/circularity-tool-homes/ Building scale: https://www.circularhomes.eu/circularity-tool-buildings/ | Direct contact with interested demand-side actors to know their profiles, needs & preferences | Forum/tool for communication between demand and supply sides organised by themes (energy consumption, dwelling/building needs, financing) |
| | | Single portal centralizing the regulations in force to know the legal framework | <i>Same as for the demand side</i> | Direct contact with corresponding authorities to solve doubts on building regulations | Tool for communication between supply side and OSS staff on demand |
| | | Single portal centralizing the available subsidies for standard actions | <i>Same as for the demand side</i> | Direct contact with corresponding authorities to solve doubts on available subsidies | Tool for communication between supply side and OSS staff on demand |
| | | Single portal centralizing financial institutions with specific products for retrofitting, also aimed at homeowners' associations | <i>Same as for the demand side</i> | Direct contact with corresponding financial entities to solve doubts about financing products | Tool for communication between supply side and OSS staff on demand |
| Staff | | | Direct contact with interested demand-side actors to know their technical needs and the feasibility of interventions | Tool for communication between demand side and OSS staff on demand | |
| | | | Direct contact with supply-side actors to know technical solutions available, innovation, feasibility, ranges of prices, etc. | Tool for communication between supply side and OSS staff on demand | |
| | | | Direct contact with corresponding authorities to solve doubts on available subsidies | Tool for priority communication between OSS staff and Public Administration | |
| | | | Direct contact with financial entities to solve doubts about financing products | Tool for priority communication between OSS staff and Financial Institutions | |

Table 2.- ES pilot functionalities, services and tools for stop 0 (Valencia city pilot)





| | | Stop 1 - EVALUATION | | | |
|--------|-------------|---|---|--|--|
| | | AUTOEVALUATION | | ASSISTED EVALUATION | |
| | | Functionalities | TT/SS/AAs | Functionalities | TT/SS/AAs |
| ACTORS | Demand side | On-line survey to know self-consumption | DWELLING SCALE: https://www.five.es/productos/herramientas-on-line/test-de-consumo-energetico/ BUILDING SCALE: https://app.enerfund.eu/ | Virtual assistance from experts (from supply side to demand side; from staff of the OSS offices to demand side; between actors on the supply side) | Forum/tool for communication between demand and supply sides organised by themes (energy consumption, dwelling/building needs, financing) Forum/tool for communication between demand and supply sides organised by themes (energy consumption, dwelling/building needs, subsidies & financing, legal framework?) Examples: https://preguntas.habitissimo.es/rehabilitacion-edificios https://www.soloarquitectura.com/foros/#promotores-y-propietarios.44 |
| | | On-line user-friendly information to know dwelling basic characteristics/needs | DWELLING & BUILDING SCALE: http://webtool.building-typology.eu/#bm | | |
| | | On-line survey to know both self-consumption and dwelling basic characteristics/needs, with additional information on comfort, etc. | DWELLING & BUILDING SCALE: Labelling wizard: https://tar-labeling.web.app/#/ Morphological design wizard: https://tar-morphological-design-wizard.com/ | | |
| ACTORS | Supply side | On-line user friendly information to know energy efficiency potential measures & costs | DWELLING SCALE: http://www.five.es/espacio-ciudadano/vivienda-turistica/autoevaluacion-vt/ DWELLING & BUILDING SCALE: https://www.solutions4renovation.eu/es/ BUILDING SCALE: https://4rineu.eu/wp- | Design tools based on costs | BUILDING SCALE (accessibility): https://www.five.es/productos/herramientas-on-line/ascensores/ DWELLING SCALE (bathrooms & kitchens): https://www.five.es/productos/herramientas-on-line/ascensores/ |
| | | | | On-line survey to perform an energy calculation and a financial calculation | BUILDING SCALE: Pro-design wizard: https://bramo.eu/tar-lvnl-8/public/wizard-pro Public wizard: https://www.triple-areno.eu/1.1.0/public/wizard |
| | | | | On-line survey / presential interview to know users consumption & behaviour | |
| ACTORS | Staff | | | On-line survey / on-site evaluation to know dwelling basic characteristics/needs | |
| | | | | | |
| | | | | | |

Table 3.-ES pilot functionalities, services and tools for stop 1 (Valencia city pilot)

| | | Stop 2 - DESIGN & FORMALIZATION | | | | | |
|--------|-------------|--|---|--|---|--|--|
| | | DESIGN | | SELECTION | | FORMALIZATION | |
| | | Functionalities | TT/SS/AAs | Functionalities | TT/SS/AAs | Functionalities | TT/SS/AAs |
| ACTORS | Demand side | | | User-friendly comparator to ask for/compare offers/quotations | https://reformaerr.com/propuesto/ https://www.habitissimo.es/propuestas/reformas | Tool allowing the generation of a user-friendly contract based on the previous selection, with a clear | Beyond providing a standard contract template (different for each type of intervention) and/or advice , makes it |
| | | | | Directory of "neutral" technicians (just involved in assessment and certification) for external technical advice, facilitating decision-making | As in Stop 0 - Interaction . LISTS OF PROFESSIONALS. Chartered architects: https://www.coacv.org/es/arguitectos/arquitectos-coacv/ Trained in retrofitting/specific areas: https://www.five.es/formacion | | |
| | | | | Single portal centralizing the available subsidies and the corresponding requirements | As in Stop 0 - Raising awareness, SUBSIDIES AT REGIONAL LEVEL (possibility of include them | | |
| ACTORS | Supply side | As a basis: platform with evaluation results (from autoevaluation / assisted evaluation) | Associated with the previous evaluation phase, since it is based on it | | | Tool allowing the generation of a user-friendly contract based on the previous design proposal, with a clear definition of the provided services | Same as for the demand side |
| | | Single portal centralizing the regulations in force to know the legal framework | REGULATIONS AT NATIONAL LEVEL: https://www.mitma.gob.es/arquitectura-vivienda-v-suelo/normativa REGULATIONS AT | | | | |
| | | Evaluation form/check-list to check compliance with regulations | Summary of current regulations in the form of a checklist / Platform to allow | | | | |
| ACTORS | Staff | Information on standard solutions adapted to the local context | Sheets under development by IVE Renovation package sheets: https://4rineu.eu/wp-content/uploads/2021/02/4Ri | | | | |
| | | Methodical and standardized verification procedure (evaluation form/check-list) to facilitate the corrections of errors/documentation completion in the case of non-compliance (generating user- | Platform to allow verification of documentation uploaded by the Supply Side | | | Tool allowing the generation of a document ensuring the legal compliance of the project | Same as for the demand side |
| | | | | | | | |

Table 4.- ES pilot functionalities, services and tools for stop 2 (Valencia city pilot)



| | | Stop 3 - REALIZATION | | | | | | | |
|-------------|-------------|--|---|---|--|---|---|--|--|
| | | TRAINING | | ASSESSMENT | | MEDIATION | | QUALITY ASSURANCE | |
| | | Functionalities | TT/SS/AAs | Functionalities | TT/SS/AAs | Functionalities | TT/SS/AAs | Functionalities | TT/SS/AAs |
| ACTORS | Demand side | Workshops / Guidelines/tips to reduce/optimize energy consumption based on the habits of the users | Oficina de la energia workshops and training days | Software allowing the generation of a maintenance programme for existing residential buildings. | https://www.five.es/productos/herramientas-on-line/pomees/ | Directory of "neutral" technicians (just involved in assessment and certification) for extra technical support, in case of problems with contracted professionals | | | |
| | | | | | | Directory of legal advisors for legal support, in case of problems (works/building permits/bureaucracy, etc.) | | | |
| | | | | | | User-friendly information about the legal procedures; forms allowing direct submission of documentation | | | |
| Supply side | | To know the operation and installation of the demanded solutions: virtual classroom with video-tutorials; possibility to request face-to-face tutoring | White-collar workers: https://www.five.es/formacion/ Blue-collar workers (official training/free courses): https://www.fundacionlaboral.org/ | Evaluation procedures to check progress in terms of time and quality, to quickly and effectively follow up on works | IBRoad tools: Building Renovation Roadmap & Logbook for energy auditors: https://ibroad-project.eu/downloads/REPORTD42/ https://ibroad-project.eu/downloads/REPORTD43 http://italainclassea.enea.it/condomin4-0/ | Calendar for requesting appointments (by the demand side); control of the time dedicated to mediation, to optimize the time spent on mediation with demand-side | | Evaluation procedures, including steps to be followed and main elements to be checked, for external assessment to ensure the quality of works | |
| | | To stay up to date on the latest energy renovation solutions: periodic newsletter summarizing the latest solutions available | Newsletter for those professionals (produced by OSSs staff) included in the lists? | Form to include information during evaluation visits and results (for authorizing payments) | | Forms for direct contact to corresponding bodies, allowing information upload, view of the status of procedures, etc., to optimize the time spent on legal procedures | | Form to include information during evaluation visits and results (quality of works) to centralize supporting documents of the work status at each stage (photos, etc.) | BUILT2SPEC Tool: Energy Efficiency Quality Checks: https://built2spec-project.eu/tools/energy-efficiency-quality-checks/ |
| | | To stay up to date on changes in the legislative framework/procedures: notification board including updates | Newsletter for those professionals (produced by OSSs staff) included in the lists? | Platform to centralize supporting documents of the work status at each stage (photos, etc.) | Real-time updating of the assessment results, to offer demand side real-time information on the status of works | | Tool showing in real time information on payments (status of payments, authorisations, dates of receipts, etc.) | | Real-time updating of the assessment results, to offer demand side real-time information on the status of works |
| Staff | | To stay up to date on the latest energy renovation solutions: periodic newsletter summarizing the latest solutions available | Newsletter for professionals included in the lists of professionals? / On-line training? | Platform summarizing all the previous information provided by the supply side | OSSs staff work as external 'auditors' of the professionals performing the works | User-friendly forms, allowing direct submission of documentation, making procedures more accessible to minimise the time spent on resolving queries | | | |
| | | To stay up to date on changes in the legislative framework/procedures: notification board including updates | Newsletter for OSSs staff directly from the public administration / Specific training days | | | Instant alerts tool for accelerating communication procedures and timeframes | | | |
| | | | | | | Access to a platform centralizing all project related documentation to avoid intermediate steps and speed up error correction / documentatin submission processes | | | |

Table 5.- ES pilot functionalities, services and tools for stop 3 (Valencia city pilot)



| | | Step 4 - VALIDATION | | | | | | | |
|--------|-------------|--|--|--|--|---|---|---|--|
| | | FEEDBACK | | COMPARISON | | MONITORING | | CERTIFICATION | |
| | | Functionalities | TT/SS/AAs | Functionalities | TT/SS/AAs | Functionalities | TT/SS/AAs | Functionalities | TT/SS/AAs |
| ACTORS | Demand side | Platform for complaints/notifying faults in works, with response time margins depending on the type of feedback (post-installation issues, works fixing, etc.) | Tool for communication between demand and supply sides organised by themes (energy consumption, dwelling/building needs, financing) | Tool allowing the graphical comparison of the consumption before/after the works | Based on evaluation & assisted evaluation tools form stage 1 | Platform displaying real-time monitoring data in a user-friendly way allowing objective data comparison (previous step) | MOBISTYLE RESULTS Dashboard (different kind of users): https://www.mobistyle-project.eu/en/mobistyle/results/mobistyle-dashboard Game (residential users): https://www.mobistyle-project.eu/en/mobistyle/results/mobistyle-game | Information on quality certification system awarded to residential buildings with significant improvements over the mandatory minimums | Information on the system employed by the supply side BUILDING SCALE: https://www.five.es/certificacion-edificios/viviendas/ |
| | Supply side | | | Tool allowing the comparison of the building elements behaviour before/after the works | Based on evaluation & assisted evaluation tools form stage 1 | Platform displaying real-time monitoring data allowing objective data comparison (previous step) | MOBISTYLE RESULTS Expert tool: https://www.mobistyle-project.eu/en/mobistyle/results/mobistyle-expert-tool | Quality certification system awarded to residential buildings with significant improvements over the mandatory minimums Tool simplifying the process by using already recorded data and including guidelines to get an official certification of the obtained improvements | BUILDING SCALE: https://www.five.es/certificacion-edificios/viviendas/ |
| | Staff | | | | Tool allowing the comparison of the building elements behaviour before/after the works | Based on evaluation & assisted evaluation tools form stage 1 | Platform displaying real-time monitoring data allowing objective data comparison (previous step) | <i>Same as for the supply side</i> | Quality certification system awarded to residential buildings with significant improvements over the mandatory minimums |

Table 6.- ES pilot functionalities, services and tools for stop 4 (Valencia city pilot)





STEP 4.2 - SUPPORTING SERVICES MAP

A. The existing resources in place

A.1. Training

| EU (applicable results) | In-house (partners resources) | local (initiatives) |
|-------------------------|-------------------------------|--------------------------------------|
| PROF-TRAC | IVE's training offer | Construction Labour Foundation (FLC) |
| BIMplement | VCE's training workshops | |
| TripleA-reno | | |
| BUSLeague | | |
| BUS-GoCircular | | |

Table 7.- Existing and applicable training resources in place (Valencia city pilot)

A.2. Certification

| EU (applicable results) | In-house (partners resources) | local (initiatives) |
|-------------------------|-------------------------------|---|
| HAPPEN | IVE Certification Body | Residential Building Evaluation Report (IEE.CV) |
| | | Quality Register in the Built Environment |

Table 8.- Existing and applicable certification schemes in place (Valencia city pilot)

A.3. Monitoring

| EU (applicable results) | In-house (partners resources) | local (initiatives) |
|-------------------------|--|---------------------------------------|
| SSO | Energy consumption test | Through VCE's users advisory services |
| TripleA-reno | Self-assessment tool for tourist homes | |
| DRIVE 0 | | |

Table 9.- Existing and applicable monitoring protocols and services in place (Valencia city pilot)

B. The Citizen Hub supporting services proposal

B.1. Services Model

B.2. Services Menu

| stage | Training | Certification | Monitoring |
|------------------|-------------------------------|------------------------------|-------------------------------|
| 0 - onboarding | Mentioned EU projects | EPC improvements suggestions | IVE tools for self-assessment |
| 1 - evaluation | IVE training offer | Quality Register | SSO / TripleA-reno / DRIVE 0 |
| 2 - elaboration | VCE training offer | HAPPEN Vol. Certif. Scheme | |
| 3 - construction | FLC training offer/ BUS suite | IVE Certification Body | |
| 4 - validation | IVE training offer | | idem stage 0 |

Table 10.- Spanish OSS supporting services proposal (Valencia city pilot)





C. The Citizen Hub roll-out proposal

C.1. Decentralization strategy (pop-up)

| initiative | Stage/ What (Services to be provided) | Territory/ Where (Geographical scope) | Periodicity/ When (Temporal scope) |
|--|--|--|---|
| XALOC | Integral service for building retrofitting | Valencia region | First offices created in 2020 Decree 199/2021 signed in Dec.21 |
| OTEA | Assistance on energy saving, energy efficiency, and renewable self-consumption | Valencia region | Launch in Dec.21 Operation planned until 2023 |
| Other physical offices | Integral services | Other ES regions | See D.2.1 (<i>The previous experiences</i> , p.7-8) |
| Web tools/platforms | Search of professionals Requesting quotes | ES national context | See D.2.1 (<i>The previous experiences</i> , p.8-9) |
| Professionals' directories or associations | Misc.: provision of services, promotion of retrofitting, search of professionals, etc. | ES national context | See D.2.1 (<i>The previous experiences</i> , p.9) |
| In-store assistance | Intermediaries between users and professionals | Some ES regions | See D.2.1 (<i>The previous experiences</i> , p.9) |

Table 11.- Spanish OSS roll-out proposal (Valencia city pilot)





STEP 4.3. - STH DOCUMENT 7. STAFF TRAINING DESIGN METHODOLOGY

A. Skills

| | | | | |
|-------|---|--|--|--|
| Staff | Stop 0 - ON-BOARDING | | | |
| | AWARENESS | | INTERACTION | |
| | | | scheduling, communication , prioritizing, channeling... | |
| | Stop 1 - EVALUATION | | | |
| | AUTOEVALUATION | | ASSISTED EVALUATION | |
| | | | understanding tools available, in order to solve doubts or redirect to corresponding professional | |
| | Stop 2 - DESIGN & FORMALIZATION | | | |
| | DESIGN | SELECTION | FORMALIZATION | |
| | knowledge of regulations and requirements for proper guidance and solve doubts | | validation of the documents before starting works | |
| | Stop 3 - REALIZATION | | | |
| | TRAINING | ASSESSMENT | MEDIATION | QUALITY ASSURANCE |
| | uptodateness | follow-up, registering of activities and documents | deadlines , doubts, direct submissions, communication, meetings... | |
| | Stop 4 - VALIDATION | | | |
| | FEEDBACK | COMPARISON | MONITORING | CERTIFICATION |
| | | understanding tools available, in order to solve doubts or redirect to corresponding professional | understanding tools available, in order to solve doubts or redirect to corresponding professional | understanding tools available, in order to solve doubts or redirect to corresponding professional |

Figure 2.- staff customer journey, services and training needs (Valencia city pilot)

B. Contents

| | | | | |
|-------|--|---------------------------|----------------------------|--------------------------|
| Staff | Stop 0 - ON-BOARDING | | | |
| | AWARENESS | | INTERACTION | |
| | | | MODULE 4 - Communication | |
| | | | MODULE 1 - Best practices | |
| | Stop 1 - EVALUATION | | | |
| | AUTOEVALUATION | | ASSISTED EVALUATION | |
| | | | MODULE 3 - Tools | |
| | Stop 2 - DESIGN & FORMALIZATION | | | |
| | DESIGN | SELECTION | FORMALIZATION | |
| | MODULE 1 - Legislation | | MODULE 2 - Service Manual | |
| | MODULE 1 - Procedures | | MODULE 2 - Rehabilitation | |
| | Stop 3 - REALIZATION | | | |
| | TRAINING | ASSESSMENT | MEDIATION | QUALITY ASSURANCE |
| | MODULE 1 - Procedures | MODULE 2 - Service Manual | MODULE 2 - Service Manual | |
| | Stop 4 - VALIDATION | | | |
| | FEEDBACK | COMPARISON | MONITORING | CERTIFICATION |
| | MODULE 3 - Tools | MODULE 3 - Tools | MODULE 3 - Tools | |

| Modality | session | Staff |
|---------------------------------|---------|-------|
| A) Tailored training day | | |
| MODULE 1 - Legislation | 1 | all |
| MODULE 4 - Communication | 2 | all |
| B) Working groups | | |
| MODULE 2 - Service Manual | 3 | all |
| MODULE 2 - Courses | 4 | all |
| C) Courses | | |
| MODULE 1 - Best practices | tbd | all |
| MODULE 1 - Procedures | tbd | all |
| MODULE 2 - Rehabilitation | tbd | all |
| MODULE 3 - Tools | tbd | tech |

Figure 3.- Modalities and planning (Valencia city pilot)





C. Resources¹

| Content (From section B) | Training resource (Name) | Provider (Entity name) | Format (Present/ online) | Duration (hours) | Cost (€) |
|-----------------------------|------------------------------|------------------------------|--------------------------------|---------------------|-------------|
| | | | | | |
| | | | | | |
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| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | Gap! | | | | |

¹ This activity has not been included the pilot project in Valencia.



D. Program

| Modality | Main Stages | Profiles | Requirements | Evaluation | Certificate |
|---|--------------------------------------|------------------|---|-------------|-------------|
| A) Tailored training half day | | | | | |
| MODULE 1 - Legislation | Design | all | >=1 legal background related to housing and administrative procedures | Observation | Team |
| Housing renovation: regulation and management context and opportunities An overview of the legal regime of urban regeneration and the planning of actions in the different management areas at three scales is provided: state legislation, regional legislation and local level. Customized training day for municipal technicians on Royal Decree 853/2021, Direct economic aid for citizens: the purpose is to make them aware of all the aid available from the different administrations so that they can inform them directly; and Economic aid for municipalities: so that they know the aid that is convened at the municipality and how to request them. | | | | | |
| MODULE 4 - Communication | Interaction | all | - | Observation | Team |
| Soft skills | | | | | |
| B) Working groups - half day | | | | | |
| MODULE 2 - Service Manual | Formalization; Mediation; Assessment | all | >=1 technical background related to building renovation | Observation | Team |
| Service manual for XALOC network offices Has the purpose of detailing the activities to be carried out by the local and regional administrations adhered to the RED XALOC initiative, which come contained in the collaboration agreement established between these administrations and the Second Vice Presidency and Ministry of Housing and Bioclimatic architecture. Complementary tools derived from the Manual: Operational sheets of the actions; digital material; Graphic and dissemination material; Planning of dissemination campaigns; Training plan for municipal technicians; Data collection sheets These are meetings to share information of interest to municipal technicians on initiatives and experiences carried out in some municipalities related to housing, which serve as experience for the rest of the participants For example: Streamlining and simplification of procedures; Reduction of municipal taxes and fees; Implementation of the IEE CV ordinances; Municipal aid programs | | | | | |
| MODULE 2 - Courses | Evaluation; Validation | all | - | - | - |
| Energy retrofitting in the framework of the Next Generation funds To be discussed with Citizen Hub staff, related to: Technical tools available for the design and execution of retrofitting; Economic analysis of retrofitting actions: financing and taxation; Retrofitting manager, functions and experiences. Worktable will follow to design the best fitting courses for the specific office team, covering: Aids for the rehabilitation of buildings and homes (Next Generation, personal income tax deductions, IBI and ICIO deductions...), Ad-hoc training course on the tools and protocols of the service offered | | | | | |
| C) Courses | | | | | |
| MODULE 1 - Best practices | Interaction | all | - | - | - |
| REAL CASES OF ENERGY REHABILITATION OF RESIDENTIAL BUILDINGS 10 hours online Examples of energy rehabilitation processes in different areas are exposed through the exposure of the professionals involved. The ultimate goal is for students to acquire a global vision of the energy rehabilitation process. | | | | | |
| MODULE 1 - Procedures | Training | all | >=1 legal background related to housing and administrative procedures | Test | Individual |
| REGULATION AND MANAGEMENT OF URBAN REGENERATION 50 hours online In the first place, an overview of the legal regime of urban regeneration and the planning of actions in the different management areas at three scales is provided: state legislation, regional legislation and local level. Second, to obtain a general approach to the management of the project, emphasizing its practical dimension of financing and planning. Additionally, an approach is made to the international scale in urban regeneration. | | | | | |
| MODULE 2 - Rehabilitation Manager | Formalization | all | >=1 technical background related to building renovation | Test | Individual |
| BUILDING REHABILITATION MANAGEMENT 30 hours online This subject deals with the necessary techniques to carry out the management and control of the different stages of a building rehabilitation action. The content of the course covers the entire rehabilitation process, from the duty of property conservation, the economic estimation of this type of project, the search for financing mechanisms in order to carry out a feasibility analysis and economic-financial profitability. of these actions, and the completion and maintenance of the works. | | | | | |
| MODULE 3 - Tools | Evaluation | customer service | - | Test | Individual |
| Micro-trainings Short videos (10 -15 minutes) in friendly language about energy Efficiency on residential buildings and renovation strategies, addressed to citizens or non-technical customer service: Introduction to EE-buildings; How to improve the EE; User behaviour; Insulation; Windows; Thermal installations; Existing thermal installations; Lightning; Home appliances; Renewable energies Energy rehabilitation & Connect to the sun Intended to users, it is also interesting for new offices staff to learn the basics of energy renovation in these 3-4 hours workshops. | | | | | |
| MODULE 3 - Tools | Design | technician | technical background related to building renovation | Test | Individual |
| CERMA 5 8 hours online CERMA is an official and free computer program, which has the status of a recognized document, for the Certification of Energy Efficiency of Buildings for private residential use in Spain. This course presents the CERMA program in its latest version (5). The operation of each of the tabs is exposed in a theoretical way, going into the detail of the definition possibilities offered by the program, emphasizing the additional functionalities with respect to the previous version (4.2.5). A series of practical examples of the use of the program are also offered. | | | | | |
| TECHNICAL BUILDING CODE 6.5 hours Presentation and explanation of the novelties of the Technical Building Code after its modification through Royal Decree 732/2019, incorporating a new Basic Energy Saving Document | | | | | |
| MODULE 3 - Tools | Evaluation; Validation | technician | technical background related to building renovation | Test | Individual |
| The Evaluation Report of the building (IEEV.CV) Characterization of injuries in buildings and writing of the IEEV.CV report Students are provided with sufficient knowledge to prepare this report through the IEEV.CV procedure, specially designed for residential construction, since it is the typology on which the IEE is mostly requested. Likewise, basic knowledge is offered in the field of pathology in construction and accessibility evaluation, addressing the most common aspects in inspection of residential buildings for the drafting of the IEE. This training has been designed under the framework of Component 2 – Housing Rehabilitation and Urban Regeneration Plan of the Recovery, Transformation and Resilience Plan, to facilitate the proper management of European Next Generation funds. | | | | | |

Table 12.- Valencia Region basic training program (Valencia city pilot)





E. Budget

year 1

| Modality | h/M | Staff | h | €/h | Cost | W1 | W2 | W3 | W4 | W5 | W6 | W7 | W8 |
|---------------------------------|-----|-------|------------|-----|-------------|----|----|----|----|----|----|----|----|
| A) Tailored training day | | | | | | | | | | | | | |
| MODULE 1 - Legislation | 4 | 3 | 12 | 10 | 120 | | | | | | | | |
| MODULE 4 - Communication | 4 | 3 | 12 | 10 | 120 | | | | | | | | |
| B) Working groups | | | | | | | | | | | | | |
| MODULE 2 - Service Manual | 4 | 3 | 12 | 10 | 120 | | | | | | | | |
| MODULE 2 - Courses | 4 | 3 | 12 | 10 | 120 | | | | | | | | |
| C) Courses (on-line) | | | | | | | | | | | | | |
| MODULE 1 - Best practices | 10 | 3 | 30 | 8 | 240 | | | | | | | | |
| MODULE 1 - Procedures | 50 | 3 | 150 | 8 | 1200 | | | | | | | | |
| MODULE 2 - Rehabilitation | 30 | 3 | 90 | 8 | 720 | | | | | | | | |
| MODULE 3 - Tools | 10 | 1 | 10 | 8 | 80 | | | | | | | | |
| MODULE 3 - Tools | 10 | 1 | 10 | 8 | 80 | | | | | | | | |
| MODULE 3 - Tools | 10 | 1 | 10 | 8 | 80 | | | | | | | | |
| Total | | | 348 | | 2880 | | | | | | | | |

Table 13.- Cost & timeline for set up (Valencia city pilot)

each year

| Modality | h/M | Staff | h | €/h | Cost |
|---------------------------------|-----|-------|-----------|-----|------------|
| A) Tailored training day | | | | | |
| MODULE 1 - Legislation | 4 | 3 | 12 | 10 | 120 |
| B) Working groups | | | | | |
| MODULE 2 - Service Manual | 4 | 3 | 12 | 10 | 120 |
| C) Courses (on-line) | | | | | |
| MODULE 3 - Tools | 10 | 1 | 10 | 10 | 100 |
| MODULE 3 - Tools | 10 | 1 | 10 | 10 | 100 |
| MODULE 3 - Tools | 10 | 1 | 10 | 10 | 100 |
| Total | | | 54 | | 540 |

Table 14.- Regular training yearly cost (Valencia city pilot)



TEMPLATES STEP 5. THE FOLLOW-UP | MONITORING FOR VALENCIA CITY PROJECT














| | | | | | | |
|--|---------------------------------------|---|---|---|---|---|
|  <p>5 The follow-up</p> | Q. The Sustainability Strategy | Which type of OSS do you have regarding its engagement level? | <input type="checkbox"/> |  |  | |
| | R. The Business Model | How can your OSS be self-sufficient? Which is its business model? | <input type="checkbox"/> |  |  | |
| | S. The Risk assessment | Which are the potential risks of your OSS implementation? Which are their contingency plans? | <input type="checkbox"/> |  |  | |
| | T. The Performance | KPIs | | <input type="checkbox"/> |  |  |
| | | Dashboard | Which are the main KPIs to monitor the success of your OSS implementations and the customer satisfaction? How are these KPIs gathered and monitored? | <input type="checkbox"/> |  |  |
| | | Value (Satisfaction) | | <input type="checkbox"/> |  |  |

Table 1. Test materials for step 5

This step (and its sub-steps) aims to define the way of ensuring the continuation on the mid-long term, measuring success and implementing improvements where needed. The document is an example of the application of the templates to Valencia (Spain) and serves as model for the transferability of the Citizen Hub concept. More information is available in [D3.3. Citizen Hub Business model for the two pilots](#), [D4.5. Action plan, risk assessment and quality assurance of the renovation activities](#), [D4.2 Citizen Hub model agreement Citizen Hub model agreement](#), and [D3.8. Monitoring data Plan for the two pilots](#).

The list of documents submitted for **Step 5 in Valencia** is described below:

| | |
|--|--------------|
| Definition of OSS type | - 2 - |
| Business model canvas | - 3 - |
| Risk assessment | - 4 - |
| Monitoring: KPIs definition | - 5 - |
| STEP 5.1. - MONITORING DATA TEMPLATES | - 6 - |
| A. Customer Journey Evaluation template | - 6 - |
| B. Benefits Monitoring templates. | - 8 - |
| B.1. Building description | - 8 - |
| B.2. Monitoring data description..... | - 8 - |





Definition of OSS type

| Name of OSS | Country | Type | Target | Technical assistance | Contractor relations | Subsidies | Financing |
|------------------------------|---------|-------------------------|-----------------------------------|----------------------|----------------------|-----------|-----------|
| Oficina de la Energia | Spain | Public | Single and multifamily housing | ✓ | ✓ | ✓ | |
| Hauskunft | Austria | Public | Single and multifamily housing | ✓ | | ✓ | |
| RenoWatt | Belgium | Public | Public Buildings | ✓ | | ✓ | ✓ |
| WarmerWonen | Belgium | PPP | Single-family housing | ✓ | ✓ | | ✓ |
| HomeGrade | Belgium | PPP (Non-profit) | Multifamily housing | ✓ | ✓ | | |
| Huisdokter | Belgium | Public | Single and multifamily housing | ✓ | ✓ | | |
| C Real | Belgium | Non-profit organisation | Single and multifamily housing | ✓ | | ✓ | ✓ |
| EasyCOPRO | Belgium | PPP | Multifamily housing (condominium) | ✓ | ✓ | ✓ | ✓ |

The complete chart for all the programs assessed (64 programs) is available in Annex 1 from D3.3.

Table 2. Comparison chart of examples of European OSS programmes.



Business model canvas

| | | | | | | | |
|--|--|---|--|---|--|---|--|
| 11 - Societal Costs <ul style="list-style-type: none"> - Environmental unawareness - Energy poverty - High energy costs - Low standard of living due to outdated housing - Social exclusion - Lack of specialized workforce - Lack of quality in construction works - Unemployment | | 2 - Value Propositions For homeowners: Frictionless access to an energy efficient, accessible, and comfortable home. For contractors, professionals, and financing entities: candid project pipeline | | 10 - Societal Revenue <ul style="list-style-type: none"> - Increased comfort, wellbeing, and productivity of residents in Valencia - Mitigation of energy poverty through lower energy costs - Higher quality of life for dwellers - Stronger economy and local job creation - Energy savings and greenhouse gases reduction - Raised sustainability awareness - Social cohesion - Healthcare system savings through less energy-poverty-related illness | | | |
| 8 - Key Partners <ul style="list-style-type: none"> - Xaloc network - VCE - IVE and GVA - VRCP - GNE Finance - UIPI and StH Consortium - City Council, Plan Cabanyal, Right to Housing - AVAESEN, ASELEC - Professionals' associations and colegios - Financial Institutions | | 7 - Key Activities <ul style="list-style-type: none"> - OSS's personnel onboarding - Technical and economic pre-diagnosis of the home and p - Contractors' validation process - Service delivery workflows - Customer journey - Develop jargon-free information material for HO - Subsidies and licenses processing - Data gathering and analysis - Monitoring of on-going, planned and failed projects - Development of partnerships (local associations and Fis) - Workshops and events - Mediation between users and contractors - Post renovation follow-up | | 4 - Customer Relations <ul style="list-style-type: none"> - Dedicated personal assistance - Long term - Automated services - Communities - Co-design of projects - Citizens' School as a participatory group | | 1 - Customer Segments <ul style="list-style-type: none"> - Primary focus: homeowners in multifamily - Secondary focus: single-family homeowners - *Administradores de Fincas (Property managers) | |
| 6 - Key Resources <u>Personnel</u> <ul style="list-style-type: none"> - Physical office - Web portal - Sociodemographic and building data - Brand - Contractor's list - Protocols <u>Customer tools</u> <ul style="list-style-type: none"> - Energy efficiency factsheets and leaflets - Self-diagnosis tools - Comparative tables with technical and financial solutions - Aids and subsidies table | | <u>Supporting tools for staff</u> <ul style="list-style-type: none"> - Customer service protocol - Files management platform - Energy efficiency guides - Technical and financial calculation tools - Services Manual, phone assistance & Training program (X) | | 3 - Channels <u>Offline</u> <ul style="list-style-type: none"> - EO front-desk and appointed interviews - Workshops and target events: monthly worksl - Community of homeowners' meetings - Leaflets, posters, and bus stops ads - Information points including other municipal - StH Ambassadors promoting the project - Word-of-mouth - Newspapers - Collaboration with banks offices and real estate offices | | <u>Online</u> <ul style="list-style-type: none"> - EO social medial channels and monthly newsletter - EO webinars and workshops: monthly workshops also on - External webinars and events attended - Google Ads and paid promotion - Xaloc website | |
| 9 - Cost structure <ul style="list-style-type: none"> - Personnel - Office utilities - Marketing and communication actions - ICT tools - Travel/ outside events | | 5 - Revenue Streams <ul style="list-style-type: none"> - City council funding - Regional Funding - EU Projects funding (e.g., Save the Homes and WELLBASED) - Regional subsidies under Program 2 of the Real Decreto 853/2021: 'Support program for renovation offices' | | | | | |





Risk assessment

The following table shows an example for the first sub-step of the customer journey. In this case, a comparison is made between Valencia and Rotterdam pilot cities. The information for the rest of the sub-steps is available in the **D4.5. Action plan, risk assessment and quality assurance of the renovation activities.**

| COMPARISON | |
|--|--|
| Step 0 - A: First contact: community meetings, social media and ads and informal campaigns | |
| Rotterdam | Valencia |
| Building the expertise of the HUB, explorations of a working group in Alex Energie (AE) about making homes energy neutral. The first resident seeks support from the HUB and invites neighbors to participate in a feasibility study into making the block more sustainable. | Awareness campaigns, mostly related to subsidies through social media and ads. Properties administrators (trained in energy refurbishment and the available subsidies) provide information to building owners. Brochures are spread around the energy offices (directly in mailboxes, real estate offices and banks). |
| <p><u>Roles defined:</u></p> <ul style="list-style-type: none"> • Energy Cooperative (promotional activities HUB Alexander) • Buurmensen (active volunteers of AE) • App IkWoon (digital tool) • Energy coaches (volunteers who have been trained to provide first support towards light energy saving measures) • | <p><u>Roles defined:</u></p> <ul style="list-style-type: none"> • Municipality of Valencia (funding) • Valencia Clima y Energia (managing) • Energy Office (operation) • Renovation agents & managers officially registered (collaboration) • Regional government (coordination) • IVE (technical support) |
| <p><u>Quality:</u></p> <ul style="list-style-type: none"> • Getting people together is the first step towards a collective • Community meetings can inspire the people that attend with existing local examples • Local actions instead of global actions • Low threshold to become active. <p><u>Risks:</u></p> <ul style="list-style-type: none"> • Sending the right message for the group • Reluctant citizens can 'hijack' the event with their individual problems • How to reach the people after the early adopters? • How to become recognised and found by citizens? • Lack of awareness with citizens: citizens are not interested enough to look further into their dwelling's renovation process. • Keep the group committed and stay joined in the following steps. | |
| <p>Chance / solution:</p> <ul style="list-style-type: none"> • Provide a brief but clear explanation of the process that the citizen will walk through when taking on a renovation project. Be open and transparent in the process. Ask for feedbacks. When possible, make joined decisions/choices. The organiser of the meeting should be an expert on the topic (renovation) as well as on expectation management and guiding a group of persons. This cannot be dealt with just a member or employee, but someone with training and expertise in communication is needed. • Property administrators, who are in direct contact with residential building owners, are trained in energy renovation and subsidies managing. • Citizen Hub social media, property administrators and other agents related to the renovation process can use best practices with previous renovation process results and experiences to offer objective and close data. For example, using monitored data, thermographic images, or feedback from other homeowners. This gives trust to the people. The best practices map is developed to support this action. • In order to maintain the citizens' interest, do a follow-up of the people that did the first contact. | |

Table 3. Risk assessment for sub-step 0-A (Valencia city pilot)





Monitoring: KPIs definition

| order | KPI section | KPI ID | KPI name | Answer by | Answer each... | Answer format |
|-------|----------------|--------|----------------------------|--------------|----------------|------------------------|
| 1 | location | L01 | municipality | office staff | new customer | select |
| 2 | location | L02 | building address | office staff | customer | coordinates or address |
| 3 | sustainability | S01 | OPEX | budget resp | 12M | € |
| 4 | sustainability | S02 | revenue | budget resp | 12M | € |
| 5 | sustainability | S10 | OPEX/revenue | AUTO | 12M | % |
| 6 | sustainability | S20 | subsidies | budget resp | 12M | € |
| 7 | sustainability | S21 | OPEX/subsidies | AUTO | 12M | % |
| 8 | sustainability | S22 | subsidies origin | budget resp | 12M | select |
| 9 | pipeline | P01 | first contact | office staff | new customer | select |
| 10 | pipeline | P02 | time contact (min) | office staff | new customer | int |
| 11 | pipeline | P03 | n dwellings =1 | office staff | new customer | 1/0 |
| 12 | pipeline | P10 | personal meeting | office staff | customer | 1/0 |
| 13 | pipeline | P11 | time meeting (min) | office staff | customer | int |
| 14 | pipeline | P12 | n dwellings >1 | office staff | customer | int |
| 15 | pipeline | P19 | conversion 01 | AUTO | 6M | % |
| 16 | pipeline | P20 | project type | office staff | customer | select |
| 17 | pipeline | P21 | professional from registry | office staff | customer | 1/0 |
| 18 | pipeline | P22 | satisfaction professional | office staff | customer | select |
| 19 | pipeline | P23 | subsidies applied | office staff | customer | 1/0 |
| 20 | pipeline | P23-IT | subsidies applied | IT | 6M | int |
| 21 | pipeline | P24 | time follow-up (min) | office staff | customer + 3M | int |
| 22 | pipeline | P29 | conversion 12 | AUTO | 6M | % |
| 23 | pipeline | P30 | reno works | office staff | customer + 6M | 1/0 |
| 24 | pipeline | P31 | subsidies got | office staff | customer + 6M | 1/0 |
| 25 | pipeline | P31-IT | subsidies got | IT | 6M | int |
| 26 | pipeline | P32 | professional form registry | office staff | customer + 6M | 1/0 |
| 27 | pipeline | P33 | satisfaction professional | office staff | customer + 6M | select |
| 28 | pipeline | P33 | time check (min) | office staff | customer + 6M | int |
| 29 | pipeline | P39 | conversion 23 | AUTO | 6M | % |
| 30 | pipeline | P40 | satisfaction | office staff | customer + 9M | 1/0 |
| 31 | pipeline | P41 | success story | office staff | customer + 9M | 1/0 |
| 32 | pipeline | P42 | time success story (min) | office staff | customer + 9M | int |
| 33 | pipeline | P43 | satisfaction result | office staff | customer + 9M | select |
| 34 | pipeline | P44 | time satisfaction (min) | office staff | customer + 9M | int |
| 35 | pipeline | P49 | conversion 34 | AUTO | 6M | % |
| 36 | pipeline | P50 | conversion 4satisfied | AUTO | 6M | % |
| 37 | impact | I01 | project cost | office staff | customer + 3M | € |
| 38 | impact | I02 | subsidies applied | office staff | customer + 3M | € |
| 39 | impact | I10 | works cost | office staff | customer + 6M | € |
| 40 | impact | I11 | subsidies got | office staff | customer + 6M | € |
| 41 | impact | I12 | jobs created | AUTO | 6M | int |
| 42 | impact | I20 | nrPE savings | office staff | customer + 3M | kWh/m2y |
| 43 | impact | I21 | CO2 reduction | office staff | customer + 3M | tCO2eq/m2y |
| 44 | impact | I30 | nrPE savings | office staff | customer + 6M | kWh/m2y |
| 45 | impact | I31 | CO2 reduction | office staff | customer + 6M | tCO2eq/m2y |
| 46 | impact | I40 | testimonies | office staff | customer + 9M | text |
| 47 | impact | I41 | IEQ monitoring | office staff | customer + 9M | file |
| 48 | impact | I42 | HWB questionnaire | office staff | customer + 9M | file |
| 49 | impact | I50 | satisfaction process | office staff | customer + 9M | select |
| 50 | partnership | R01 | contacts registry | IT | 6M | int |
| 51 | partnership | R02 | professional form registry | AUTO | 6M | % |
| 52 | partnership | R03 | works cost | AUTO | 6M | € |
| 53 | partnership | R10 | satisfaction | AUTO | 6M | double |
| 54 | objectives | O01 | dwellings | program resp | 12M | int |
| 55 | objectives | O02 | investments | program resp | 12M | € |
| 56 | objectives | O03 | subsidies | program resp | 12M | € |
| 57 | objectives | O04 | nrPE savings | program resp | 12M | kWh/m2y |
| 58 | objectives | O05 | CO2 reduction | program resp | 12M | tCO2eq/m2y |
| 59 | objectives | O06 | dissemination audience | program resp | 12M | int |
| 60 | objectives | O07 | dissemination type | program resp | 12M | select |

Table 4. KPIs used in the Valencia city pilot





STEP 5.1. - MONITORING DATA TEMPLATES

A. Customer Journey Evaluation template

| Country | stage | renovation goal | people who... | step factor goals | is.. |
|---------|-------|-----------------|--------------------------|-------------------|--|
| select | 0 | 20.000 | is targeted | 400% | of those who then use a Citizen Hub service |
| ES | 1 | 5.000 | uses services | 200% | of those who finally get personal assessment |
| | 2 | 2.500 | gets personal assessment | 200% | of those who actually renovate |
| | 3 | 1250 | renovates | | |
| | 4 | 625 | monitors/ validates | 50% | of those who renovated |
| | | 469 | understands results | 75% | of those who monitored/ validated |
| | 5 | 938 | is satisfied | 75% | of those who renovated |

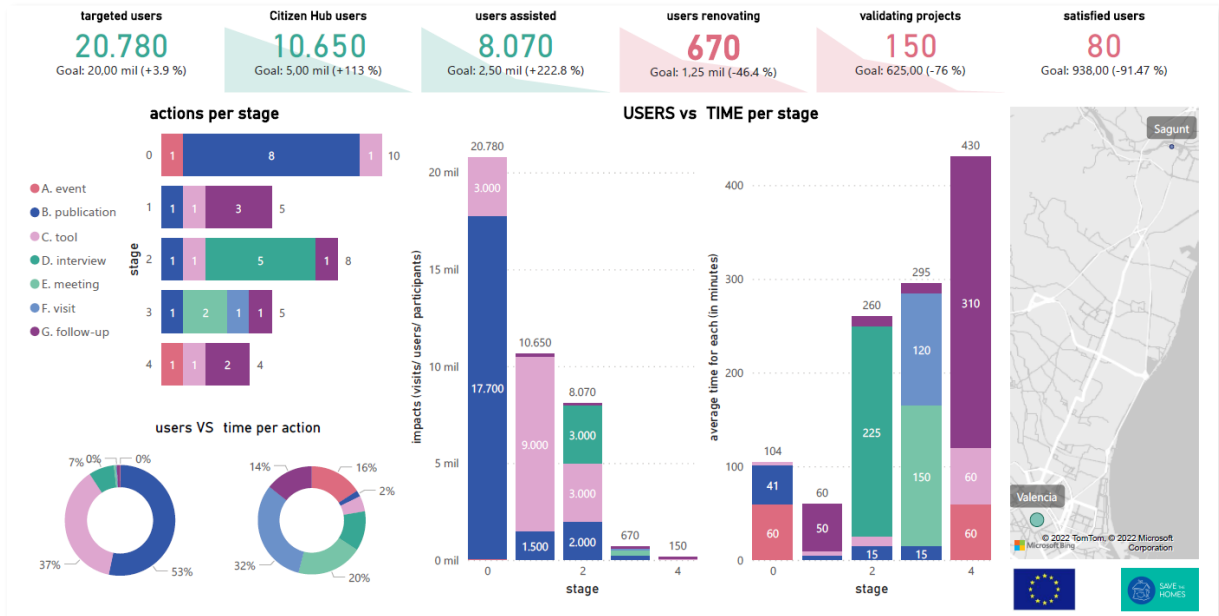
| Citizen Hub | stage | mechanism | name | owner | visits | average dedication | monitorin |
|-------------------|-------|----------------|--|-------|--------|--------------------|-----------|
| Valencia, ES | 0 | A. event | energy renovation workshop II 04/2022 | VCE | 6 | 20 | |
| Valencia, ES | 1 | A. event | Un nuevo pacto verde: los fondos europeos para la rehabilitación 11/2021 | IVE | 190 | 2 | |
| Valencia, ES | 0 | A. event | energy renovation workshop 01/2022 | VCE | 8 | 15 | |
| Valencia, ES | 0 | A. event | energy renovation workshop 02/2022 | VCE | 8 | 15 | |
| Valencia, ES | 0 | A. event | energy renovation workshop 03/2022 | VCE | 8 | 15 | |
| Valencia, ES | 0 | A. event | energy renovation workshop I 04/2022 | VCE | 8 | 15 | |
| Valencia, ES | 0 | A. event | energy renovation workshop 05/2022 | VCE | 8 | 15 | |
| Valencia, ES | 0 | A. event | energy renovation workshop 06/2022 | VCE | 8 | 15 | |
| Valencia, ES | 0 | A. event | subsidies: process & tools dissemination event 02/2022 | IVE | 1763 | 1 | |
| Valencia, ES | 0 | A. event | energy renovation with TripleA-reno board game 10/2021 | VRCP | 15 | 4 | |
| Valencia, ES | 0 | A. event | energy renovation in multifamily buildings 02/2021 | VRCP | 65 | 2 | |
| Valencia, ES | 0 | A. event | renovation agent/manager training or validation test at 06/2022 | IVE | 1821 | 1 | |
| Valencia, ES | 0 | A. event | re-MODULEES re-LAB 11/2021 | IVE | 19 | 5 | |
| Valencia, ES | 0 | A. event | re-MODULEES re-LAB 05/2022 | IVE | 21 | 5 | |
| Valencia, ES | 0 | A. event | energy renovation workshop 11/2021 | VCE | 6 | 20 | |
| Valencia, ES | 0 | A. event | energy renovation workshop 12/2021 | VCE | 6 | 20 | |
| Valencia, ES | 0 | B. publication | VCE website: energy efficiency visits 06/2022 | VCE | 916 | 3 | |
| Valencia, ES | 0 | B. publication | newsletter 06/2022 | VCE | 800 | 5 | |
| Valencia, ES | 0 | B. publication | newsletter 04/2021 (questionnaire) | IVE | 7834 | 5 | |
| Valencia, ES | 0 | B. publication | VCE website: energy efficiency visits 2021 | VCE | 270 | 3 | |
| Valencia, ES | 0 | B. publication | newsletter 02/2022 (renovEU) 02/2022 | IVE | 10000 | 5 | |
| Valencia, ES | 1 | C. tool | renovEU tool visits 06/2022 | IVE | 8700 | 6 | |
| Valencia, ES | 1 | D. interview | spontaneous visits/ appointment 06/2022 | VCE | 30 | 30 | |
| Valencia, ES | 1 | D. interview | phone calls attended 06/2022 | IVE | 10 | 10 | |
| Valencia, ES | 1 | D. interview | forum conversations 06/2022 | IVE | 146 | 7 | |
| Valencia, ES | 1 | D. interview | e-mails received and answered (renovEU) 06/2022 | IVE | 40 | 8 | |
| Sagunt, ES | 1 | D. interview | spontaneous visits/ appointment 06/2022 | IVE | 50 | 30 | |
| San Juan de Alic | 1 | D. interview | spontaneous visits/ appointment 06/2022 | IVE | 31 | 30 | |
| Burjassot, ES | 1 | D. interview | spontaneous visits/ appointment 06/2022 | IVE | 42 | 30 | |
| La Vall d'Uixó, E | 1 | D. interview | spontaneous visits/ appointment 06/2022 | IVE | 92 | 30 | |
| Morella, ES | 1 | D. interview | spontaneous visits/ appointment 06/2022 | IVE | 605 | 45 | |
| Valencia, ES | 0 | B. publication | monitoring campaign newsletter 01/2023 | IVE | 15588 | 1 YES | |
| Valencia, ES | 0 | B. publication | citizens school newsletter 01/2023 | VCE | 20 | 1 YES | |
| Valencia, ES | 0 | A. event | energy renovation workshop 01/2023 | VCE | 11 | 8 YES | |
| Valencia, ES | 0 | B. publication | monitoring campaign SM 01/2023 | VCE | 244 | 1 YES | |
| Valencia, ES | 1 | C. tool | Registration for monitoring Scenario B (pre-renovation) 02/2023 | IVE | 203 | 15 YES | |
| Valencia, ES | 3 | C. tool | Registration for monitoring Scenario A (post-renovation) 02/2023 | IVE | 49 | 15 YES | |
| Valencia, ES | 2 | F. visit | Monitored dwellings Scenario B (pre-renovation) 02/2023 | IVE | 12 | 1050 YES | |
| Valencia, ES | 4 | F. visit | Monitored dwellings Scenario A (post-renovation) 02/2023 | IVE | 11 | 1050 YES | |
| Valencia, ES | 5 | G. follow-up | Willing to share renovation experience (best practices map) 03/2023 | IVE | 6 | 30 YES | |
| Valencia, ES | 3 | G. follow-up | Willing to renovate 03/2023 | IVE | 7 | 30 YES | |





| Citizen Hub | Country | stage | mechanism | name | owner | visits | average dec | objetivo | monitoring |
|--------------------------|---------|-------|----------------|--|-------|--------|-------------|----------|------------|
| Valencia, ES | ES | 0 | A. event | energy renovation workshop 11 04/2022 | VCE | 6 | 20 | 20.000 | |
| Valencia, ES | ES | 1 | A. event | Un nuevo pacto verde: los fondos europeos para la rehabilitación 11/2021 | IVE | 190 | 2 | 5.000 | |
| Valencia, ES | ES | 0 | A. event | energy renovation workshop 01/2022 | VCE | 8 | 15 | 20.000 | |
| Valencia, ES | ES | 0 | A. event | energy renovation workshop 02/2022 | VCE | 8 | 15 | 20.000 | |
| Valencia, ES | ES | 0 | A. event | energy renovation workshop 03/2022 | VCE | 8 | 15 | 20.000 | |
| Valencia, ES | ES | 0 | A. event | energy renovation workshop 1 04/2022 | VCE | 8 | 15 | 20.000 | |
| Valencia, ES | ES | 0 | A. event | energy renovation workshop 05/2022 | VCE | 8 | 15 | 20.000 | |
| Valencia, ES | ES | 0 | A. event | energy renovation workshop 06/2022 | VCE | 8 | 15 | 20.000 | |
| Valencia, ES | ES | 0 | A. event | subsidies: process & tools dissemination event 02/2022 | IVE | 1763 | 1 | 20.000 | |
| Valencia, ES | ES | 0 | A. event | energy renovation with TripleA-reno board game 10/2021 | VRCP | 15 | 4 | 20.000 | |
| Valencia, ES | ES | 0 | A. event | energy renovation in multifamily buildings 02/2021 | VRCP | 65 | 2 | 20.000 | |
| Valencia, ES | ES | 0 | A. event | renovation agent/manager training or validation test at 06/2022 | IVE | 1821 | 1 | 20.000 | |
| Valencia, ES | ES | 0 | A. event | re-MODULEES re-LAB 11/2021 | IVE | 19 | 5 | 20.000 | |
| Valencia, ES | ES | 0 | A. event | re-MODULEES re-LAB 05/2022 | IVE | 21 | 5 | 20.000 | |
| Valencia, ES | ES | 0 | A. event | energy renovation workshop 11/2021 | VCE | 6 | 20 | 20.000 | |
| Valencia, ES | ES | 0 | A. event | energy renovation workshop 12/2021 | VCE | 6 | 20 | 20.000 | |
| Valencia, ES | ES | 0 | B. publication | VCE website: energy efficiency visits 06/2022 | VCE | 916 | 3 | 20.000 | |
| Valencia, ES | ES | 0 | B. publication | newsletter 06/2022 | VCE | 800 | 5 | 20.000 | |
| Valencia, ES | ES | 0 | B. publication | newsletter 04/2021 (questionnaire) | IVE | 7834 | 5 | 20.000 | |
| Valencia, ES | ES | 0 | B. publication | VCE website: energy efficiency visits 2021 | VCE | 270 | 3 | 20.000 | |
| Valencia, ES | ES | 0 | B. publication | newsletter 02/2022 (renovEU) 02/2022 | IVE | 10000 | 5 | 20.000 | |
| Valencia, ES | ES | 1 | C. tool | renovEU tool visits 06/2022 | IVE | 8700 | 6 | 5.000 | |
| Valencia, ES | ES | 1 | D. interview | spontaneous visits/ appointment 06/2022 | VCE | 30 | 30 | 5.000 | |
| Valencia, ES | ES | 1 | D. interview | phone calls attended 06/2022 | IVE | 10 | 10 | 5.000 | |
| Valencia, ES | ES | 1 | D. interview | forum conversations 06/2022 | IVE | 146 | 7 | 5.000 | |
| Valencia, ES | ES | 1 | D. interview | e-mails received and answered (renovEU) 06/2022 | IVE | 40 | 8 | 5.000 | |
| Sagunt, ES | ES | 1 | D. interview | spontaneous visits/ appointment 06/2022 | IVE | 50 | 30 | 5.000 | |
| San Juan de Alicante, ES | ES | 1 | D. interview | spontaneous visits/ appointment 06/2022 | IVE | 31 | 30 | 5.000 | |
| Burjassot, ES | ES | 1 | D. interview | spontaneous visits/ appointment 06/2022 | IVE | 42 | 30 | 5.000 | |
| La Vall d'Uixó, ES | ES | 1 | D. interview | spontaneous visits/ appointment 06/2022 | IVE | 92 | 30 | 5.000 | |
| Morella, ES | ES | 1 | D. interview | spontaneous visits/ appointment 06/2022 | IVE | 605 | 45 | 5.000 | |
| Valencia, ES | ES | 0 | B. publication | monitoring campaign newsletter 01/2023 | IVE | 15588 | 1 | 20.000 | YES |
| Valencia, ES | ES | 0 | B. publication | citizens school newsletter 01/2023 | VCE | 20 | 1 | 20.000 | YES |
| Valencia, ES | ES | 0 | A. event | energy renovation workshop 01/2023 | VCE | 11 | 8 | 20.000 | YES |
| Valencia, ES | ES | 0 | B. publication | monitoring campaign SM 01/2023 | VCE | 244 | 1 | 20.000 | YES |
| Valencia, ES | ES | 1 | C. tool | Registration for monitoring Scenario B (pre-renovation) 02/2023 | IVE | 203 | 15 | 5.000 | YES |
| Valencia, ES | ES | 3 | C. tool | Registration for monitoring Scenario A (post-renovation) 02/2023 | IVE | 49 | 15 | 1.250 | YES |
| Valencia, ES | ES | 2 | F. visit | Monitored dwellings Scenario B (pre-renovation) 02/2023 | IVE | 12 | 1050 | 2.500 | YES |
| Valencia, ES | ES | 4 | F. visit | Monitored dwellings Scenario A (post-renovation) 02/2023 | IVE | 11 | 1050 | 625 | YES |
| Valencia, ES | ES | 5 | G. follow-up | Willing to share renovation experience (best practices map) 03/2023 | IVE | 6 | 30 | 938 | YES |
| Valencia, ES | ES | 3 | G. follow-up | Willing to renovate 03/2023 | IVE | 7 | 30 | 1.250 | YES |

Dashboard for Valencia city pilot:





B. Benefits Monitoring templates.

B.1. Building description

B.2. Monitoring data description

Example for one of the monitored dwellings. Data gathered during the interview and report with the analysis of the monitored data and personalized recommendations.

Initial Data

| | |
|---------------------------------------|---------------------------------------|
| 1. Datos | |
| # | 40 |
| Tipo | A.1. |
| Tipología | Vivienda dentro de edificio |
| Nombre | xxxxxxxx |
| Dirección | General San Martin 24. 3º - 4º. 46004 |
| Población | Valencia |
| Zona climática | B3 |
| Email | xxxxxxxx |
| Teléfono | xxxxxxxx |
| Profesión | Arquitecto |
| 2. Vivienda | |
| Superficie construida catastro | 140 |
| Año construcción | 1980 |
| Normativa vigente | NBE CT79 |
| Referencia catastral | 5918103YJ2751H0013JX |
| Edificio protegido | No |
| Forma edificio | Edificio entre medianeras |
| Número de plantas (edificio) | IX |
| Ubicación vivienda | Plantas intermedias |
| 3. Instalaciones | |
| ACS | Termo eléctrico |
| Calefacción | Aire acondicionado frío calor |
| Refrigeración | Aire acondicionado frío calor |
| 4. Otros | |
| Planos | Si |
| Certificado | No |
| Datos registrados | No |
| Facturas gas natural | No tiene gas natural |
| 5. ¿Ha hecho mejoras >2020? | Si |
| Ventanas | No |
| Aislam. Fachada o cubierta | No |
| ACS | Si |
| Calefacción/Refrigeración | Si |
| PV | No |
| Otros | No |
| Fecha mejoras hechas | 2020 |
| 6. ¿Va a hacer más mejoras? | Si |
| Ventanas | Si |
| Aislam. Fachada o cubierta | No |
| ACS | No |
| Calefacción/Refrigeración | No |
| PV | No |
| Otros | No |
| Fecha prevista | - |





Dwelling data

| | |
|--|---|
| 1. General | |
| Orientación | esquina |
| Número de plantas | 1 |
| Número de habitaciones | 3 |
| Número de baños | 2 |
| 2. Uso | |
| Tipo de inquilino | alquilados desde hace 4 años |
| Franja ocupación vivienda | trabaja aquí. 24h |
| Número de ocupantes < 18a | 1 cada 15 días (está separado, su hijo) |
| Número de ocupantes 18a-65a | 1 |
| Número de ocupantes >65a | 0 |
| 3. Iluminación | |
| Tipo | led |
| Sistemas de control y sensores | - |
| ACS | |
| Tipo | Termo eléctrico en armario dormitorio |
| Año | 2020-2021, cambio por reparación |
| Calefacción | |
| Tipo | bomba calor conductos |
| Año | 2020-2021, cambio por reparación |
| Sistemas de control y sensores | Mitsubishi |
| Temperatura consigna | 21-22 |
| Meses de uso | Uso como apoyo. Cuando está solo usa un radiador. |
| Refrigeración | |
| Tipo | bomba calor conductos |
| Año | 2020-2021, cambio por reparación |
| Sistemas de control y sensores | Mitsubishi |
| Temperatura consigna | |
| Meses de uso | |
| Ventilación | |
| Tipo | Extractores baño |
| Sistemas de control y sensores | No |
| Año | antiguos |
| Panales fotovoltaicos | |
| kWp | - |
| Año | - |
| Electrodomésticos | |
| Frigorífico - letra | nuevo A+ |
| Lavadora - letra | nuevo A+ |
| Secadora - letra | - |
| Lavavajillas - letra | - |
| Horno - letra | antiguos |
| Tipo de cocina | antiguos |
| Equipos en Stand by? | - |
| Apagado automático stand by, temporizadores o regletas | - |
| 4. Ventanas | |
| Tipo de vidrio | doble |
| Tipo de marco | metalica, color granate |
| Tipo apertura | correderas |
| Estanqueidad al aire | mal ajuste |
| Existe persiana | si, añadida hace 4 años en la zona de día. En la zona de noche ya había |
| Existe cortinas | si |
| Existe protección solar. Tipo | No es posible colocar toldos |
| Fachada | |
| Espesor | - |
| Tipo cerramiento | Doble hoja con cámara posiblemente con aislamiento |
| Cubierta | |
| Inclinada o plana | - |
| Tipo cerramiento | - |
| Suelo | |
| Tipo | - |
| Tipo cerramiento | - |





Subjective wellbeing data

| | | | | | | | |
|---|---|--------------------|---------------------------|--|-------------------------|-------------|-------------------|
| 1. ¿Con qué frecuencia experimentas molestias debido a...? | Nunca | Rara vez | A veces | Frecuentem ente | Muy a menudo | | |
| Aire seco | x | | | | | | |
| Aire húmedo | x | | | | | | |
| Ambiente cargado | x | | | | | | |
| Olor desagradable | x | | | | | | |
| Presencia de polvo | x | | | | | | |
| Ruido | | | | | x | | |
| Corriente de aire | | | | | | | |
| Temperatura ambiente demasiado alta | | | | | x | | |
| Temperatura ambiente demasiado baja | | | x | | | | |
| Iluminación natural deficiente | | | | | | | |
| Deslumbramiento y/o reflejos | | | | | | | |
| 2. ¿Con qué frecuencia experimentas ls siguientes molestias...? | Nunca | Rara vez | A veces | Frecuentem ente | Muy a menudo | | |
| Fatiga | | | | | | | |
| Pesadez en la cabeza | | | | | | | |
| Dolor de cabeza | | | | | | | |
| Mareo y/o sensación de confusión. | | | | | | | |
| Dificultades para concentrarse | | | | | | | |
| Picazón, ardor o irritación de los ojos. | | | | | | | |
| Alteraciones visuales: visión borrosa, dificultad para enfocar objetos | | | | | | | |
| Nariz irritada, congestionada o que moquea | | | | | | | |
| Garganta ronca y seca | | | | | | | |
| Problemas respiratorios (tos, falta de aliento, dificultad para respirar, ronquera, afonía) | | | | | | | |
| Estornudos, nariz tapada | | | | | | | |
| Otros | Evita usar AA porque siente molestias. No le gusta. | | | | | | |
| 3. ¿Sientes el suelo o pared frío/caliente? | Nunca | Rara vez | A veces | Frecuentem ente | Muy a menudo | | |
| Pared/ventana fría en invierno | | | x | | | | |
| Pared/ventana caliente en verano | | | | x | | | |
| 4. Sensación térmica interior | Mucho calor | Calor | Más bien calor | Neutral | Fresco | Frío | Mucho frío |
| En invierno, en tu casa suele hacer... | | | | | x | | |
| En verano, en tu casa suele hacer... | x | | | | | | |
| 5. Vestimenta | Nada/Ropa interior | Ropa ligera | 2 capas | Abrigo o mas de 2 capas | | | |
| En invierno, suele vestir... | | | x | | | | |
| En verano, suele vestir... | | | | | | | |





Dwellings with energy measures

| | |
|---|---|
| 1. Mejoras realizadas | |
| Ventanas | |
| Aislam. Fachada o cubierta | |
| ACS | x |
| Calefacción/Refrigeración | x |
| PV | |
| Otros | persianas hace 4 años |
| Año mejoras | 2020-21 |
| Razones para llevar a cabo mejoras | |
| Mucho frío en invierno | |
| Mucho calor en verano | |
| Mucho ruido | |
| Mucha humedad y/o moho | |
| Consumo/Coste energético elevado | |
| Otros problemas | se estropearon |
| No tenía problemas | |
| 2. Apreciación global de los trabajos | |
| Apreciación global de las medidas | Positiva |
| Qué ha sido lo más complicado del proceso | |
| Han mejorado los problemas preexistentes? | Sí |
| Has reducido tus facturas energéticas? | |
| 3. Coste mejoras | - |
| Has solicitado ayudas Next Generation | No |
| Te ha resultado sencillo tramitar las ayudas | |
| 4. Has utilizado la aplicación renoveu | No |
| Te ha resultado útil la aplicación renoveu | |
| Has acudido a la Oficina de la Energía/Xaloc | No |
| Te ha resultado útil la OE/Xaloc | |
| 5. Fotografías estado previo | - |
| 6. ¿Vas a hacer más mejoras? | |
| Ventanas | Todas las ventanas |
| Aislam. Fachada o cubierta | |
| ACS | |
| Calefacción/Refrigeración | |
| PV | |
| Otros | |
| Razones para llevar a cabo más mejoras | Ruido y malestar térmico especialmente en verano |
| ¿Vas a pedir ayudas NextGeneration? | Sí |
| Otros | Sin ayudas quizá no cambiaría las ventanas Haría uso de las Oficinas para dudas puntuales No haría más intervenciones aunque tuviera más ayudas. Porque implicaría aislamiento por el exterior e involucrar a la comunidad. |

With this data a report can be prepared with the analysis of the monitored data and personalized recommendations to save energy and improve the indoor comfort level:



Analysis of the monitored data:

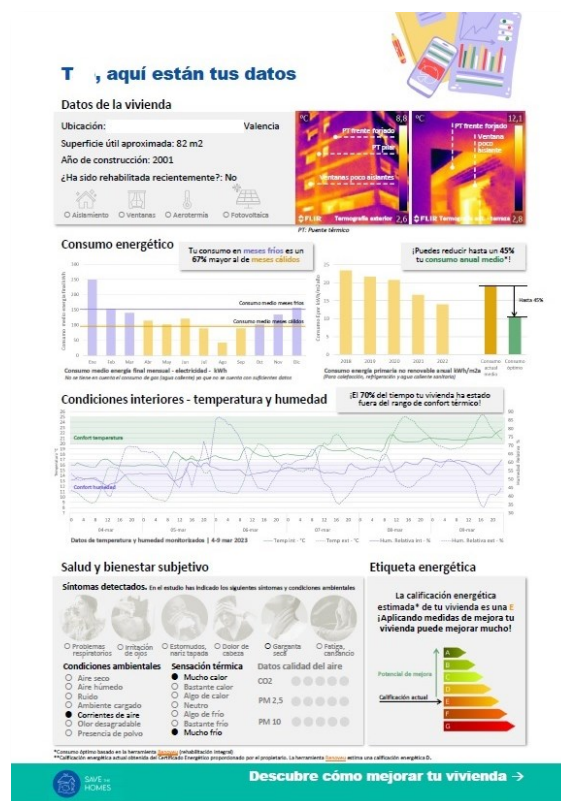


Figure 1. Example of report with the analysis of the monitored data

Habits and measures with no economic cost for energy saving (left) and improve comfort (right):

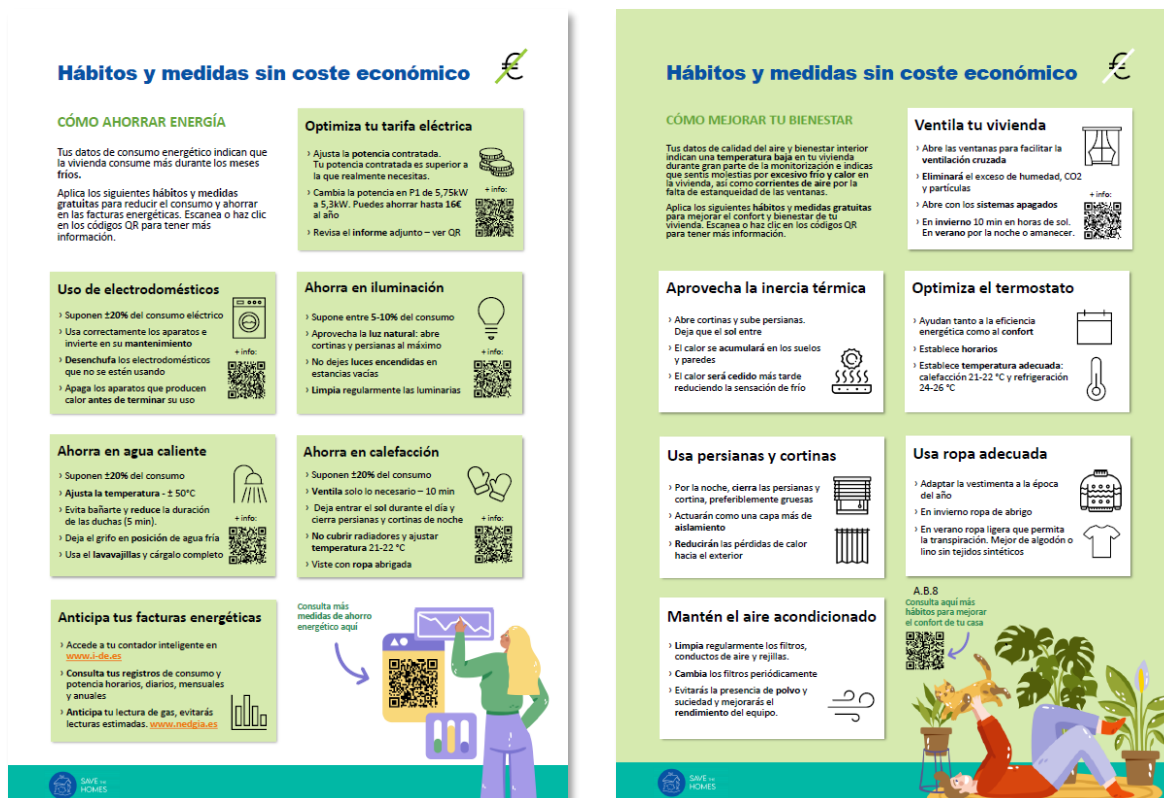


Figure 2. Example of report with the recommendations with no economic cost



Low-cost energy measures for energy saving (left) and improve comfort (right):

Medidas de bajo coste económico

CÓMO AHORRAR ENERGÍA

Tus datos de consumo energético indican que la vivienda consume más durante los meses fríos.

Sigue estas medidas de bajo coste económico para reducir el consumo. Escanea o haz clic en los códigos QR para tener más información.

- Usa sistemas de ahorro eléctrico**
 - Evita consumos no deseados de los aparatos cuando no los estamos utilizando
 - Instala dispositivos de apagado de modo espera, temporizadores, regletas con interruptor y/o control remoto de electrodomésticos.
- Monitoriza tu consumo eléctrico**
 - Además de analizar tu consumo eléctrico en <https://www.dgsi.es/>, instala medidores de consumo eléctrico individual.
 - Esto permite ver que elementos consumen más y detectar malos funcionamientos.
- Usa iluminación eficiente**
 - Instala bombillas led, siempre con etiqueta energética.
 - Prioriza etiqueta energética A, consumen 3 veces menos que una G.
 - Sustituye primero las de mayor uso
 - Usa lámparas solares en zonas de menor requisito de luz (terrazas...)
- Mejora rendimiento refrigeración**
 - Instala compuertas motorizadas para zonificar
 - Instala medidor de consumo
 - Aísla conductos exteriores
 - Protege del sol unidad exterior
 - Instala humidificadores cuando humedad ambiental baja

Consulta más medidas de ahorro energético aquí

Medidas de bajo coste económico

CÓMO MEJORAR TU BIENESTAR

Tus datos de calidad del aire y bienestar interior indican una temperatura baja en tu vivienda durante gran parte de la monitorización e indicas que sientas molestias por excesivo frío y calor en la vivienda, así como corrientes de aire por la falta de estanqueidad de las ventanas.

Aplica las siguientes medidas de bajo coste para mejorar tu bienestar. Escanea o haz clic en los códigos QR para tener más información.

- Mide la calidad del aire**
 - Instala un medidor de calidad del aire que mida mínimo temperatura, humedad y CO2
 - También puede medir nivel de partículas (PM2.5 y PM10) y COV
 - La medición te ayudará a saber cuándo ventilar tu vivienda o si es necesario usar un purificador
- Usa ventilación mecánica**
 - La ventilación mecánica mejora los beneficios de la ventilación natural
 - Filtra el aire de entrada evitando la entrada de partículas, polvo, polen...
 - Mejora el aislamiento acústico
 - Especialmente indicado para personas con asma y/o alergias
- Instala protecciones solares**
 - Las protecciones solares ayudan a evitar el sobrecalentamiento
 - Si no tienes, instala toldos u otras protecciones en las ventanas soleadas
 - Ábrelas antes de que el sol incida sobre las ventanas
- Mejora la estanqueidad**
 - Las infiltraciones generan entrada de ruido, corrientes de aire y ganancias y pérdidas de energía indeseadas
 - Sella la unión ventana y pared y coloca burletes en ventanas
 - Ventila correctamente para evitar condensaciones
- Mejora los vidrios**
 - Coloca láminas de reflexión en los vidrios de las ventanas para absorber y reflejar hasta el 80% del calor.
 - Reducirá la entrada de calor en la vivienda mejorando la sensación térmica
- Aprovecha vegetación**
 - La vegetación regula la temperatura, protege del ruido y purifica el aire mejorando la calidad ambiental
 - El Ficus, la palma areca o el pothos dorado son muy eficaces eliminando toxinas y alérgenos del aire
 - Elige plantas del entorno local y descarta especies invasoras

Consulta aquí más hábitos para mejorar el confort de tu casa

Figure 3. Example of report with the low-cost recommendations

Options of packs for energy renovation with economic investment:

Medidas con inversión económica

REHABILITA TU CASA

Mejorar y rehabilitar tu casa hará que ahorres energía y mejores el confort interior. Te presentamos diferentes opciones de rehabilitación de tu edificio*, el beneficio que supone, su coste económico y las subvenciones disponibles. ¡Elige cual se adapta mejor!

Estado actual de tu edificio

Fuente: www.dgsi.es/
Emisiones de CO2 Edificio actual: D
Consumo de energía* Edificio actual: 85,6 kWh/m² año

16,51 kgCO2/m² año | 85,6 kWh/m² año

*Promotor no renovable para calefacción, refrigeración y agua caliente

Opciones de mejora energética de tu edificio

Actuación envolvente, Cambio equipos, Ventanas + agua caliente, Instalación fotovoltaica, Actuación integral, Envoltura + fotovoltaica, Ventanas + agua + solar, Instalación + fotovoltaica

Actuación integral: ventanas + aislamiento + aerotermia

Emisiones de CO2: 14,5 kgCO2/m² año (Reducción de emisiones: 53%)
Coste por vivienda: 19.452,00€
Subvención estimada: 7.780,80€
Coste final: 11.671,20€

Lea el informe completo y obtenga más información.

Medidas con inversión económica

Las opciones de mejora se refieren a intervenciones o a nivel de edificio* y están ordenadas de menor a mayor reducción en consumo de energía primaria no renovable para calefacción, refrigeración y agua caliente sanitaria (E_{np}). Escanea o haz clic en los códigos QR para leer el informe completo.

- Actuación envolvente**
Emisiones CO₂: 16,5 kgCO₂/m² año (Reducción de emisiones: 16%)
Consumo E_{np}: 85,6 kWh/m² año (Reducción de emisiones: 18%)
Coste total sin subvención: 13.469,80€
Subvención estimada: -0€
Coste final: 13.469,80€
- Instalación fotovoltaica**
Emisiones CO₂: 14,5 kgCO₂/m² año (Reducción de emisiones: 35%)
Consumo E_{np}: 81,4 kWh/m² año (Reducción de emisiones: 39%)
Coste total sin subvención: 3.182,70€
Subvención estimada: -2.275,2€
Coste final: 1.907,50€
- Cambio equipos**
Emisiones CO₂: 16,5 kgCO₂/m² año (Reducción de emisiones: 52%)
Consumo E_{np}: 61,4 kWh/m² año (Reducción de emisiones: 45%)
Coste total sin subvención: 18.713,50€
Subvención estimada: -1.666,0€
Coste final: 17.047,50€
- Ventanas, agua caliente**
Emisiones CO₂: 16,5 kgCO₂/m² año (Reducción de emisiones: 53%)
Consumo E_{np}: 65 kWh/m² año (Reducción de emisiones: 47%)
Coste total sin subvención: 8.359,4€
Subvención estimada: -4.666,0€
Coste final: 3.693,4€
- Envoltura, fotovoltaica**
Emisiones CO₂: 14,5 kgCO₂/m² año (Reducción de emisiones: 55%)
Consumo E_{np}: 61,4 kWh/m² año (Reducción de emisiones: 49%)
Coste total sin subvención: 18.448,50€
Subvención estimada: -18.822,00€
Coste final: 9.626,50€
- Equipos + fotovoltaica**
Emisiones CO₂: 14,5 kgCO₂/m² año (Reducción de emisiones: 93%)
Consumo E_{np}: 61,4 kWh/m² año (Reducción de emisiones: 92%)
Coste total sin subvención: 13.906,21€
Subvención estimada: -11.125,00€
Coste final: 2.781,21€
- Ventanas, agua, fotovol.**
Emisiones CO₂: 14,5 kgCO₂/m² año (Reducción de emisiones: 93%)
Consumo E_{np}: 61,4 kWh/m² año (Reducción de emisiones: 93%)
Coste total sin subvención: 11.982,11€
Subvención estimada: -2.366,00€
Coste final: 9.616,11€
- Integral + fotovoltaica**
Emisiones CO₂: 14,5 kgCO₂/m² año (Reducción de emisiones: 98%)
Consumo E_{np}: 61,4 kWh/m² año (Reducción de emisiones: 98%)
Coste total sin subvención: 28.240,8€
Subvención estimada: -18.900€
Coste final: 9.340,8€

*Si decides intervenir únicamente en tu vivienda, la subvención máxima será de 3.000€ o un 40% del coste de las medidas.

Figure 4. Example of report with energy renovation options

