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## Executive summary

Deliverable 2.2 (with its original title in the grant agreement '*Guidelines to investigate users' perception about EPC scheme*') gives U-CERT project partners responsible for each participant country analysis a set of tools and precise step by step guide how to conduct the necessary ethnographic inquiry of national EPC schemes. Participants had a training in the frame of CM2 how to apply this guide to their circumstances. The synthesis of findings from demo cases will be presented in D2.3 and D5.3.

Deliverable 2.2 is the result of the activities carried out within *Task 2.2. Set up of the analysis of users' perception about EPC schemes* led by IRI UL with support of REHVA, ISSO, IVE, and case studies holders. The due date for deliverable 2.2 is month twelve i.e. End of August 2020.

D2.2 lays the foundation to explore the perception of both groups on the EPCs understandability, usability, reliability, user-friendliness, cost-effectiveness, decision-driving potential etc., through a user-centred approaches. The key idea is to understand the users' perspectives and to include them in making and improving EPC schemes. IRI UL set up the structure for interaction with the different EPCs users' groups. For an EU-wide application clear guidelines and protocols how to conduct basic ethnographic inquiries are given to the case holders.

# 1. Ethnography Guidelines

## Introduction

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The following is a quick guide through a qualitative research model tailored to the needs of the U-CERT project. The model uses several ethnographic methodological approaches. Ethnography is a trademark methodology of anthropology – a discipline focused on understanding explicit and tacit aspects of everyday life of people. The traditional approach is a combination of methods, such as the method of participant observation<sup>1</sup> supplemented by interviews, focus groups, social experiments etc. In relation to U-CERT, these methods can help us better understand the relations between EPC schemes and people's everyday lives, as well as the complex realities and contexts (cultural, political, social, economical etc.) surrounding EPCs.

U-CERT research is goal oriented and has somewhat defined aims. Ethnographic approaches used in the project are a mean of collecting and interpreting feedback and various perspectives of EPC experts and users in order to identify the potentials for development of the next generation user-centred EPC schemes across EU. Specifically, the aim of U-CERT ethnographic research is to obtain meaningful information that will feed into tasks 2.3 and 5.3. We are interested in both present (and implicitly past) standpoints on the state of EPCs (T2.3) and our informant's opinions on possible developments and extensions of the future EPCs, supported by U-CERT services (T5.3).

Below is a list of stakeholders' and users' profiles summarized after the U-CERT project proposal. It is divided in two general categories. All profiles' viewpoints and opinions about EPCs should be credibly covered in the context of the given research framework. For a more in-depth description of individual profiles see the *Catalogue of EPC profiles* in the tools section. It includes short profile descriptions and proposes some key needs and expectations related with potential U-CERT products and services.

### EPC experts

- Scheme and guideline developer
- Public authority representative
- Product manufacturers' representative
- Independent controlling body
- Certification body
- Issuers

### EPC users

- Building owners
- Building occupants/users
- Housing companies
- Public and private investors
- Involved craftsman
- Building professionals
- Building designers, facility managers, commissioners

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<sup>1</sup> Participant observation is a conventional primary method in anthropology related disciplines. In summary, it is a method of interactive observation and qualitative data collection. Researchers take part in the daily activities, rituals, interactions, and events of a group of people they are researching or collaborating with. The result of using the method is a first-hand experience of the relevant contexts and a pool of data that researchers interpret for the specific need of the research later in the process.

Most importantly, we are interested in **needs and expectations** of the above profiles. Collecting and analysing opinions, experiences and ideas related to EPBD and EPCs provides us with valuable pool of information which we can interpret and define **specific barriers** and **possible drivers** for the implementation of the new generation of EPCs. **Perceptions** of what people find “**desirable**” about the idea of EPC schemes, how they judge their “**reliability**” are key. It is important to keep in mind that U-CERT project proposal promotes a vision of new generation of EPC schemes, which should be a complemented and upgraded version of the existing EPC schemes. The new EPCs, in contrast with the existing EPCs, should be superior in aspects of **user-friendliness**, **reliability** and **trustworthiness**, and should be perceived as such by both user as well as the relevant stakeholder groups.

Both WP 2 and 5 of the project aim at delivering baseline knowledge and useful information that will steer and streamline the U-CERT support actions at national level of the involved EU member states. Tasks 5.3 is focused specifically on the end-users' needs and expectations. Special attention should be put on aspects of practical use of EPCs for end-users (owners, users of building etc.). We are interested in how the EPCs are (and could be) functionally related with people's everyday life and which are the potential drivers to achieve this. In other words, we are interested in how to maximize the impact and value potentials of the new generation EPCs on two levels:

- 1) analytical (primarily aimed at informing users about the physical and technical properties of their housing)
- 2) and practical (primarily aimed at encouraging concrete action and decisions for EPB investments).

## Research Structure

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The nature of our research object makes it very hard to conduct participant observation or other time intensive methods of qualitative research. Therefore the U-CERT ethnographic research consists of the following core research activities:

- Interviews** ● Individual conversations aimed at procuring relevant topic-related information. In our case semi-structured interviews with key informants – experts, stakeholders, users.
- Focus groups** ● A facilitated group discussion of individuals whose insights are relevant in the context of the research. In our case profiles representing EPC experts and users.
- Field visits** ● Conscious presence of the research in environments (space) and situations (time) relevant to the research topic. In our case, these could be the locations of interviews (institutions you visit) or relevant events (e.g. meetings of a group of EPC stakeholders).

These activities **must** be accompanied, recorded, and supported by parallel activities/processes and tools (in parenthesis), such as:

- Taking field notes** ● Note key words, thoughts, comments, observations – both of your informants and your own – encountered on the field. You should review, reflect on the conversation and add relevant information to the notes as soon as a research activity is finished.  
(paper/notebook, pen)
- Recording conversations** ● Allows researcher to steer the conversation and extract desired information by enabling focus on the content rather than note taking.  
(smartphone or recorder)
- Collecting visual data** ● Photos of relevant real-life states and situations (e.g. an example of the location/public presentation of an EPC). Also photos or scanned copies of other relevant materials (e.g. annotated materials from a focus group activity).  
(smartphone or camera)
- Records of research activities** ● Keeping written records of research activities, including personal reflections and thoughts, is both a useful source of information for analysis as well as a tool for organising thoughts and ideas.  
(diary/notebook, pen)

You are welcome to use the research structure modularly. This means that the core research activities – interviews, focus groups, field visits – can be done separately in an arbitrary order, depending on availability of informants and other relevant circumstances. For more information on how to prepare and execute **interviews** and **focus groups**, see the tools section below.

## How to: Ethnographic Research

The following section are key guidelines for conducting the ethnographic research. Use it to kick off the organisation process of your U-CERT ethnographic research. You can find more details on how to prepare and execute individual segments of the research in the tools section below.

### 1 Analyse and study • Think about the current situation before you head to the field.

**Study the state of EPC scheme** • Get the basic idea of what and whom you are dealing with before you start making the first contacts.

- Search and read information issued by your national EPC scheme developers and implementers.
- Read RHEVA's article about the U-CERT project. ([H2020 U-CERT project](#))
- Read information available on web pages of the EPB Center (<https://epb.center/>).

**Ask yourself** • before conducting interviews:

What do I know about my case and its contexts?

- What is the current state of EPC scheme in my country?
- How does our national EPC scheme function and what impact does it have, both in theory and in practice?
- What are its historical, political, economic and socio-cultural contexts?
- What is the vision (potential) of future EPC scheme promoted by U-CERT?

Who are my potential informants?

- Who are the key stakeholders in the context of our national EPC scheme?
- Whom do I know that might be willing to help me with the research and/or provide me with relevant contacts?
- What are the issues I am likely to encounter in the field?
- Are there tensions (personal, political, conflicts of interests) between involved individuals and/or institutions?

### 2 Plan accordingly • Prepare a concise research plan based on your analysis.

**Define key informants** • Some informants are likely to give you more relevant information than others.

**Set up a strategy** • In relation to the point above, you might want to interview informants with key knowledge and insights in the second half of your research. This will allow you to practice your research skills (interviewing, note taking etc.), gain a general overview of the state of EPCs and prepare better for key conversations.

**Combine and condense** • Combining research activities, such as field visits and interviews, saves you time and energy. In this respect, good planning, diligent record keeping and clear goals are key for a successful and time-efficient ethnographic research.



### 3 Make the contact • Call around, seek out for contacts of your potential informants.

**Be clear, professional, and humble** • Your top priority should be making your informants realize that you are a researcher, not a “vendor” or “inspector” of some sort. Make it clear that their partaking in the research is both highly appreciated and crucial for the success of U-CERT.

**Be brief and goal oriented** • In person or by phone – the first contact should be in function of arranging an interview. Give your informants time to build trust in you and willingness to cooperate. Present them with concise information about what you are interested in and how/what they can contribute to the project.

### 4 Prepare yourself and go to the field • Good preparations are the key to success.

**Use the tools** • After having made arrangements for the interview, use the tool below to prepare.

! For focus groups, we advise using the tool(s) before making arrangements with your informants.

**Reassure yourself** • Write down the key questions in your notebook, have a final look at the tools, discuss doubts with colleagues or fellow researchers.

! Do not hesitate to contact IRI UL team with any questions or doubts regarding U-CERT research activities.

**Double check before you leave** • Make sure you have everything you need for the planned activity – a notebook, a pen, your telephone (camera and audio recorder) and the necessary forms.

**At the field** • relax, take notes, observe, be curious, and try to enjoy the interaction.

**Avoid confrontation** • All opinions and statements encountered in the field are valuable for you as a piece of information, even if you legitimately perceive them as inaccurate or false. Instead trying to prove your informant wrong, ask questions that will help you understand why they hold such an opinion or belief.

### 5 Analyse and report • Process data, information, impressions and ideas while they are “fresh”.

**Loose no time** • Ideas and impressions fade away. Write a short section about your experience in your fieldwork diary, go through your notes and annotate them if necessary, systemize your materials and do a preliminary analysis.

**Analyse continuously** • Use the SI pilot example as an orientation and start analysing your work from the beginning. This will save you time and effort on the long run as well as help you stay conscious of the results of your work.

! Remember that you can only start your analysis after having done at least one of the necessary U-CERT research activities (an interview or a focus group). Also, we advise that you do your analysis in two steps – firstly your personal analysis, that works best for your reasoning, and secondly using the U-CERT analysis tools, which will ensure better comparability of the research results from all case holders.

**Evaluate your performance** • In relation to the above, think about your performance on the field and the quality of the gathered material. Think what could be done better, where you did well, and which information you are lacking.

- 6 Repeat the process** • Build upon your experience and knowledge acquired in the field and prepare yourself to perform best in the next planned research activity.

## 2. Ethnography Tools

**Interview Guidelines** • A few guidelines for conducting interviews.

**Focus Group Guidelines** • A short how-to guide for facilitated group discussions.

**Interview-analysis scheme** • A separate document. The master scheme for effective cumulative research analysis.

**Catalogue of EPC profiles** • A separate (reference) document (D5.3). Functions as a tool to define expectations and needs for individual EPC profiles

### 3. Interview Guidelines

The first section of Interview guidelines is a **set of general contextual questions and considerations**, which we suggest to include in your preparations before conducting any research activities. These should serve as an orientation for the researcher to build his own understanding of the research topic using literature, internet, relevant documentation and other reliable resources.

The second section focuses on **key topics** and the interaction with informants. If necessary, researcher should form their own set of questions for each individual interview depending on where, why, and who they will be talking to. We suggest they prepare for each interaction (interview or focus group) individually, considering who their informant is in relation to the Catalogue of EPC profiles. Most importantly, you should have an idea what kind of relevant information you can procure from the interaction.

The third and fourth sections focus on the **practical and formal aspects** of conducting an interview – guidelines on how to act as a researcher and what to do/take on the field.

#### Contextual questions and considerations

**Status of EPC scheme** • Points of interests related to the broad context of the project, including social, economic, geographical, historic and demographic factors.

**What do you know about the state of EPC scheme in your country?**

- What is the purpose of EPCs?
- When was the scheme implemented?
- Who implemented it and why/what for?

**How does the EPC scheme function in practice?**

- Does it have an impact?
- What is the general opinion about it?
- How is it present in everyday lives of people?

**How are political, technical, social and economic contexts of first generation EPC scheme relevant for the development of the new generation scheme and U-CERT solutions?**

**EPC experts and users** • Use this section in combination with the Catalogue of EPC profiles.

**Who supports and who is against further development of EPC schemes?**

- Who has the power and influence in the process?
- What are the motives and interests behind their agenda?
- Are there patterns you can observe? Consider financial motives, political affiliations, personal believes, age, gender, social status, etc.

**Think about the relations between different actors involved?**

- What defines them and how would you characterize them?
- Can you observe any type of formal or informal hierarchies (power relations)?
- How do they communicate – exchange information and opinions, seek common ground on relevant issues etc.? If they do not – why?
- Are the relations official, professional, personal, ideological, political or any other?
- How do these relations reflect in EPC related contexts, processes and results?

## Key topics

### EPC status (past & present)

- What is an EPC?
- What is its purpose?
- Relation of theory and practice?
- How did the EPC emerge and evolved through time?
- What are its strong points? What are its weak points?

### User-friendliness • What makes/would make the EPCs...

- User-friendly?
- Desirable?
- Easily accessible?
- Understandable?
- Practical?
- Useful?
- Interesting and interactive?

### Quality • What makes/would make the EPCs...

- Reliable?
- Credible?
- Holistic?
- How could we integrate the concept of Smart Readiness Indicator with EPCs meaningfully?

### Cost-effectiveness

- What makes/would make the EPCs more cost-effective?
- Are there potentials for approaches and business models for energy certification and related services?
- How do/could EPCs instil trust in the market of related products and services?
- How do/could EPCs effectively promote and support actions for lower energy use?

### Wide base support

- How can we maximize support from all EPCs related actors?

### EU-comparable

- What are the potentials and necessary actions to maximize useful and meaningful comparison of EU-wide EPCs?

## Practical guidelines

**Know who you are talking to** • U-CERT requires you to discuss relatively particular expert topics. Always make sure you know who your informants are, how much they might know about the particular research topic, and be prepared to be very brief and to the point. High-ranking officials and experts are likely to have little time to spare and will not be interested in a broad general discussions.

**Be polite and patient** • Questions we ask our informants might be clear and self-evident to us but not to the person we are talking to/interviewing.

**Get them interested** • Try to frame the interviews in a way that informants find a bit of themselves in the conversation and that it will resonate with their beliefs, wants and hopes. Give them a brief preview of the research aims and stress the relevance of their role within it.

**Ask general questions, seek for specific information** • If possible, do not stick (exclusively) to a strict set of questions but try to pitch a field for a meaningful discussion. Many times specific information we seek will emerge as part of a coherent discussion, which will enable us to understand and interpret them better.

**Take time for discussion** • Deviations from the topic and discussing particular points in detail can be highly valuable even with structured interviews. Such moments of “discussion” often turn out to be a source of meaningful information relevant to our research, enabling us to understand the broader context of our informants’ answers.

**Keep track of time and flow of the interview** • Keep track of time and the content of information you have exchanged throughout the interview. If you have limited time, make sure you get all the information you need. If you have unlimited time, make sure you do not exhaust your informant and waste their willingness to participate further in the research.

**Avoid suggestive/biased questions – let your informants develop their thoughts** • Set the direction of the conversation and try not to influence the answers with suggestive remarks or responses. Do show, however, that you are interested in what your informants are saying.

**Do not rush from one question to another** • If you get an idea for a further question while your informant is speaking, jot it down in your notebook for later reference.

**Take notes** • The key is to *understand* the content of the conversation, not to write down the exact sentence structure. Try to record the conversation (the default smartphone voice recorder will normally suffice) and use your notebook to keep track of your thoughts.

## Formalities

**Briefly present U-CERT project** • Tell your informants something about the project and explain how your interview fits in this context, why it is relevant and valuable, and how you are planning to meaningfully use the information they share with you.

**Ask kindly to record the conversation** • Recording the conversation will allow you to maintain contact with your informant. Excessive note taking can diverge your focus. It also enables you to review certain parts of the interview you might have missed or misunderstood during the conversation. Ask your informant kindly if you can record the conversation. Reassure them that it is exclusively for your needs, that the recording will not be shared or published and that all information are strictly anonymized and securely stored. We advise to ask for permission at the beginning of the interview, after having explained your aims and project related interests.

**Ask the informant for a written consent (GDPR form; see Appendix 3) AT THE END of the interview** • Build trust through the conversation first, only then ask for consent. Written consent is a due formality. However, if we ask our informants to sign it before they are familiar with the content of the interview, we might evoke negative emotions.

## 4. Focus Group Guidelines

Focus groups (FG) are a great tool to gather large quantity of useful information from our informants. For particular needs of U-CERT, we suggest using the FG method to collect concrete feedback about the EPCs – their usefulness, informative qualities, and potentials for improvement. The aim is to encourage participant to share opinions, experiences and discuss different viewpoints. At the end of the U-CERT FG, you should have a better general insight into how relevant EPC actors perceive the EPC scheme. In addition, you should have a better idea of what the impact of the existing national EPC scheme has in practice. The results of the FG are expected to feed into the D2.3 and D5.3 analysis, similarly as results of interviews.

The first section focuses on **participant recruitment**. It gives some practical guidelines based on the Slovenian (SI) case study. The second focuses on **practical guidelines** for FG preparations. The third section is a **content summary** of suggested FG activities. The guidelines build on experiences from the SI pilot research. We advise tailoring the presented FG model to the specific needs and contexts of your research. Do not hesitate to contact IRI UL with any further queries regarding the U-CERT ethnographic research.



Picture 1: Focus group participants in action.

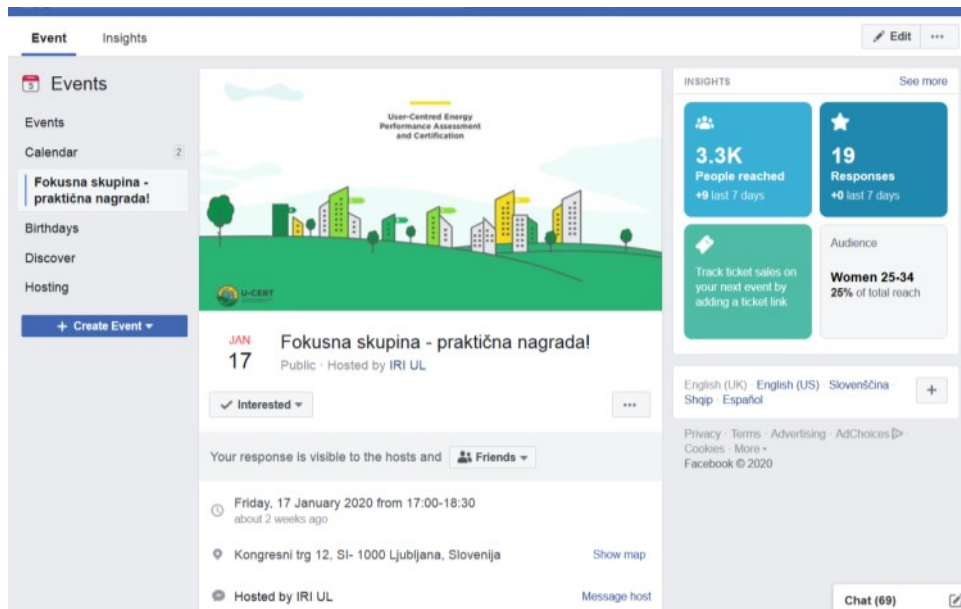
## Participant recruitment

### Who?

- Try recruiting individuals who – at least in theory – had already been in contact with EPCs and will be able to provide you with relevant input.
  - In SI case we focused specifically on individuals who bought or sold their house/housing unit in the last 5 years, which implies they should have had paid for EPC services (when selling) or consulted the EPC of their new home (when buying).
- Use the FG to gather input from general users – individuals who have little or no background in EPC related expertise.
- Arrange for a minimum of 4 and maximum of 8 participants.

### How?

- Set up an official recruitment campaign and use your networks to promote the activity.
  - SI campaign was based on a Facebook event (see Appendix 1). It was published on IRI UL Facebook page and then communicated using various channels – twitter account, mailing lists, and telephone calls. The latter was by far the most efficient way to effectively promote the activity.
- Consult your informants about the most appropriate time for the activity.
  - We used the platform Doodle survey (<https://doodle.com>), which we sent to the first couple of willing participants. The most convenient time for them turned out to be Friday 17:00.
- Recruitment should start 4 to 2 weeks before the scheduled activity.
- Offer a reward as a compensation of their input.
  - In SI case, we offered a paper notebook and a 20 EUR convenience store gift card.



Picture 2: A screenshot of the Slovenian Facebook campaign for focus group participants.



## Practical guidelines

### How?

- Preparations and analysis of the FG activity should not take more than 1 workday (8h).
- The duration of FG should not exceed 90 minutes.
- Facilitating the debate is key – be communicative, open to accept and inspect opposing viewpoints.
- Prepare a set of questions/topics you would like to discuss and prepare activities that will ensure useful results.
  - The content summary below draws upon the SI pilot case FG. If necessary, adapt the content of the FG to your contexts and needs.
- Find a space, ideally a quiet and comfortable room where you will be able to have an uninterrupted conversation with the participants.
- The activities should be carried out in participants' native language.
- Audio record the full conversation (for example with your smartphone or any other appropriate audio recording device). Explain the participants that the recordings are exclusively for your personal needs and that all the information used in the analysis is strictly anonymous.
- Have the participants sign the informed consent.
- Take photos of the activities.

## What?

### FG Structure

1. Introduction (10 min)
2. Opening activity (15 min)
3. Core activity I. (20 min)
4. Core activity II. (20 min)
5. Reflections and comments (15 min)
6. Conclusion (10 min)

### Necessities

- An adequate space
- Snacks and drinks for participants
- Notebook with questions
- Smart phone (and camera)
- GDPR forms (printed)
- Examples of EPC (printed copies)
- Post-its and paper for participants
- Pens and markers
- Whiteboard/paperboard
- A watch or clock
- Gifts for participants

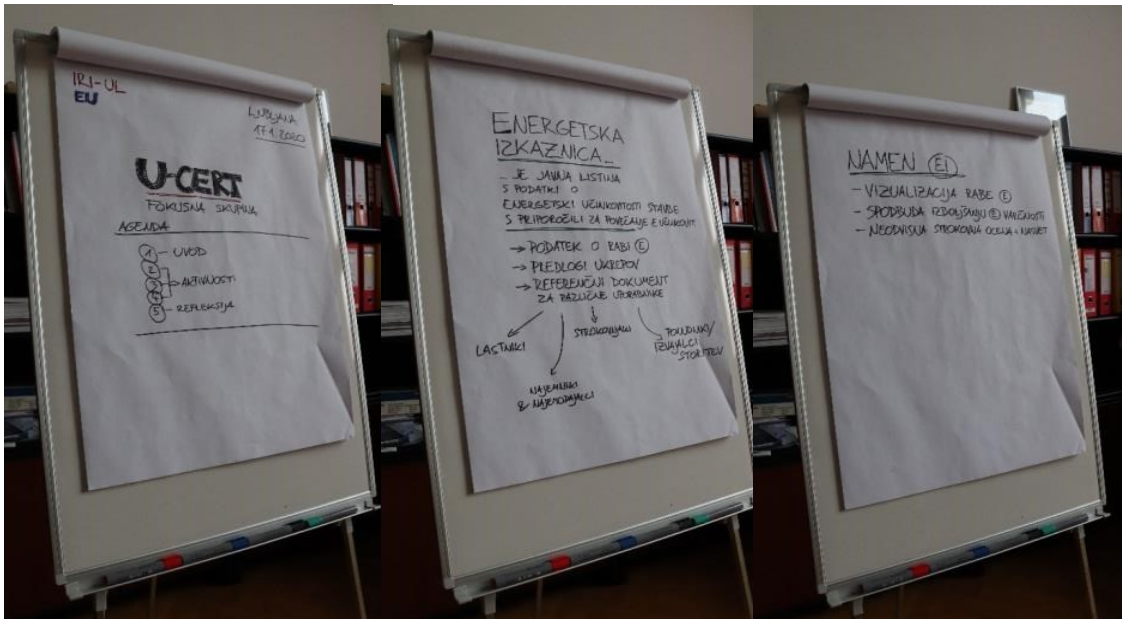


Picture 3: Necessities for a Focus group.

## Content summary

### 1. Introduction

- Have participants of the focus group introduce themselves briefly.
  - E.g. who are they and a short description of their housing situation.
  - Set an example and be the first to present themselves.



- Briefly present the objectives of the U-CERT project.
- Present the purpose of the focus group.
  - E.g. “understanding the user viewpoints on EPCs and related topics”.
  - Establish at the beginning that this is an exercise of discussion, not “a quiz” with false and correct answers.
- Present the structure and timeframe of the FG.

Pictures 4, 5 and 6: White board use for focus groups.

### 2. The opening activity

**Activity** • Participants rank housing qualities (see Picture 7) in a hierarchical order from most important (top) to least important (bottom).

**Aim** • A simple activity to give context and prepare the grounds for discussion. Observe how people correlate energy performance/efficiency with other attributes and characteristics of housing. Give participants 5 minutes to rank the qualities before starting the discussion.

**Time** • max. 15 minutes

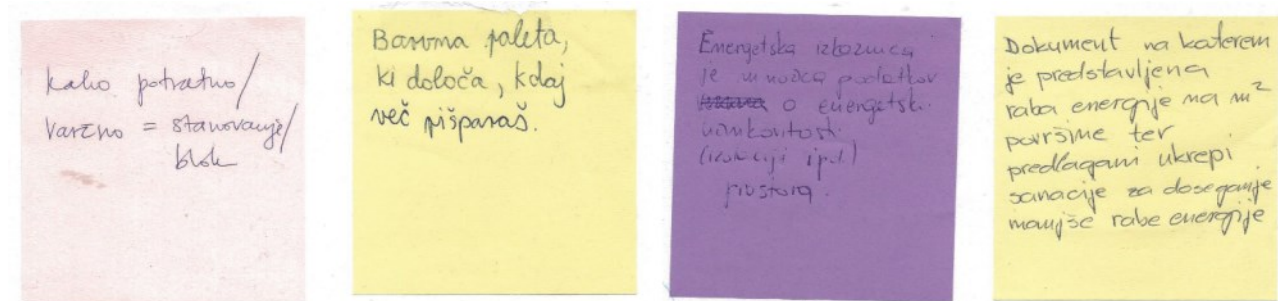


Picture 7: FG participant arranging attributes in hierarchical order.

**Necessities** • 1 set of qualities per participant (see Appendix 2) camera, pens.

**Discussion** • Ask for volunteers to present which qualities they have put in the top 3 and to briefly explain their decision. Then ask them how they ranked energy efficiency of their housing. Try to facilitate a discussion on people's perceptions of energy performance of buildings in the broad contextual field people's needs and expectations for quality housing.

**Reality-check activity** • Before moving on to the core activities and explaining EPCs in detail, ask participants to write down their personal definition of an EPC on a piece of paper or a Post-it. Have them hand their definitions in and keep them until the final phase of the FG. At the group reflection exercise, compare their definitions with an expert definition of an EPC. Use this as a tool to facilitate a discussion about whether or not does the existing EPCs have an impact they are supposed to have regarding theory.



Picture 8: Post-its with participants' definitions of EPCs.

### 3. The core activity I.

**Activity** • Participants reflect on the analytical information offered in an EPC.

**Aim** • Hand out examples of EPCs to each participant. Have them read the analytical part of the EPC carefully and annotate (directly onto the copies) what they find interesting and useful, as well as unnecessary, hard or impossible to understand. Give them 5 minutes for individual work, 5 minutes for discussion in pairs and then do up to 10 minutes of group discussion.

**Time** • max. 20 minutes

**Necessities** • 1 copy of an EPC per participant (random examples, different for each participant), camera, pens, markers, paper and/or post-its.

**Discussion** • Ask a pair of participants to present the positive (strong) elements of EPCs they have discussed. Then have another pair present the negative (weak) elements of EPCs. Try to facilitate a discussion about what participants generally perceive as negative and what as positive. Also try to steer the conversation into a direction of what should and could be made better.

## 4. The core activity II.

**Activity** • Participants reflect on the practical information (proposed measures, the EPC issuer's case specific comment on potentials for building performance enhancement) offered in an EPC.

**Aim** • Have participants to repeat the exercise and now read the practical information given by EPCs. Again, have them annotate what they find interesting and useful, as well as unnecessary, hard or impossible to understand. Give them 5 minutes for individual work, 5 minutes for discussion in pairs and then do up to 10 minutes of group discussion.

**Time** • max. 20 minutes

**Necessities** • same as previous activity.

**Discussion** • As with previous activity, ask a pair of participants to present the positive (strong) elements they have discussed. Then have another pair present the negative (weak) elements of EPCs. Facilitate a discussion.



**Picture 9: FG participants discussing and annotating EPC examples.**



### ENERGETSKA IZKAZNICA STAVBE

**Podatki o stavbi**  
Št. izkaznice: 2015-281-268-25632 Velja do: 17.08.2025

**Vrsta izkaznice: računska**  
Vrsta stavbe: stanovanjska  
Naziv stavbe: Prula 1, 61000, 701

Identifikacijska oznaka stavbe, posameznega dela ali delov stavbe: katastrska občina 2677 številka stavbe 78 del stavbe 1  
Klasifikacija stavbe: 1122103  
Leto izgradnje: 1962  
Naslov stavbe: Prula 1, Ljubljana  
Kondicionirana površina stavbe A<sub>1</sub> (m<sup>2</sup>): 50  
Parcelna št.: 1337  
Katastrska občina: PRULE

**Potrebna toplota za ogrevanje**  
Razred C 45 kWh/m<sup>2</sup>a

**Dovodena energija za delovanje stavbe**  
85 kWh/m<sup>2</sup>a

**Primarna energija in Emisije CO<sub>2</sub>**  
150 kWh/m<sup>2</sup>a  
30 kg/m<sup>2</sup>a

**Izdajatelj**  
EVES, Sabina Zaja, s.p. (281)  
Ime in podpis odgovorne osebe: Sabina Zaja  
Datum izdaje: 18.08.2015

**Izdovalec**  
Sabina Zaja (268)  
Ime in podpis: Sabina Zaja  
Datum izdaje: 18.08.2015

### ENERGETSKA IZKAZNICA STAVBE

**Podatki o stavbi**  
Št. izkaznice: 2015-281-268-25632 Velja do: 17.08.2025

**Vrsta izkaznice: računska**  
Vrsta stavbe: stanovanjska

**Podatki o velikosti stavbe**

Kondicionirana prostornina stavbe V <sub>1</sub> (m <sup>3</sup> )	190
Colna zunanja površina stavbe A (m <sup>2</sup> )	229
Iaktor oblike f <sub>v</sub> =AV <sub>1</sub> (m <sup>-1</sup> )	1,21
Koordinati stavbe (X,Y):	100031, 462248

**Klimatski podatki**  
Povprečna letna temperatura T<sub>ext,ref</sub>: 9,7

**Dovodena energija za delovanje stavbe**

Dovodena energija za delovanje stavbe kWh/a	Dovodena energija kWh/m <sup>2</sup> a
Ogrevanje Q <sub>h</sub>	2.257 46
Hlajenje Q <sub>c</sub>	0 0
Prezračevanje Q <sub>h</sub>	0 0
Ovraževanje Q <sub>c</sub>	0 0
Priprava tople vode Q <sub>hw</sub>	1.746 35
Razsvetljava Q <sub>el</sub>	186 4
Električna energija Q <sub>el,net</sub>	40 1
<b>Skupaj dovedena energija za delovanje stavbe</b>	<b>4.228 85</b>

**Struktura rabe celotne energije za delovanje stavbe po vrsti energije in energetih (kWh/a)**

Obnovljiva energija poročena na stavbi (kWh/a)	0
Primarna energija za delovanje stavbe (kWh/a)	7.411
Emisije CO <sub>2</sub> (kg/a)	1.496

**Struktura rabe celotne energije za delovanje stavbe po vrsti energije in energetih (kWh/a)**

Zemeljski plin - 2256 kWh/a (53%)
Električna - 1971 kWh/a (47%)

### ENERGETSKA IZKAZNICA STAVBE

**Podatki o stavbi**  
Št. izkaznice: 2015-281-268-25632 Velja do: 17.08.2025

**Priporočila za stroškovne učinkovite izboljšave energetske učinkovitosti**

**Ukrepi za izboljšanje kakovosti ovojne stavbe**

- Toplotna zaščita zunanji sten
- Toplotna zaščita stropa proti podstrežju
- Toplotna zaščita strehe-stropa v mansardi
- Menjava oken
- Menjava zasteklitve
- Toplotna zaščita stropa nad kletjo
- Odprava transmisivskih toplotnih mostov
- Odprava konvektivskih toplotnih mostov in izboljšanje zrakotesnosti

**Ukrepi za izboljšanje energetske učinkovitosti sistemov KGH**

- Toplotna zaščita razvoda v nekonkondicioniranih prostorih
- Vgradnja nadzornega sistema za upravljanje s toplotnimi pritoki
- Prilagoditev moči sistema za pripravo toplote dejanskim potrebam po toploti
- Vgradnja črpalke z zvezno regulacijo
- Hidravlično uravnoteženje ogrevalnega sistema
- Rekipracija toplote
- Prilagoditev kapacitete prezračevalnega sistema dejanskim potrebam
- Optimiranje časa obratovanja
- Prilagoditev hladilne moči z izgradnjo hladilnika ledu
- Priklon na daljinsko ogrevanje ali hlajenje
- Optimiranje zagotavljanja dnevne svetlobe

**Ukrepi za povečanje izrabe obnovljivih virov energije**

- Vgradnja sistema GSE za pripravo tople vode
- Vgradnja fotovoltaičnih celic
- Ogrevanje na biomaso
- Prehod na geotermalne energije

**Organizacijski ukrepi**

- Ugašanje luči, ko so prostori nezasedeni
- Analiza tarifnega sistema
- Energetski pregled stavbe

**Opozorilo**  
Nasveti so generični, oblikovani na podlagi ogleda stanja, rabe energije in izkušenj iz podobnih stavb.

### ENERGETSKA IZKAZNICA STAVBE

**Podatki o stavbi**  
Št. izkaznice: 2015-281-268-25632 Velja do: 17.08.2025

**Vrsta izkaznice: računska**  
Vrsta stavbe: stanovanjska

**Komentar in posebni robni pogoji**

Izdelana je energetska izkaznica za stanovanje v večstanovanjskem bloku na Prulah 1 v Ljubljani.

Stanovanjski blok je bil zgrajen v letu 1962. Ogrevanje je na zemeljski plin. Moč skupne plinske kotlovnice, ki se nahaja v klet objekta na Prulah 1 je 2x 110kW (2 nizotemperaturna kotala Buderus, gornik Vitosmart) in ogreva 2204 m<sup>2</sup> stanovanjskih površin (ogrevanje kotali sosednjega bloka na Prulah 3). Plin izračuna moči za ogrevanje stanovanja je upoštevan sorazmerni delež, ki znaša 4,94 kW.

Med leti 2005 in 2013 so se na objektu menjavala okna in obnovljena je bila fasada v letu 2013, 2014. Na oprežno konstrukcijo je bilo dodano 15 cm toplotne izolacije, zamenjana so tudi okna (PVC okvirji v beli barvi, zasteklitve je izolacijska 4/16i, Ukoef=1,3). Stanovanje se nahaja v 1. nadstropju, dve steni stanovanja sta zunanji (JV in JZ). Med stanovanjem in neogrevanim stropičnem spojevalnem adalutabno razmerje, predpostavljamo, da temperatura stropične ne odstopa več kot za 4 stopinje od temperature stanovanja.

Potrebna toplota za ogrevanje stanovanja uvršča stanovanje v razred C. Poseg v toplotni ovoj stavbe je bil že izveden in je tudi usklajen z zahtevami po toplotni prehodnosti zunanjih sten.

Kot nadaljnji energetske učinkovite ukrepe predlagamo hidravlično uravnoteženje sistema in pa razmislek o rekonstrukciji kotlovnice v prihodnosti (nizotemperaturni plinski kotali so iz leta 2005 oz. starejši).

Skladno z Direktivo 2010/31/EU - priloga 1 se stavbe razvrsti v kategorijo: Stanovanjski blok

**-**

- nejasnost informacij npr. stavba na e.i.
- potrebna razlaga določitev pojmov in skelketov

**+**

- jasnosti in hibidnosti
- učinkovitost
- pridobilo stanje učinkovitosti

Več informacij lahko pridobite na spletnem naslovu: <http://www.energetika-portat.si/podrocja/energetika/energetska-izkaznica-stavb/>  
Prebrskaj o učinkoviti rabi energije v stavbah (PURES).

Koeficient specifičnih toplotnih izgub - H <sub>tr</sub>	dovoljeno 0,37 W/m <sup>2</sup> K	dejansko 0,16 W/m <sup>2</sup> K
Letna potrebna toplota za ogrevanje - Q <sub>h</sub>	75 kWh/m <sup>2</sup> a	45 kWh/m <sup>2</sup> a
Letni potrebni hlad za hlajenje - Q <sub>c</sub>	50 kWh/m <sup>2</sup> a	0 kWh/m <sup>2</sup> a
Letna primarna energija - Q <sub>p</sub>	233 kWh/m <sup>2</sup> a	150 kWh/m <sup>2</sup> a

Picture 10: An example of an annotated EPC; SI focus group.

## 5. Reflections and comments

**Activity** • Clarify specific questions and reflect on the outcome of the activities.

**Aim** • This is the last chance to get specific answers and feedback from your informants. If there were questions you did not have a chance to ask or appeared in an inappropriate moment for discussion, this is the time to seek for answers. This is also a chance to reflect on the balance between theory and practice of EPCs (see the Reality-check activity above).

**Time** • max. 15 minutes

**Necessities** • whiteboard or paperboard, markers, your personal notes.

**Discussion** • We suggest asking a relevant open question (e.g. What is your opinion about EPCs after having read one closely? Do they serve their purpose?) and let participants speak when they are ready. Try to facilitate a discussion and to include everyone present.

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**Sum-up exercise** • Before conclusion, ask the participants to write down up to three strong points of the EPCs and up to three negative ones. Have them hand it over together with the annotated examples of EPCs they were using during the activities.

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## 6. Conclusion

- Thank the participants for their time and contribution.
- Invite them to keep track of U-CERT project through the notice board of your institute/-ion or via the official U-CERT channels.
- Make sure they sign the informed consent!
- Hand out the gifts and say goodbye!

## 5. Appendix List

**Appendix 1** • An example of a Facebook event text, Slovenian pilot case.

**Appendix 2** • A double set of housing attributes for focus group activities (print version).

**Appendix 3** • Informed consent – GDPR form – for participants in the research (print version).



## Appendix 1

Country/case specific information are marked with **yellow!**

### FOCUS GROUP – PRACTICAL REWARD!

Discovering pathways to sustainable futures?

### PARTICIPATE IN A FOCUS GROUP!

\*\*\* **Only 3 places left available!** \*\*\*

What is the quality of your living environment?

What are Energy performance certificates and what is their purpose?

What is the future of healthy and efficient energy use in buildings?

Join us in search of answers and contribute to the development of a new generation of energy performance certificates. The focus group will last max. 90 minutes and participants get a generous PRACTICAL REWARD.

\*\*\* What if I don't know the answers to the stated questions? \*\*\*

No worries! There are no right or wrong answers. Our focus group is a group discussion on a topic of Energy performance certificates and efficient energy use in buildings. What matters is your participation.

\*\*\* Who can participate? \*\*\*

**Those who bought or sold their house or apartment have priority.** However, we will consider all applications, especially if you are particularly interested in the topic.

\*\*\* Where and when? \*\*\*

The focus group will take place at **IRI UL's head office (Kongresni trg 12, 1000 Ljubljana) on FRIDAY 17<sup>th</sup> of January 2020, 17:00.**

\*\*\* How do I apply? \*\*\*

Apply via --- **ucert.fs@gmail.com** --- or call **040 \*\*\* 080**. **Send us your name, surname, contact information and note if you have bought or sold a house or an apartment in the last 5 years.**

Read more about the U-CERT project on our **IRI UL website (<http://iri.uni-lj.si/projekt-u-cert-razvoj-nove-generacije-energetskih-izkaznic/>)**. We thank you for your willingness for cooperation in advance. Feel free to share the event with your friends and family.

**Happy and successful year 2020!**

**Appendix 2** • Printable version in a separate document.

<b>Accessibility of water and waste management services</b> (water, sewage, waste)	<b>Accessibility of water and waste management services</b> (water, sewage, waste)
<b>Other</b>	<b>Other</b>
<b>Energy efficiency</b>	<b>Energy efficiency</b>
<b>Physical characteristics</b> (interior, distribution of space etc.)	<b>Physical characteristics</b> (interior, distribution of space etc.)
<b>Ownership</b> (ownership freedoms, investment)	<b>Ownership</b> (ownership freedoms, investment)
<b>Location</b> (proximity to work/office, friends, family etc.)	<b>Location</b> (proximity to work/office, friends, family etc.)
<b>The characteristics of the surroundings</b> (shops, public transport, schools, kindergartens, parks etc.)	<b>The characteristics of the surroundings</b> (shops, public transport, schools, kindergartens, parks etc.)
<b>Tenant status</b> (freedom of mobility, less maintenance responsibilities)	<b>Tenant status</b> (freedom of mobility, less maintenance responsibilities)
<b>The added qualities</b> (garden, garage, bike-shed)	<b>The added qualities</b> (garden, garage, bike-shed)
<b>Financial accessibility</b>	<b>Financial accessibility</b>
<b>Security</b>	<b>Security</b>
<b>Size</b>	<b>Size</b>
<b>Being part of the local community</b> (socio-cultural context)	<b>Being part of the local community</b> (socio-cultural context)

**Appendix 3** • Printable version in a separate document.

## **Informed Consent for participating in the study:**

### ***“U-CERT – development of a new generation Energy Performance Certificates”***

Dear Madam/Sir!

You have been invited to participate in a research, which is part of an international interdisciplinary project U-CERT H2020 focused on developing a new generation energy performance certificates (EPC) financed by the EU.

#### *General Information*

The information on this page is intended to help you understand exactly what we are asking of you so that you can decide whether or not you would like to participate in this study. If you decide not to participate, it will not be held against you in any way. You may exit out of the study at any time.

#### *Study purpose*

The purpose of this study in the frame of U-CERT project is to support the implementation of Energy Performance of Buildings Directive issued by the EU. In accordance with the directive all EU member states established independent systems for certification of energy efficiency, supported by independent mechanisms of inspection and quality control. As the existing practices and tools for evaluation and certification of energy efficiency in EU are very diverse, member states face numerous challenges. In this regard, the purpose of U-CERT project is to upgrade and improve the concept of energy certification across the EU.

Our vantage point are experiences and understanding of processes of implementation of the current generation EPC as well as its use and impact. We put special attention on aspects, such as reliability, user-friendliness, cost-effectiveness, and what is more, EPCs have to be of comparable quality and legally compliant across the EU. With the information acquired through our research we will be able to incentivize goal-oriented development and the implementation of the new generation EPCs, which will serve both users and their initial purpose better – decreasing energy use in buildings, enabling higher quality living and general overview of housing stock quality across the EU.

#### *Privacy and confidentiality*

Your participation in this survey is completely voluntary, your anonymity is assured and your responses will only be used for research purposes. Your answers will be kept confidential and your identity protected (not revealing any of your personal information to public). All data will be transmitted by a secure, encrypted internet connection and stored in a password protected file. We acknowledge that this study satisfies the criteria of national and EU regulation, also concerning General Data Protection Regulation (GDPR).

#### *Potential harms / benefits*

There are no known harms associated with your participation in this research.

Thank you in advance for your time and cooperation. Please be honest with your answers. Your responses are extremely valuable for our research! If you have any questions, please do not hesitate to ask.

*Informed consent for participating in the study*

I have been informed about the study, I have read the written information. I have received the opportunity to ask questions. I have received the opportunity to consider my participation in the study. I have the right to withdraw my consent at any time, without giving a specific reason.

I consent with participating in the study and give permission to use the data for research purposes as described in the information letter.

I give permission to save the data up to 15 years after the research has finished.

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

Signee, responsible researcher, declares that the abovementioned person has been informed about the study both orally and by written text.

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_



**U-CERT**

User-Centred Energy Performance Assessment and Certification



**OUR TEAM**



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