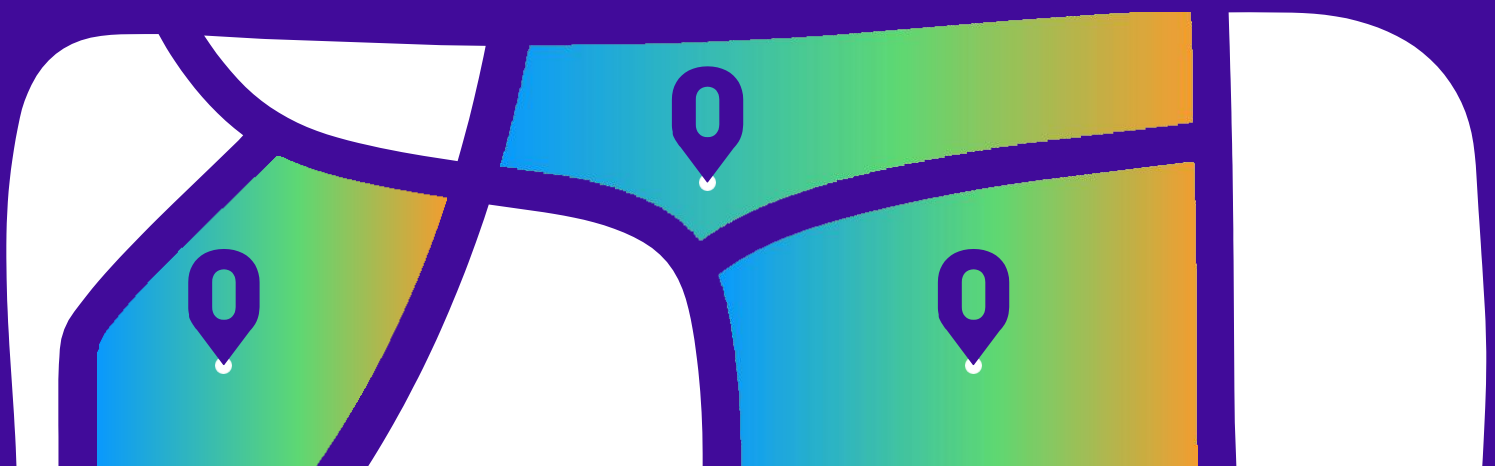
D1.5: Evaluation: Assessment of the overall performance

WP1 Integrated renovation methodology and the implementation in a neighbourhood in Ermua City

Sep 2025



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About the drOp project

Digitally enabled social district renovation processes for age-friendly environments driving social innovation and local economic development (LED), or drOp, is a Horizon Europe project. As the name shows, the core ambition of the project is the development of an integrated renovation methodology (IRM) aiming to transform social housing districts into inclusive smart neighbourhoods. It mainly aims to promote social innovation and boost the local economy, and with that purpose drOp will adopt a human-centred approach, will integrate innovative technologies, and will explore the growth creation potential of cultural and creative industries.

The end purpose is to create an integrated renovation methodology, which will be modelled through a case study in the Santa Ana neighbourhood in Ermua, Spain. Two peer cities will contribute to these efforts: Matera (Italy) with its expertise of a former European Capital of Culture (2019), and Elva (Estonia), as a digitally advanced city. The process of co-creation, meaning the active involvement of the neighbourhood's citizens, will be an important element in the development of the IRM.

Executive summary

The purpose of this document is to present the evaluation of the integration of the IRM methodology. This document encompasses both the design and development of the assessment framework, as well as a detailed description of the results obtained. To conduct this evaluation, the model established in Deliverable 1.4: *"KPI Definition and Evaluation Model"* is followed.

Based on this model, the deliverable presents the evaluation results across three main dimensions: performance, acceptance, and usage. Additionally, the document outlines the means for data collection, processing, and analysis, ensuring a comprehensive assessment of the methodology's implementation.

Furthermore, the document includes a section on lessons learned and next steps, providing a foundation for the continuous improvement of the evaluation and implementation process of the IRM methodology.

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1. Introduction

The primary objective of this study is to present the results of an evaluation conducted on the impact and performance of applying the Integrated Renovation Methodology (IRM) within the Santa Ana neighbourhood. This evaluation focuses on assessing the methodology's contribution to transforming the neighbourhood into an inclusive, smart, and sustainable community.

The evaluation is grounded in the model outlined in Deliverable 1.4: KPIs Definition and Evaluation, which provides a structured framework for systematically analysing the performance, acceptance, and practical usage of the IRM, and the baseline presented in it.

Thus, this deliverable outlines the conceptualization, design, and development of methodological tools specifically tailored for the collection of data related to performance, acceptance and usage. Furthermore, the deliverable includes the results obtained and an in-depth analysis of the collected data.

Beyond the evaluation, this study aims to provide a comprehensive understanding of the IRM's effectiveness and its applicability in achieving the intended goals. It seeks to offer actionable insights and evidence-based conclusions that not only validate the methodology but also support its broader adoption across diverse contexts.

This deliverable is the fifth report of the WP1 and It is structured as follows:

- **Chapter 2** presents the IRM evaluation model.
- **Chapter 3** outlines the baseline from which the project starts.
- **Chapter 4** describes the data collection methods and results related to performance.
- **Chapter 5** presents the data collection methods and results concerning usage.
- **Chapter 6** details the data collection methods and results regarding acceptance.
- **Chapter 7** provides the conclusions and discussion.

2. IRM Evaluation model

Deliverable 1.4 presents the evaluation model designed to analyse the impact of the IRM methodology across three dimensions: performance, acceptance, and social aspects.

The performance dimension examines how effectively the IRM methodology achieves its intended objectives and delivers the desired outcomes. This involves evaluating the methodology's efficiency, effectiveness, and overall success using quantitative data to enable objective measurements. To operationalize this assessment, the model incorporates 20 Key Performance Indicators (KPIs) categorized into four sections: social innovation, participation, economic local development, and digitalization. Additionally, it includes the Smart Readiness Indicator (SRI), a standardized EU framework for rating the smart readiness of buildings.

The acceptance dimension assesses the extent to which the IRM methodology is recognized, approved, and embraced by citizens and the community. This evaluation focuses on understanding the methodology's success among participants and provides insights into its potential for broader adoption. Measuring acceptance helps determine how well the methodology resonates with and is acknowledged by individuals and communities.

Finally, the usage dimension evaluates the practical application of the IRM methodology, particularly from the perspective of public administration and other stakeholders responsible for implementing it within the neighbourhood. This assessment focuses on the ease of use and alignment of the methodology with the strategic goals of public administration. It considers the degree to which the solutions, ideas, or proposals derived from the methodology align with existing public policies and strategies, highlighting its relevance and feasibility in real-world contexts

Table 1, summarizes the dimensions analysed and the indicators associated with each dimension.

Table 1.Dimensions and indicator of IRM methodology

DIMENSION	INDICATOR
PERFORMANCE	KPI 1: Bottom-up human-centred business models per renovation project
	KPI 2: % new jobs based on the capacity building set.
	KPI 3: New products and services per area
	KPI 4: Number of ideas/projects/programs
	KPI 5: Number of changes or new regulations in the city
	KPI 6: Average quantitative involvement of the local inhabitants
	KPI 7: Deepness of Quantitative involvement of the local inhabitants
	KPI 8: Residents' level of contentedness (engagement)
	KPI 9: Number of active residents
	KPI 10: % of stakeholders involved in co-creation
	KPI 11: Number of activities carried out for informing residents
	KPI 12: Number of activities carried out for informing residents

	KPI 13: Number of Surveys Completed
	KPI 14: Number of inquiries from citizens through the "neighbourhood office"
	KPI 15: Number of inquiries from citizens contacting through other channels
	KPI 16: New economic municipal incentives in the city
	KPI 17: Number of commercial premises vs empty premises
	KPI 18: Number of ICT services developed.
	KPI 19: APIs integrated
	KPI 20: Open-Data sets produced
	SRI (smart readiness indicator)
USAGE	Perceived Usefulness
	Perceived ease of use
ACCEPTANCE	Understanding the IRM Methodology
	Perceive Value and Impact of Participation
	Acceptance of Results
	Future Implication

3. BASELINE

A baseline serves as a fixed reference point used to measure or compare changes over time. In this specific context, the baseline is utilized to assess the achievement and progress of Key Performance Indicators (KPIs). Below is a summary of the baseline developed in previous deliverables related to the KPIs.

Participation baseline in Santa Ana

The Ermua City Council made citizen engagement a strategic goal, though it had already been implementing various participation initiatives:

- Participatory Budgeting (2013-2017)

  Since 2013, Ermua City Council has developed initiatives to explain the municipal budget in an accessible way. Citizens were invited to identify priority areas, propose actions, and vote on them.

- Urban Planning Participation

  The General Urban Development Plan was developed with input from citizen participation groups and the Municipal Planning Advisory Council, which included local economic and social stakeholders.

- Strategic Plan for Citizen Participation (2017-2018)

  In 2017, the City Council created a Citizen Participation and Transparency Area to design and implement a strategic plan. Its goal was to strengthen individual and collective involvement in municipal affairs.

- Sector Councils for Policy Consultation: Ermua has various participatory groups advising municipal management in different policy areas. These include the Municipal Planning Advisory Council, Culture Council, Equal Opportunities Council, and Municipal Cooperation Council.

- Children’s Council (2017-Present)

  Established in 2017, the Children's Council is an advisory body composed of 12 primary school students who meet regularly with the mayor.

- Age-Friendly City Initiative (2016-Present)

- As a member of the Age-Friendly Cities Network, Ermua promotes elderly participation in policymaking. Since 2016, working groups have identified key areas affecting senior citizens' well-being. In 2021, an action plan was approved with 15 strategic lines and 77 initiatives.

- Digital Participation and Citizen Communication: The Ermua City Council provides multiple digital tools to enhance communication and engagement, including "Talk to

the Mayor," a complaints and suggestions form, and an online opinion section for public consultations. The Abiapuntu Citizen Service centralizes access to municipal services and information, ensuring transparency and accessibility.

Despite all the actions implemented by the City Council at the Ermua level, the residents of Santana show low engagement in participatory processes. Thus, the initial analysis developed and presented in Deliverable 1.4 shows the following.

- 30% of the participants have never taken part previously in a participatory process
- 43% of participants think that the citizens do not have enough knowledge to participate in such processes
- 27% of participants think that their ideas will not be implemented once the process is over
- 75% of participants, however, think that participatory processes are the way of getting heard in order to change their environment
- 37% of participants think that participatory processes are not enjoyable for the citizens

Stakeholders in Santa Ana

In previous deliverables, an analysis of the various stakeholders in Ermua was conducted, identifying the following in the case of Santa Ana. These stakeholders play key roles in the development and revitalization of the Santa Ana neighbourhood, working together to improve the quality of life for its inhabitants.

Academia and Research Institutions: These entities provide knowledge and expertise, collaborating with social entrepreneurs and impact investors to develop and evaluate innovative solutions for social challenges.

Government: This refers to various municipal bodies and departments responsible for supporting and driving projects within the Santa Ana neighbourhood, ensuring alignment with public policies and regulations.

Citizens/Residents: Individuals and families who live and/or work in Santa Ana, directly influencing and being affected by local initiatives and developments.

Neighbourhood Associations: Organizations composed of residents representing the interests and concerns of specific groups within Santa Ana, facilitating communication between the community and municipal authorities.

Cultural Associations and NGOs: Collectives that promote cultural and artistic activities, such as “Centro Gallego”.

Local businesses: Businesses in the Santa Ana neighbourhood are street-level establishments such as fruit shops, butcher shops, bars, and hair salons.

Companies at the municipal level: Business with expertise in technology, and state-of-the-art solutions across various domains. They contribute advanced knowledge and innovative approaches to the project's development and implementation.

Smart Readiness Indicator Baseline

SRI is a common EU scheme for rating the smart readiness of buildings[1],introduced as a concept in the 2018 revision of the EPBD and developed in recent years. It is a tool that helps building owners, operators, and developers assess the current state of a building's (or household's) capacity to accommodate smart-ready services and use smart technologies, classified under three main functionality blocks: a) optimise energy efficiency and overall in-use performance; b) adapt their operation to the needs of the occupant; c) adapt to signals from the grid. The interventions to be co-created and developed in Santa Ana neighbourhood were expected to provide benefits linked to those functionalities, with a special focus on adapting buildings' operation to occupants' needs.

In order to evaluate the improvement and evolution of the 'smartization' taken place Santa Ana, the SRI was assessed[2] for the "pre-drOp" or baseline situation.

Due to the age of the neighbourhood, those households which technical energy systems have not been improved since the origins (i.e. using electric radiators with no thermostat for heating, old electric DHW boilers), would lead to a 0% SRI score. However, since natural gas network arrived at the neighbourhood years ago, several households have installed individual gas boilers for space heating and domestic hot water (DHW). Also, all the domestic electricity supply points have been equipped with smart meters by the DSO. There are not significant renewable systems in the roofs, not photovoltaics neither solar thermal system. E-vehicle charging points or heat pumps are neither deployed in Santa Ana. On the other hand, some of the household blocks have installed occupancy sensors in the common spaces (hall, stairs, etc.) for artificial lighting control and energy savings, which implies a certain smartness improvement. Regarding the windows control, they are equipped with sun shading elements with manual control.

Considering all these, an average household would present a low SRI score (which is expectable on residential buildings of these ages), around 5.9%.

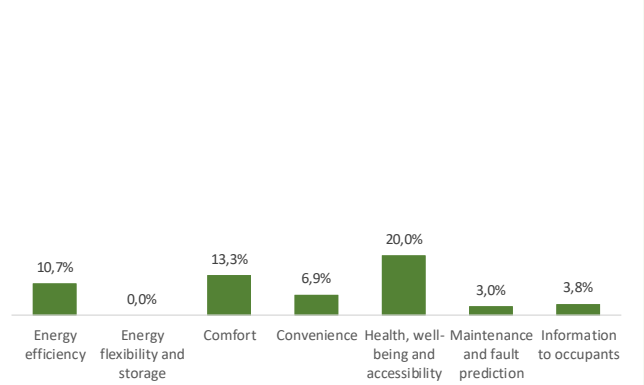
[1] https://smartreadinessindicator.eu/

[2] The SRI calculations have been performed with version 4.5 of the calculation sheet, an experimental tool, which is under further development by the EC. Please note that the scores and the visual presentation of results are solely provided for testing purposes. Using this experimental tool can by no means lead to any claims on an actual score or certificate for a building.

TOTAL SRI SCORE	5,9%	SRI CLAS	Lower than 20%

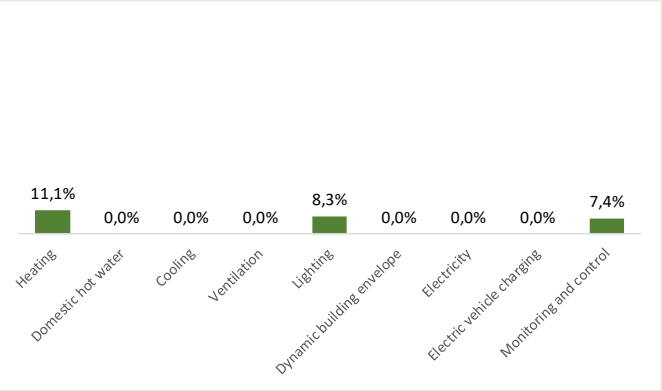
IMPACT SCORES

Energy efficiency	10,7%
Energy flexibility and storage	0,0%
Comfort	13,3%
Convenience	6,9%
Health, well-being and accessibility	20,0%
Maintenance and fault prediction	3,0%
Information to occupants	3,8%



DOMAIN SCORES

Heating	11,1%
Domestic hot water	0,0%
Cooling	0,0%
Ventilation	0,0%
Lighting	8,3%
Dynamic building envelope	0,0%
Electricity	0,0%
Electric vehicle charging	0,0%
Monitoring and control	7,4%



DETAILED SCORES

	Energy efficiency	Energy flexibility and storage	Comfort	Convenience	Health, well-being and accessibility	Maintenance and fault prediction	Information to occupants
Heating	16,7%	0,0%	25,0%	25,0%	50,0%	0,0%	0,0%
Domestic hot water	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Cooling	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Ventilation	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Lighting	6,7%	0,0%	10,0%	10,0%	0,0%	0,0%	0,0%
Dynamic building envelope	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Electricity	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Electric vehicle charging	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Monitoring and control	12,5%	0,0%	0,0%	7,1%	0,0%	12,5%	16,7%

Figure 1. SRI assessment

It can be observed that there is a significant margin of smartness improvement in Santa Ana buildings, both increasing the current impacts (i.e. electricity smart meters allow to access household consumption in real time, but domestic end-users are rarely aware of these functionalities and how to access to and interpretate this information) and enabling some domains that are currently null (i.e. local electricity generation, dynamic building envelopes, etc.).

4. PERFORMANCE

Performance evaluates how effectively the IRM methodology achieves its objectives by analyzing efficiency, effectiveness, and measurable outcomes through numerical data. This dimension focuses on tangible impacts such as new products, services, regulations, ideas, and community involvement. Performance is assessed using Key Performance Indicators (KPIs) and the Smart Readiness Indicator (SRI), both of which serve as critical metrics for measuring the methodology's success in specific contexts. The following presents the data collection methods and tools for data gathering, as well as the results obtained, along with the conclusions.

Data collection method and tools

The data collection method and tools used in the project were first identified in deliverable D1.4 (Section 6.2 Data collection methods and tools). That section outlines methodologies for collecting, calculating, and evaluating performance indicators, employing both quantitative and qualitative approaches.

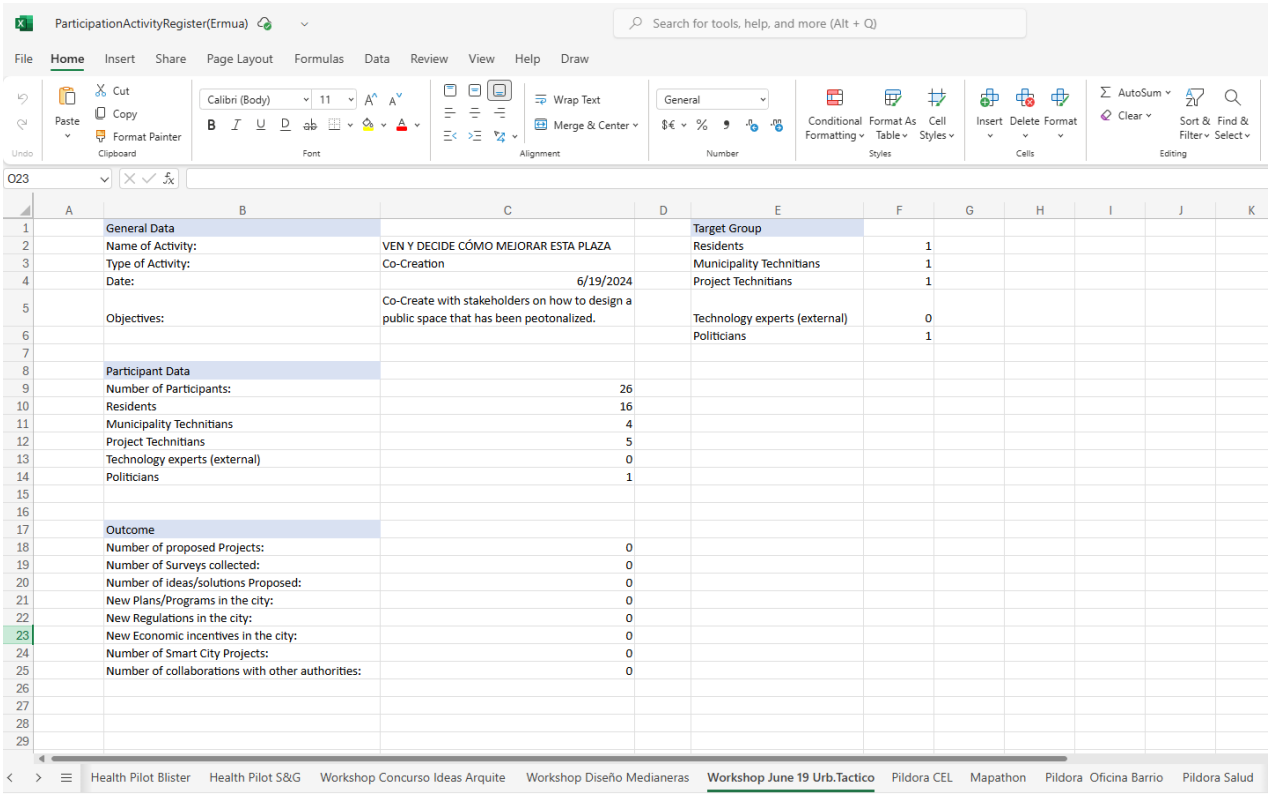
For the Quantitative Approach, the objective is to measure and identify quantifiable patterns using numerical data. The main tools used for that are:

Excel form that (see Figure 2):

- Collects data on activities like workshops and meetings.
- Organized into three sections: general event information, participant details, and event outcomes.
- Allows for the aggregation of data across multiple events to generate summary statistics.
- The data input is the responsibility of the person in charge of each event.

SRI: SRI is an EU scheme introduced in 2018 to assess a building's capacity for smart-ready services and technologies, categorized into three main functionality blocks.

- Optimise energy efficiency and overall, in-use performance.
- Adapt their operation to the needs of the occupant.
- Adapt to signals from the grid



	A	B	C	D	E	F	G	H	I	J	K
1		General Data			Target Group						
2		Name of Activity:	VEN Y DECIDE CÓMO MEJORAR ESTA PLAZA		Residents	1					
3		Type of Activity:	Co-Creation		Municipality Technitians	1					
4		Date:	6/19/2024		Project Technitians	1					
5		Objectives:	Co-Create with stakeholders on how to design a public space that has been peotonalized.		Technology experts (external)	0					
6					Politicians	1					
7											
8		Participant Data									
9		Number of Participants:	26								
10		Residents	16								
11		Municipality Technitians	4								
12		Project Technitians	5								
13		Technology experts (external)	0								
14		Politicians	1								
15											
16											
17		Outcome									
18		Number of proposed Projects:	0								
19		Number of Surveys collected:	0								
20		Number of ideas/solutions Proposed:	0								
21		New Plans/Programs in the city:	0								
22		New Regulations in the city:	0								
23		New Economic incentives in the city:	0								
24		Number of Smart City Projects:	0								
25		Number of collaborations with other authorities:	0								
26											
27											
28											
29											

Figure 2. Activity Registration (Excel form)

For the Qualitative Approach the objective is to capture user opinions and perceptions for contextual understanding. The techniques used for that approach are:

Likert Scale Surveys (Jebb et al., 2021):

- Measure attitudes, opinions, and perceptions using a predefined scale (e.g., strongly agree to strongly disagree).
- Provide granular feedback compared to binary questions.
- Used to measure the level of engagement and willingness of community members to participate.

Results obtained

This section presents the performance results. First, a table is provided below with the key data. The data is presented as follows: the first column indicates the dimension being analysed, the second specifies the KPI and its description, the fourth shows the expected value, and the last displays the achieved value. Following the table, each KPI is individually analysed and justified to offer a deeper understanding of the results.

Table 2: Performance results

DIMENSIONS	INDICATORS	EXPECTED VALUE	RESULTS
PERFORMANCE	KPI 1: Bottom-up human-centred business models per renovation project	2	5
	KPI 2: % new jobs based on the capacity building set.	3	10
	KPI 3: New products and services per area	2 or 3	6
	KPI 4: Number of ideas/projects/programs	n.e	7
	KPI 5: Number of changes or new regulations in the city	n.e	3
	KPI 6: Average quantitative involvement of the local inhabitants	151 people (20%)	123(16,3%)
	KPI 7: Deepness of Quantitative involvement of the local inhabitants	80%	71,4%
	KPI 8: Residents' level of contentedness (engagement)	n.e	Above 3 out of 5
	KPI 9: Number of active residents	100	10
	KPI 10: % of stakeholders involved in co-creation	60%	%85,7
	KPI 11: Number of activities carried out for informing residents	n.e	+20
	KPI 12: Number of activities carried out for informing residents	n.e	637
	KPI 13: Number of Surveys Completed	n.e	174
	KPI 14: Number of inquiries from citizens through the "neighbourhood office"	n.e	90
	KPI 15: Number of inquiries from citizens contacting through other channels	n.e	14
	KPI 16: New economic municipal incentives in the city	n.e	1
	KPI 17: Number of commercial premises vs empty premises	n.e	1
	KPI 18: Number of ICT services developed.	n.e	4
	KPI 19: APIs integrated	n.e	N/A
	KPI 20: Open-Data sets produced	n.e	5
	SRI (smart readiness indicator)	n.e	5,9%

*n.e: Not expected value
*N/A Not Applicable

KPI 1: Bottom-up human-centred business models per renovation project

KPI 1 measures the bottom-up, human-cantered business models per renovation project. The expected value for this KPI was set at 2. Due to the application of the IRM, several intervention actions were prioritized, some of which constitute human-cantered business models that support community regeneration and guarantee LED. Seven actions were planned, derived from the implementation of the IRM and community involvement in project selection. These actions have generated five business models: two were proposed and supported by the project itself, and three new ones emerged from residents' participation in co-creation sessions of WP1. The subsequent customization of these actions will take place in further ideation workshops with stakeholders, planned for the final months of the project.

- **Energy communities in Santa Ana:** This action will evaluate the capacity to install renewable energy systems in the neighbourhood, mainly solar photovoltaic on rooftops for collective self-consumption. This business model addresses the lack of sustainable and affordable energy solutions for communities by partnering with the Municipality of Ermua, building companies, and citizens. Beneficiaries are disadvantaged groups, the city of Ermua, and the larger community but it will require several stakeholders involved such as local municipality and service-providing companies. The social value proposition focuses on creating a sustainable community, fostering social inclusion, improving living conditions, economic empowerment, and community integration. The socio-economic impact includes reducing electricity bills, fostering social inclusion, and creating replicable self-sufficient communities through community engagement.
- **Community Connections - Weaving Networks Against Loneliness in Santa Ana**: This human-cantered business model aims to generate social impact for vulnerable groups through activities that foster socialization, support, and combat loneliness. The expected social impact of this business model is to foster social cohesion in Santa Ana through activities that promote socialization and create intergenerational support networks to combat loneliness. These activities may include expanding existing city hall workshops to Santa Ana, facilitating dialogue-based workshops for idea cohesion, intergenerational knowledge-sharing sessions, and more.
- **Architecture Ideas Competition for the Intervention of Small Spaces**: This competition aims to identify spaces susceptible to improvement and urban intervention, and to generate a working group for the design of the competition and definition of the program of needs. The new human-cantered business model is social, although it will allow emerging new business models from the competition participants. The value proposition relates to the provisional and reversible change of use of urban space for its rapid transformation through intervention projects based on new architectural designs funded by the council. It emphasizes the importance of better designing urban spaces to foster social and community engagement and inclusion.

- **Mapathon**: This collaborative activity involves people meeting to create a map of an area with issues to solve. As a human-cantered business model, its social value proposition lies in providing residents with recognition for being part of the district renovation. This business model emphasizes the importance of improving urban spaces and creating more social and community engagement and inclusion.

- **Collaborative Incidences App**: Taking advantage of the 'mapathon' event arranged with residents, a new app was introduced to them, offering the possibility to track all problems in the built environment. The business model of this app is to provide a collaborative tool that fosters community engagement in the improvement of the neighbourhood's-built environment. This app will be offered to several councils on a free basis and can be tailored to municipalities interested in enhancing the connection of incidence communications to municipal services. The business model behind this application consists of providing customization services for the application and tuition to municipality workers on the usage of the different functionalities.

KPI 2: New jobs based on the capacity building set.

KPI 2 measures the percentage of new jobs created because of capacity-building initiatives. The drOp project aims to generate more than 8 new jobs, both directly and indirectly, in sectors such as construction, ICT, energy efficiency, and cultural and creative industries (CCIs). The defined target for this KPI is to achieve 30% of the overall number of jobs, which equates to 3 new jobs. The forecasted job creation after the implementation of the capacity-building set is described as follows:

- Derived from the "Professional Course" (part of the capacity-building set developed for Santa Ana), there are 9 participants out of which 8 participants will have the opportunity to be hired by the council to work on implementing neighbourhood improvements for 5 months on a part-time basis.
- From the digital training provided in the Capacitation Module for Business and Local Commerce, as well as the Capacitation Module for residents, 2 new jobs could be indirectly guaranteed by the end of the project.

KPI 3: New products and services per area

KPI 3 measures the identification of new products and services per area of technological development (energy efficiency, active ageing, smart neighbourhood) and their subsequence selection. The defined target was 2 or 3 products/services proposed and 1 or 2 selected.

Regarding these numbers, six new products and services have resulted from the implementation of the process. This means that the results obtained exceed the values established as initial indicators.

All of them are aligned with the 2035 strategic areas that were co-created with neighbours and stakeholders. The areas are: accessible and sustainable, dynamic, specialised and innovative, inclusive and participatory as well as digital. Different co-creation sessions have been made to detect, define and develop the new product/services.

The products/services that have been developed or incorporated into the project are shown in relation to the strategic areas mentioned above (see Table 3):

Table 3: New products and services per area

N	PRODUCT/ SERVICES	DESCRIPTION	STRATEGIC AREAS			
			Accessible and sustainable	Dynamic, specialised and innovative	Inclusive and participatory	Digital
1	**Auzomapp**	A collaborative digital application in which incidents that may occur in the neighbourhood can be entered and attended by municipality technicians and maintenance workers. This has de aim to encourage collaboration between the city council and citizens for the maintenance of public spaces. The first version of the tool was used to run the Mapathon.			x	x
2	**Digital energy consumption tracker**	The Digital Energy consumption tracker will monitor both the production and the energy consumption of the PV installation located in Santa Ana. It will provide the visualisation of the self-consumption to the members of the Santa Ana Energy Community.	x			x
3	**Energy bill assessment and consultancy**	It is a programme that aims to empower citizens on energy issues. It aims to train citizens in the correct interpretation of energy bills in order to make decisions. This service is offered at the neighbourhood office and includes a training programme as well as personalised and individualised consultancy.	x			
4	**Energy community**	It is a service that has the aim of providing information on Energy Communities, their definition, creation and management, and facilitate the registration of residents in the energy community.	x		x	
5	**Mobility assessment tool**	It is a service which consists of improving and promoting people's health through the most advanced technologies. In particular, a free mobility and functional capacity assessment will be carried out for the attendees, through a new technology apparatus in the form of a belt. The objective of this test is to detect possible mobility problems and predict the risk of falls, in order to provide security and tranquillity to both the elderly and their loved ones. People will be offered a report.		x		x
6	**Pill dispenser**	It is a device and an application that allow personalisation of the dispensing of medicines, facilitating their correct administration and reducing the risk of errors. The semi-automatic system allows pharmacists to prepare blister packs safely and efficiently, while its management software optimises patient follow-up and communication between healthcare professionals.		x		x

All these product or services have been developed together with the residents of the neighbourhood who have participated throughout the various participatory sessions, starting with the identification of needs, through proposals and leading to the prioritisation and development of the various actions. Each of product or services have been developed within small groups of people who have been interested in the implementation of the initiative, thus allowing for the development of actions that meet the needs of the residents.

It is important to mention that not all projects have the same origin, as some have been created from the project's objectives and others directly from suggestions from the citizens of the neighbourhood.

KPI 4: Number of ideas/projects/programs

KPI 4 measures the number of ideas and solution proposals generated through the co-creation process. No specific target value was defined in the proposal.

Although no exact number had been specified as indicators, it is worth noting that the results have been very good as 7 ideas, projects or programmes have been developed. Other solutions have been developed, as: the neighbourhood office, the Mapathon, the energy community and the capacity building set but are not quantified in this indicator as they are not a direct result of the co-creation process. However, it is a further indicator that the project has been successful in this respect and that many different projects has been developed for the executions of the following ideas, projects or programs that take place within this KPI:

1. Party wall embellishment: The residents of the neighbourhood have chosen to decorate and aesthetically improve a wall in the neighbourhood in order to make the space more aesthetically pleasing. A mural will be painted showing aspects related to the history of the neighbourhood and it will be painted by artists from the neighbourhood. Then neighbours will be the ones that choose their favourite to be painted.

2.Tactical Urbanism: In order to improve the quality of life of citizens, a tactical urban planning action has been implemented. The target space consists of a cul-de-sac at the southern end of Calle San Roque for car parking. This space coincides with the landing of the lift and staircase leading up from Calle San Isidro. After identifying this space with potential for change of use during a session held on 7 May 2024 with the residents of Santa Ana (the Mapathon), it is proposed to make a temporary transformation, changing its use from parking to parking on a provisional and reversible basis for its rapid transformation through tactical urbanism. The car parks have been used to create a leisure space for children with rest areas and plants. This is a temporary action that has been developed in three phases. In each one of them, the continuity of the space is assessed for its definitive solution.

3. Architecture ideas competition: The space located between Santa Ana buildings 1, 6 and 8 has been selected, through a process of co-creation, by the residents of the Santa Ana neighbourhood who make up the Executive Committee of this action due to its central location in the neighbourhood, its situation as a transit area and its accessibility with the aim of improving its use and enjoyment.

It is accessible both from Calle Santa Ana 1 and from the lower part of Calle Santa Ana 2 and is used as a rest area (it currently has two benches and a perimeter wall). There are no trees or

vegetation, the pavement is made of concrete tiles and there is only one streetlamp for lighting. The location of the rubbish containers in front of the space prevents unobstructed views and makes the space unwelcoming and unpleasant to stay in.

For the improvement of the space, an architectural competition has been launched to carry out a project that will enable, solutions that should be incorporated to improve the climatic response and thermal comfort in both winter and summer in a way that takes into account the use of materials, sunlight and shade in addition to fundamental issues such as universal accessibility and safety. The winning studio has been selected and has started the procedures for its implementation.

4. Santa Ana day: From a social point of view, at several points in the co-creation process, the concern to bring back neighbourhood-related festivals or celebrations was mentioned. For this reason, a process was set in motion with the citizens of the neighbourhood to organise the 'Santa Ana day'.

5.Community Connections: The aim is to create a space to fight against loneliness (not exclusively elderly people). The main objective is to weave an anti-loneliness network in the neighbourhood and from the neighbourhood. Different services are generated, mainly in the neighbourhood office, by the municipality with the aim of generating high-impact community connections.

6. Comprehensive Care Programme: In relation to the pill dispenser mentioned above, a programme is developed that supports the service of systematised pill delivery between pharmacies and patients. This semi-automatic system allows pharmacists to prepare blister packs safely and efficiently, while its management software optimises patient follow-up and communication between healthcare professionals. In addition, a strength and balance test (Stop&Go) is also provided to residents to evaluate their balance for prevention measurements.

7. Informative and working sessions: 4 informative co-creation workshops were held in which the different topics that had been prioritised by the residents of the neighbourhood were worked on with the aim of informing them of the progress made and how these can help them.

All these programmes or projects have been developed together with the residents of the neighbourhood who have participated throughout the various participatory sessions, starting with the identification of needs, through proposals and leading to the prioritisation and development of the various actions. Throughout the project many other ideas have emerged, some of which have not been realised until the end of the project. For more information, they are listed in more detail in deliverable D1.3.

Each of the programmes or projects have been developed with small groups of people who have been interested in the implementation of the initiative, thus allowing for the development of actions that meet the needs of the residents.

KPI 5: Number of changes or new regulations in the city

The KPI 5 assess the number of new regulations in the city linked with the project. Not expected value was established in the proposal.

The objective of this KPI is to analyse those changes or regulations that have happened in Ermua municipality because of the implementation of the drOp project. Indeed, the products developed, processes followed, and initiatives carried out in drOp have led to new services

offered by the municipality as well as new approaches being adopted.

One such example is the digital application developed for the Mapathon activity. This app has been further enhanced by the drOp team and will be formally adopted by Ermua municipality as their new method to address public space incidents. This innovative app allows residents to report incidents directly to the relevant municipal department. Each reported incident includes a picture, a description, and geolocation, providing valuable data on the state of each neighbourhood and the interventions carried out. Additionally, residents will be informed about the status of the incidents they report, improving responsiveness and communication between the town hall and the municipality.

Regarding urban incidents, the Neighbourhood Office has served as a transitional space to receive and forward all incidents reported by Santa Ana residents until the app's development. This service has led to several small-scale changes at the neighbourhood level but also to larger municipal plans, such as a new lighting plan for the entire neighbourhood.

Given the Neighbourhood Office's value to Santa Ana and its residents, the municipality has decided to extend this service beyond the drOp project. This venue will continue to serve as a gathering place, provide assistance with home rehabilitation subsidies, support bottom-up initiatives, and act as the meeting space for the soon-to-be-created energetic community.

Another significant change resulting from the project is the formation of the energetic community. This community will be established as an association, with the municipality as the promoting member for the coming years, leading the management and potential expansion of the energetic community.

KPI 6: Average quantitative involvement of the local inhabitants

This KPI evaluates the average number of residents in Santa Ana participating in the scheduled activities of the drOp project. The expected target was set at 20% of the total population of the neighbourhood, which amounts to approximately 151 individuals based on 2017 data provided by the Municipality. It is important to note that the initial proposal mentioned a target of 300 individuals due to a calculation error.

Currently, through various activities carried out during the application of the three phases of the IRM methodology (strategic, design, and intervention), 123 residents of Santa Ana have been engaged. Of which, 61 have been women and 62have been men. These 123 participants have contributed to different initiatives, including workshops, seminars, focus group meetings and solution evaluations. Furthermore, this number is expected to increase as ongoing activities may encourage additional individuals to become involved in the drOp project's process and outcomes

In addition to the participation of citizens, it is important to note that other stakeholders have also contributed to the process, including local businesses, schools and universities in the area, associations, and municipal staff, among others. In total, these stakeholders contributed 32 participants.

KPI 7: Deepness of Quantitative involvement of the local inhabitants

KPI 7 evaluates citizen participation in the activities conducted during the strategic plan design and project definition phases. The target value is set at achieving citizen involvement in at least 80% of the activities carried out during these phases.

In the strategic phase of defining the plan, a contrast presentation and six workshops were organized where citizens and various stakeholders visualized future scenarios for Santa Ana, identified key actions, and explored potential pathways to achieve these goals. These activities were designed to encourage dialogue and co-creation between residents and stakeholders, promoting a shared vision for the neighbourhood's future. Five out of the seven activities, experienced active engagement and involvement from the residents of Santa Ana. As a result, 71,4% of the activities directly involved Santa Ana's citizens.

Although the strategic phase did not achieve the anticipated level of participation, it is worth mention that a greater number of activities have been implemented at the design and intervention levels with citizen involvement.

Regarding the activities at the strategic level, the team maintains that all essential actions were conducted with a clear and purposeful intent. Participants were not engaged solely for the sake of inclusion, but rather at moments when their input was deemed essential. Activities without direct citizen participation were intentionally designed to explore various options and alternatives, establishing a structured foundation for citizens to build upon, rather than providing them with an undefined starting point. In this context, the team firmly asserts that citizens have engaged in every pivotal and consequential activity—those which have directly contributed to shaping the project's development. Their involvement ensured that the process adhered to a true bottom-up approach, where citizen contributions played an integral role in guiding the project's evolution.

KPI 8: Residents' level of contentedness (engagement)

KPI 8 evaluates the level of engagement achieved because of the DROP project. No specific target value was defined in the proposal.

Engagement is a multidimensional concept that is composed of several factors (O'Brien & Toms 2010). Therefore, assessing engagement levels requires a comprehensive evaluation of different factors that influence participation and involvement. In this context, engagement is measured by considering both collective factors and those related to the clarity of the process, such as trust, transparency, and communication. These aspects determine the extent to which individuals or groups feel included, informed, and motivated to participate, ultimately shaping the overall effectiveness of the engagement.

Regarding citizen engagement in the process, residents initially had a strong connection to their community but remained sceptical of municipal-led initiatives, displaying reluctance toward local government-driven efforts. While their sense of belonging was deeply rooted, trust in institutional participation was limited. However, after taking part in the participatory process facilitated by drOp, citizen engagement significantly increased. Although their strong community identity persisted, their perception of participatory approaches became more

positive. Having actively contributed to shaping their neighbourhood, they now acknowledge the importance of engagement and demonstrate a clear willingness to participate in similar initiatives in the future. This shift was assessed using a five-point Likert scale, where citizen engagement factors were evaluated (see Figure 3).

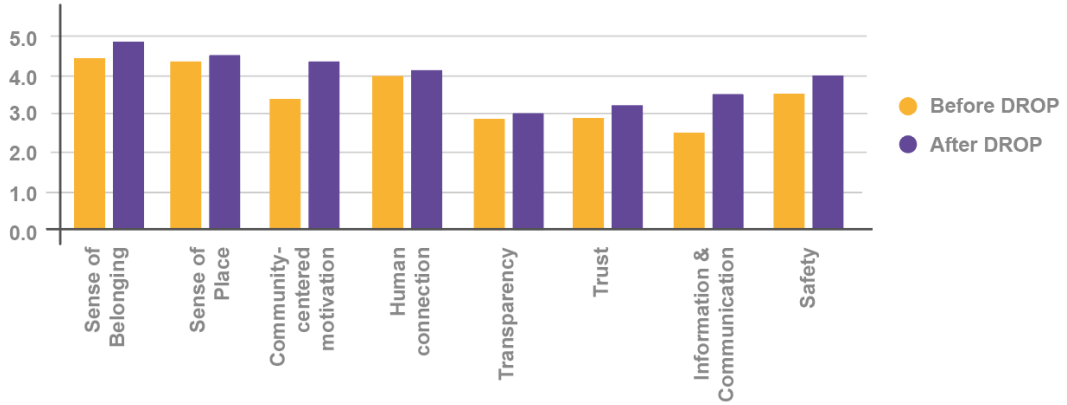


Figure 3: Citizen engagement factors levels before and after DROP

Overall, engagement has increased after the process. While citizens already felt connected to their community and neighbourhood, their motivation towards working for the neighbourhood has significantly increased after being part of the process. Accordingly, while trust and transparency are factors that take longer to cultivate, citizens feel that they are now better informed than before DROP started indicating a successful information and communication strategy.

KPI 9: Number of active residents.

KPI 9 assesses the activity level of citizens in the DROP community. The expected outcome was the participation of at least 100 residents. However, the concept of active residents has evolved. Thanks to the work carried out in WP2, the definition and adaptation to the co-governance model, the concept of the Local Task Force (LTF) emerged. The Local Task Force is a key team that facilitates a collaborative decision-making process within a community. The LTF consists of representatives from different stakeholders and citizens who work as a "driving group" to promote participatory initiatives. These operate as a flexible entity rather than a fixed physical group. The LTF convenes as needed to discuss, co-design, implement, and make collective decisions.

The *Local Task Force* is divided into three main structures:

1. **Coordination Structure**: Composed of the municipality, experts, and the project manager. In the case of drOp, the project team may also occasionally be part of the Coordination Structure.

2. **Executive Commission**: This body is responsible for operational decisions and the design of implementation strategies, particularly in relation to citizen engagement and the

development of local activities.

3. **Extended Commission**: Acting as a decision-making council, the Extended Commission includes all citizens and their families affected by the various actions.

In this context, the Extended Commission encompasses all local inhabitants, as well as the various stakeholders involved. On the other hand, the Executive Commission specifically refers to the active residents, defined as those citizens who have participated in the design, development, and management of the entire IRM process. The theoretical framework suggests that, for a Local Task Force to function effectively and manage operational decisions, a small, dedicated group of citizen is essential to ensure the successful implementation of initiatives identified and selected by the citizens. In the case of Santa Ana, this group is composed of 10 residents. This implies that the target number of 100 lacks relevance within the context previously discussed. In this regard, reaching 10 individuals is considered valid and successful.

KPI 10 : % of stakeholders involved in co-creation.

This KPI measures the percentage of stakeholders involved in the development of the project. The goal is to ensure that at least 60% of these stakeholders actively participate in three co-creation processes implemented during the drOp project.

In this regard, out of the seven stakeholders identified and listed in Section 3.2, six have actively participated, contributing their knowledge and insights at various stages of the methodology.

The only stakeholder group not involved was cultural associations and NGOs. This is due to the specific context of Santa Ana, where no NGOs are present, and the only existing cultural association ultimately did not participate in any phase of the process.

Despite this, the KPI target has been more than successfully met, as 85.7% of the identified stakeholders have been engaged in the project's development. This high level of participation demonstrates a strong commitment from the key actors and reinforces the robustness of the collaborative process.

Additionally, during the strategic phase, these stakeholders participated in 3 out of 7 activities, with 2 of these being excusable for them. Beyond this, the various stakeholders have contributed to the different initiatives developed, either as experts or consultants.

KPI 11: Number of activities carried out for informing residents

KPI 11 evaluates the number of activities conducted to inform residents about the project and the initiatives undertaken to implement district renovation. The key objective is to establish a well-informed and engaged neighbourhood community, ensuring awareness of the project's progress and outcomes. Not expected value was established in the proposal at the beginning.

Throughout the project and the co-creation process, there have been many actions carried out to inform residents due to the importance of it to ensure an engagement among the projects. The activities have been organized to inform about various topics such as: the evolution of the

project, participation in the different sessions and activities developed withing the project and through the neighbourhood office.

Regarding the activities, they have been of a different nature, some have been public and others of a more closed scope with the participants in the project. Specifically, 15 public and 5 closed were considered informative activities.

Apart from these activities, complementary actions have been carried out to reach the entire neighbourhood. That is, in addition to contacting the people we have direct access to because they have shared their data in the project, information posters have been placed in the 40 portals. In other occasions, the City Councils website and local press announcements has also been used to reach more people.

KPI 12: Number of Residents Informed

KPI 12 evaluates the number of residents reached and informed through information campaigns conducted as part of the citizen engagement initiatives. Not expected value was stablished in the proposal.

In relation to the previous KPI 11, Due to the application of the different informative activities,123 people have been reached directly because their participation in the project and their willing to be informed among the projects. Apart from them, in total an impact of 637 adult inhabitants has been achieved through different campaigns on the website of the city council, press announcements and informative panels in the 40 portals of the neighbourhood.

KPI 13: Number of Surveys Completed

KPI 13 evaluates the level of citizen involvement through non-face-to-face channels, such as paper-based or online surveys. No specific target value was defined in the proposal.

Throughout the project, four surveys were distributed at different stages. The first survey, administered at the outset, aimed to grasp the initial willingness and contentedness of citizens regarding their participation. The second, conducted at the beginning of the participatory process, focused on understanding the needs and aspirations of residents concerning their neighbourhood. he third survey, carried out at the project's conclusion, measured the level of engagement achieved. Finally, the fourth survey aims to evaluate the acceptance of the results obtained. To ensure accessibility and convenience, all surveys were made available both in paper format and online, allowing participants to choose the method they felt most comfortable with.

The first survey to measure the contentedness of the citizens consisted of 18 questions on a 5-point Likert-scale and gathered 35 responses. The second survey consisted of a set of 5-point Likert-scale questions complemented with open ended questions regarding the needs and aspirations of citizens and gathered 38 responses. The third survey to measure the engagement of citizens post-process had a set of 22 5-point Likert-scale questions and gathered 20 responses. Lastly, the fourth survey measure de acceptance of neighborhoods office, tactical urbanism, party wall embellishment, Pill dispenser, Mobility assessment tool, capacity building, Auzomapp and Energy communities. In summary, a total of 174 surveys were completed.

KPI 14: Number of inquiries from citizens through the "neighbourhood office"

KPI 14 evaluates the usage of the neighbourhood office by identifying the inquiries made by citizens. Not expected value was established in the proposal.

The Neighbourhood Office has been open to the public three days a week, for a total of 7 hours. These hours have been split between morning and afternoon to accommodate the diverse availability of the neighbours. Specifically, on Mondays, the office has been open from 4 PM to 7 PM, and on Tuesdays and Thursdays from 1 PM to 3 PM (Spanish lunch break).

Since its opening in April 2024, the office has received 90 in-person inquiries. The breakdown of these inquiries is as follows:

- 53 inquiries regarding information about the drOp project and how to participate in its processes.
- 15 reports of urban incidents, which were forwarded to the corresponding municipal department.
- 12 consultations about current governmental financial aid for building rehabilitation or the construction of community lifts.
- 10 services to assess residents' energy bills and help them understand these better.

In addition to these inquiries, over 20 residents have used the office during various participatory initiatives, even though they did not make any specific inquiries or seek individual services.

KPI 15: Number of inquiries from citizens contacting through other channels.

KPI 15 assesses the utilization of alternative channels, beyond the neighbourhood office, such as mail, telephone and other means for submitting inquiries. No specific target value was defined in the proposal.

Although the Neighbourhood Office of Santa Ana has been open to the public three days a week, the other communication channels have always been available to residents. These channels include email and phone. The project team has consistently used these channels to inform residents about all participatory initiatives throughout the project. However, we have also received several inquiries through these channels: 8 phone inquiries and 6 email inquiries.

Despite not being the primary communication channels between the project team and Santa Ana residents, they have ensured smoother and more accessible communication, especially for those with accessibility or time limitations to visit the office in person.

Moreover, Google Forms have also served as a useful communication tool in the project, particularly for processes or times when we needed to collect information from residents or give them the chance to vote on different options regarding urban interventions.

KPI 16: New economic municipal incentives in the city.

KPI 16 evaluates the new economic incentives generated within the city as a direct outcome of

the project. Not expected value was established in the proposal.

The only new economic incentive resulting from the project is the Energetic Community. The installation of photovoltaic panels on the roof of a municipality-owned building allows citizens and local businesses to join this community and save on energy costs. These incentives mean that participants will not only save on the installation costs of the solar panels but also benefit from reduced energy bills for years to come.

Additionally, the initiative prioritizes vulnerable households in Santa Ana, as the impact of these economic incentives can be even more significant for them.

KPI 17: Number of commercial premises vs empty premises

As a way of measuring the number of new businesses open after the actuations, this KPI assess the number of commercial premises vs empty premises. Not expected value was established in the proposal.

In recent years, Santa Ana has seen many small businesses close, leading to a more residential character. This trend is a global challenge due to globalization and changing consumption habits. However, Santa Ana's unique characteristics make it even harder for local businesses to survive.

To address this, the project has repurposed a previously empty premise into a Neighbourhood Office. This upgraded space will serve as the Neighbourhood Office in the near term and remain a valuable, renovated building for future use.

The drOp project's goal is to use all interventions and processes to attract new residents, increase foot traffic, and support local businesses, thereby promoting local economic sustainability. This initiative aims to sustain existing businesses and encourage new ones to occupy the available empty venues.

KPI 18: Number of ICT services developed.

KPI 18 assesses the number of ICT-based services offered to citizens because of the project. Not expected value was established in the proposal. Although the neighbours have not shown a special interest in ICT-based services or applications in the project we have developed or employed 4 solutions based in digital services. These are the following:

Auzomapp: A collaborative digital application in which incidents that may occur in the neighbourhood can be entered and be attended by municipality technicians and maintenance workers. This has de aim to encourage collaboration between the city council and citizens for the maintenance of public spaces. A first version of the tool was used to run the Mapathon.

Pill dispenser: It is a device and an application that allow personalisation of the dispensing of medicines, facilitating their correct administration and reducing the risk of errors. The semi-automatic system allows pharmacists to prepare blister packs safely and efficiently, while its management software optimises patient follow-up and communication between healthcare professionals. This solution is a commercial toolkit that has been personalized for each of the residents enrolled in the program.

Stop and Go Test: This solution consists of three-dimension accelerometer and a software application that measures the strength and the balance of the volunteers taking part in the evaluation. The tool has been used in the project as part of the Comprehensive Care programme. The application provides a report on the condition of the volunteer and alerts about possible risks (falling risks) and the need of walking aid.

Energy consumption monitor: Based on an already existing tool for energy monitoring in Ermua this extension will monitor both the production and the energy consumption of the PV installation located in Santa Ana. It will provide the visualisation of the self-consumption to the members of the Santa Ana Energy Community.

KPI 19: APIs integrated.

KPI 19 measure the ease of connectivity for third parties to provide services through the ICT system. The measure will be the number of APIs developed for interoperability obtained because of the project. Not expected value was established in the proposal.

Initially (in the proposal), it was planned the deployment of a neighbourhood digital infrastructure, with a unified digital platform used to support new solutions designed and developed in the project. This digital infrastructure was planned to be deployed at the dwelling level, building level and neighbourhood level. This KPI have as its main objective to measure the number of APIs integrated in that platform. In the amendment approved in February 2025, and considering the feedback received from neighbours in the co-creation process, it is stated that a unified digital platform was not needed. Consequently, this KPI has no relevance now. The digital tools presented in the previous KPI (KPI 18) could have been integrated in that platform, but the neighbours did not consider its construction as a relevant activity and neither the integration with other tools.

KPI 20: Open-Data sets produced.

KPI 20 quantifies the number of datasets produced, which indicate the availability of data for citizens and third parties for evaluation and service development, because of the project.

The project has produced 5 datasets. All of them are open for third parties' usage. The Data Management Plan followed to collect these datasets is available in Deliverable D6.3 (first version), D6.4 and D6.5 (final version). In those documents detail information about the datasets and the procedures followed can be found. The datasets are the following:

Ermua Municipality Diagnosis Dataset: This dataset contains the information used in the drOp project to build a multidimensional characterization of Ermua (Spain) and the Santa Ana neighbourhood through relevant indicators, and its visualisation in a Geographic Information System (GIS) by analysing statistical data, as well as other urban and social data available. The dataset is available in https://zenodo.org/doi/10.5281/zenodo.10652949.

Elva Municipality Diagnosis Dataset: This dataset contains the information used in the drOp project to build a multidimensional characterization of Elva (Estonia) and the Nooruse neighbourhood through relevant indicators, and analysing statistical and visual data, as well as

other urban and social data available. Researchers from the municipality of Elva worked on elaborating a diagnosis of the city collecting information from different open access available data sources (municipality developing documents, Statistics of Estonia, Republic of Estonia Land Board, Building register, Land Register ...). The dataset is available in https://zenodo.org/records/10887130.

Drop Final Dataset: This dataset englobes all the blocks of information (sub-datasets) collected during the period of the project that goes from M18-M36. This dataset contains a comprehensive set of datasets related to a smart city co-creation project, organized into several distinct folders. Each folder contains specific types of data, from community engagement metrics to technical energy assessments. Each sub-dataset stores information about a domain in the context of the project (participation, co-creation, energy, dissemination, etc.) and could have been offered as an individual dataset. To support the work of future researchers most datasets have been put together in a unique dataset divided in folders. Each folder contains the documents specific to a domain of the project. The dataset is available in https://zenodo.org/records/17209034.

Local Economy Development Dataset: The project produced a dataset associated with the factors that have an impact in Local Economic Development. This Data Repository contains:

- A survey distributed among cities about Local Economic Development (DROP project_Local Economic Development_SURVEY.pdf)
- An excel file with all the responses and the application of the Analytic Hierarchy Process (AHP) method (drOp_SURVEY_Cities reponses_AHP.xlsx)
- A HTML file containing the code written in the R programming language used to perform the AHP calculation for prioritizing the survey results from the 13 cities.

The dataset was uploaded to Zenodo and can be found in the following address: https://zenodo.org/records/15424161.

Local Energy Community Dataset: To complement this dataset, the project produced a dataset associated with the energy calculations for the local energy community in the neighbourhood. The data in this dataset is derived from the study presented in the 11th International Conference on Energy and Sustainability (September 2025), to be publicised in the volume of WIT Transactions on Ecology and the Environment. This geospatial dataset refers to the solar resource assessment on the drOp project in Ermua (Spain), in particular in the pilot neighbourhood of Santa Ana, and the photovoltaics (PV) deployment potential on roofs. The dataset was uploaded to Zenodo and can be found in the following address: https://zenodo.org/records/17185620.

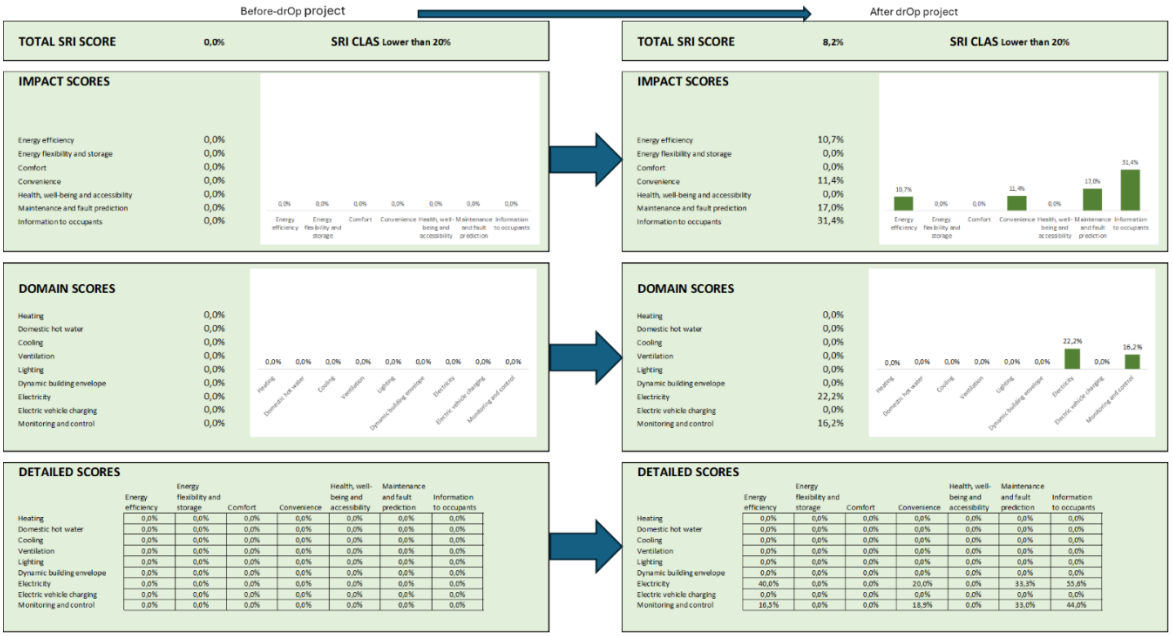
SRI: The Smart Readiness Indicator (SRI)

As previously stated, SRI rating depends on a building's (or household's) capacity to accommodate smart-ready services, classified under three main functionality blocks: a) optimise energy efficiency and overall, in-use performance; b) adapt their operation to the needs of the occupant; c) adapt to signals from the grid. At initial stages of drOp project, it was expected that interventions to be co-created and developed in Santa Ana neighbourhood would provide benefits linked to those functionalities, with a special focus on adapting buildings' operation to occupants' needs.

For this purpose, the SRI baseline was assessed[4] for the "pre-drOp" situation. As depicted on section 3 of this report, the households which remain in the original situation (i.e. using electric radiators with no thermostat for heating, old electric DHW boilers), would lead to a 0% SRI score, while those homes with certain upgrade: central thermostat for heating, access to the electricity smart meter and occupancy sensors in the common spaces (hall, stairs, etc.) for artificial lighting control, would get 5.9%.

In the drOp project an Energy Community is being established in Santa Ana neighbourhood through which neighbours will have the chance to participate in a collective PV self-consumption facility (which is being installed in the local primary school roof on the last phase of the project). drOp project will also offer them a digital tool, built on Ermua council current service for local businesses (web app for real time date and monthly summary report) for monitoring homes' electrical consumption, collective PV generation share, providing also recommendations on energy efficiency and implicit demand response for maximizing its benefits. For those homes using this digital tool and participating on the Energy Community, there will be an impact on SRI terms. In this sense, the assessment has been carried out for two cases, based on the previous state or SRI rate of them:

a) A Santa Ana household in its original state + collective PV participation and reporting digital tool



b) A Santa Ana household previously upgraded (therm., smart light. common areas, meter access) + collective PV and reporting digital tool

Figure 4. SRI assessment

Through drOp project, there have been achieved SRI improvement both increasing the existing impacts (i.e. electricity smart meters allow to access household consumption in real time and now the digital tool provided allows them to access in an intuitive and easy-to-understand manner) and enabling some domains that were currently null (mainly thanks to the collective PV participation).

5. USAGE

The usage dimension of the evaluation sheds light into the practical applicability of the IRM methodology. Specifically, the evaluation of usage considers the perceptions, experiences, and challenges encountered by those responsible for applying the methodology, namely public administration actors. By analysing usage, the evaluation aims to determine how straightforward or complex it has been to use the methodology in its entirety. This includes assessing how the different phases have been implemented, how the proposed tools have been utilized, and the extent to which public administration has been able to engage citizens in the process. The insights derived from this evaluation will contribute to understanding the practical feasibility of IRM within institutional settings, identifying areas for improvement, and determining the extent to which it facilitates the transition toward more participatory and citizen-driven urban regeneration practices.

Data collection method and tools

The focus is on understanding the perceptions of public administration stakeholders regarding the methodology's utility and practical application. Specifically, the usage dimension explores two key dimensions: perceived usefulness—how well the methodology supports achieving renovation goals and fosters collaboration—and perceived ease of use, which examines its clarity, adaptability, and ease of implementation. These two categories are divided into three main sub-categories (see Figure 5). In terms of perceived usefulness, the contribution to the objectives of the DROP project, the promotion of collaboration among key actors and the impact of the planning and execution of the process have been assessed. Regarding perceived ease of use, the clarity and comprehensibility of the methodology, the organization and the ease of application have been analysed.

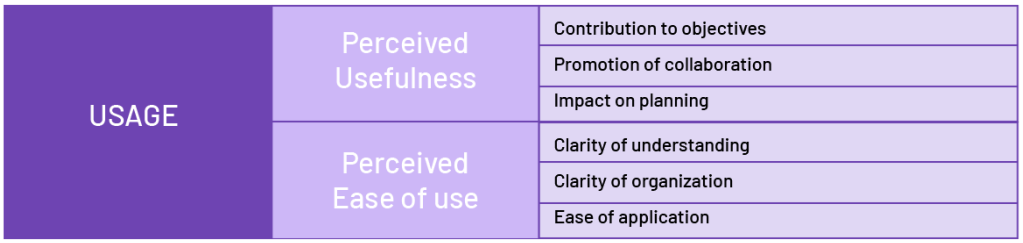


Figure 5. Categories and sub-categories of Usage

The data collection method for evaluating the Usage of the methodology are individual interviews and Likert-scale surveys. The interview will be combined with Likert-scale question surveys This balances quantitative and qualitative data, providing both measurable aspects and in-depth context The Likert scale questions will evaluate overarching aspects, such as the general perceptions of usefulness or ease of use, while the open-ended questions of the interviews will delve deeper into the reasoning behind the responses.

- **Individual interviews** are structured conversations featuring a limited number of open-

ended questions (Clatworthy, 2017), designed to engage representative end users of the IRM. Their primary value lies in capturing in-depth perspectives on the service or methodology. Conducting such interviews typically requires a trained and experienced facilitator. Each interview will last approximately one hour and will be carried out in person. It will begin with a brief introduction of the purpose of the interview. The remainder of the discussion will focus on exploring key aspects regarding the usage of the IRM methodology in the demo case. Following the interviews a summary will be compiled to themes or issues identified along with the overall conclusions. This summary will be shared with participants to ensure that their perspectives have been accurately represented and to maintain their engagement with the subject matter. The full interview can be seen in ANNEX A.

- A **Likert-scale survey** is a method used to assess respondents' attitudes, opinions, or perceptions by employing a structured rating scale. Originating from the work of psychologist Rensis Likert (Jebb et al., 2021), this approach presents participants with a set of statements or questions, requiring them to indicate their level of agreement or disagreement on a predetermined scale. In this case, the survey follows a 5-point scale allowing for a nuanced measurement of respondents' perspectives on various topics regarding the usage of the IRM methodology. The full survey can be seen in ANNEX A.

Both the survey and the interview will be answered by the same participants, ensuring that the information provided is relevant and complete. The evaluation will be conducted by the municipality responsible for implementing the process in one of its neighbourhoods. Specifically, the assessment will be carried out by municipal stakeholders in Ermua, who have overseen the IRM demo case in Santa Ana. Through the evaluation of the IRM methodology's application in the demo case, the perceptions of those who have followed the methodology will be gathered, allowing for the identification of its strengths and weaknesses. This assessment will not only highlight areas for improvement but also provide empirical evidence to refine the methodology. The revised approach will then be considered for further application, ensuring its adaptability and effectiveness in similar urban contexts.

Results

This section presents the results obtained in both the Likert-scale surveys and the individual interviews to evaluate the usage of the IRM methodology developed in the project. The usage of the methodology can be divided into two main categories: perceived usefulness and perceived ease of use. The responses obtained were analysed to identify strengths and areas for improvement, providing an overview of the usefulness and usability of the methodology. The main findings are presented below, together with a graphical representation summarizing the evaluations obtained.

From the Likert-scale survey conducted, the following results are obtained. When examining the overall categories related to the perceived usefulness and ease of use, the results indicate a generally favourable outcome (see Figure 6). In particular, the values obtained in both categories hover around 4 when the methodology is applied with expert support, suggesting that

the municipality finds the process both useful and easy to engage with under these conditions. However, if the methodology were to be implemented without expert support, the values slightly decreased, averaging closer to 3. This reduction indicates that the presence of support has a noticeable positive impact on interviews' perceptions, highlighting the importance of assistance in enhancing the IRMs perceived effectiveness and ease of use.

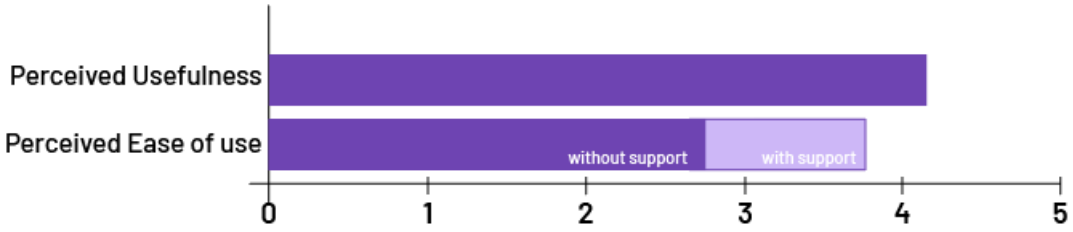


Figure 6. Evaluation of the IRM methodology: Usage

When analysing the categories deeper, the evaluated methodology has been positively assessed in terms of its contribution to the DROP project objectives and its ability to foster collaboration between key stakeholders, suggesting that it has facilitated interaction between residents, stakeholders and policy makers. However, its impact on the planning and implementation of the Santa Ana renovation shows divergent perceptions (3 and 5), indicating that its effectiveness may depend on the individual experience of participants. Regarding its clarity and understanding, responses vary significantly (from 2 to 5), suggesting that some users have found it difficult to understand its components, even though its organization has been stably rated with a 4. However, the most critical aspect is its ease of application, which received the lowest score in case of using it without external support and a 4 when applying it with support, indicating that, although the methodology is clear and structured, its implementation is complex in practice without expert support.

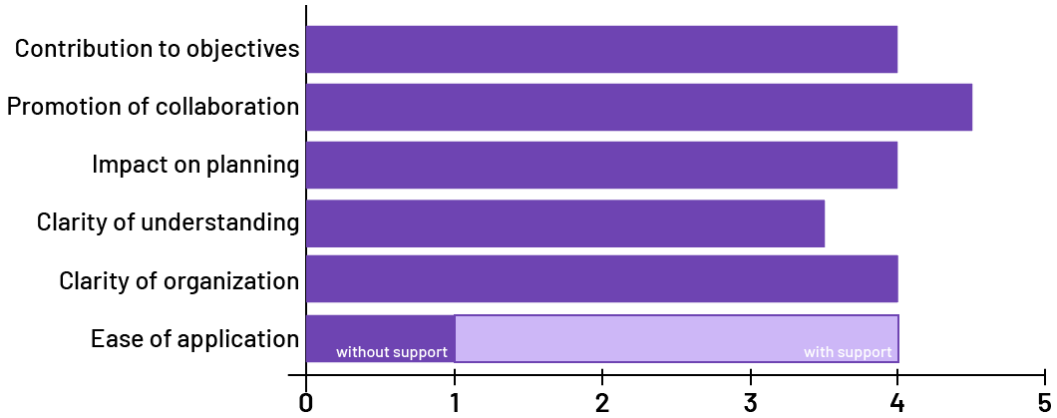


Figure 7. Evaluation of the usage of the IRM methodology

While the surveys provide a quantitative and structured view on the perception of the IRM methodology, the individual interviews provide a qualitative depth that is crucial to better understanding the experiences, nuances and reasons behind the assessments. Through the interviews, it is possible to identify specific difficulties, expectations not captured in the closed responses, and contextual elements that may influence the application of the methodology. In addition, they allow us to explore in greater detail the perceptions of the participants, their suggestions for improvement and possible resistance or facilitators in the implementation.

From the individual interviews the following results are drawn. As well as the survey, the interview is also divided into the categories defined in Figure 5. To evaluate the usefulness and its sub-categories, the interviewees were asked about the (i) impact of the methodology, (ii) its purpose and effectiveness and (iii) the benefits comparing it to other regeneration approaches used in the municipality:

i. The impact of the methodology has been positively assessed, as it is considered a comprehensive tool that allows the implementation of various initiatives in different contexts and lines of action. By implementing the project following this methodology, solutions have been achieved that have generated a favourable impact on society. However, it has been identified that the participation of citizens has been homogeneous, which has generated a bias in the results. In this sense, it is important to strengthen the initial phases of the process, especially in terms of **citizen activation,** to ensure a more diverse and representative participation.

ii. In terms of the efficiency of the methodology, it has also been positively evaluated. It has been possible to develop solutions that respond to the specific needs of the neighbourhood and its citizens. However, it has been observed that participation has come from a **homogeneous group** within the community, which, although representing a significant part of the neighbourhood, **does not reflect its diversity as a whole.** As a result, the solutions generated, although adequate to the needs of the area, are limited by the bias present in the participation, which restricts its ability to address the plurality of perspectives in the neighbourhood.

iii. Finally, in terms of advantages compared to other regeneration processes implemented in the municipality, clear benefits stand out. This process is perceived as much clearer and more structured than those previously used. While it is true that it involves numerous steps and layers, it also provides greater clarity about the actions being taken and the reasons behind them. Each stage has a concrete outcome, allowing for a more defined way forward and a fuller understanding of the purpose of each action, avoiding activities without a clear objective.

To evaluate the ease of use and its sub-categories, the interviewees were asked about (i) the ease of application of the methods and tools, (ii) the problems and obstacles encountered and (iii) the flexibility or adaptability capacity of the methodology:

i. The application of the tools and methods that are part of the methodology has proved to be a complex process. It has depended to a large extent on the support received, since the methodology itself is not simple, but rather presents a high degree of

complexity. However, this challenge has been mitigated thanks to the expert assistance provided by the project partners, which has facilitated its implementation in a more effective way.

ii. In terms of problems, two aspects can be identified: one related to participation and the other to the internal processes of the municipality. Regarding participation, the methodology requires a**ctive and continuous engagement on the part of citizens, which can be an obstacle**. Keeping people engaged throughout the entire process is a challenge, especially given that it is an **extensive process** in which the r**esults are not immediate,** which makes it difficult to **maintain the interest and motivation** of the participants. On the other hand, in terms of internal obstacles, it is complicated to convey the value of what is being carried out within the organization without tangible results to show, which can limit the involvement of various areas and actors of the municipality.

iii. Finally, the methodology is characterized as very **flexible and iterative**, rather than linear. Given that Santa Ana is a small community, the process is very well adapted to its context, suggesting that it could work equally well in larger settings. **The iterative nature of the process** also allows for the possibility of backtracking and adjusting actions if the needs of the moment change, making it **highly adaptable over time.**

Lastly, the interviewees were asked a final question based on the NPS score (ref), which measures customer loyalty by looking at their likelihood of recommending a given service. This score is valuable to see to what extent the interviewees have been comfortable with the process and their willingness to use it again or recommend it to peers in other municipalities. Both responses were affirmative, reflecting a positive assessment of the methodology. Participants indicated that they would be willing to use it again and recommend it to other localities, which highlights the effectiveness and potential of the methodology to generate satisfactory results in similar contexts.

Conclusion and discussion

According to the results of the survey, the methodology was rated positively as a whole, with most aspects considered adequate. However, the aspect related to “ease of use” was pointed out as an area for improvement. Participants indicated that, although the support provided by the experts was highly effective and fruitful, the process becomes difficult to carry out autonomously. Representatives of municipalities that are not accustomed to this type of citizen participation and urban regeneration processes expressed that they would not feel able to implement the methodology without adequate support. This finding underlines the importance of having specialized external assistance, especially in contexts where municipal teams have no previous experience in similar processes.

The interviews conducted provided a detailed view on the impact, efficiency and advantages of the methodology applied, as well as on the challenges and areas for improvement. In general, the methodology has been positively assessed, highlighting its comprehensive and structured nature, which allows addressing initiatives in various contexts and generating a positive impact on society. However, a bias in participation was identified, as the citizens involved in the process were mostly from a homogeneous group, which limited the diversity of the solutions generated. Despite this, the solutions obtained were adapted to the needs of the

neighbourhood, although with the need to improve the representativeness of the participation.

Regarding the efficiency of the methodology, it was noted that the solutions developed were appropriate to the needs of the neighbourhood, but again, the bias in participation influenced the comprehensiveness of the proposed solutions. Participants noted that the methodology, although complex, provides great clarity and structure, which facilitates the understanding of the process and the purpose of each action. This aspect contrasted favourably with other regeneration processes in the municipality, which were considered less clear and more disorganized.

However, the implementation of the methodology presented significant challenges. The need to maintain active and continuous participation throughout a long process, without immediate results, made it difficult to engage citizens. In addition, internal obstacles within the municipality were also a critical point, especially regarding the difficulty of showing the value of the process without tangible results, which limited the involvement of some key stakeholders. Despite these difficulties, the flexibility and interactivity of the methodology were highly valued aspects. The possibility of backtracking and adjusting the process according to changing needs, as well as its adaptation to small contexts such as Santa Ana, were considered important advantages. This flexibility allows for greater adaptability and the possibility of making improvements during the development of the process.

6. ACCEPTANCE

Acceptance reflects the extent to which the methodology is acknowledged, approved, and embraced by the community. It seeks to determine the degree of success the IRM methodology has achieved among those who have engaged with it. Understanding acceptance provides valuable insights into how readily the methodology is recognized, integrated, and adopted by citizens. This assessment considers various factors, including perceptions, opinions, and attitudes toward the methodology and its implementation. Positive feedback, testimonials, and expressions of support from users serve as strong indicators of acceptance. Likewise, the absence of significant resistance or opposition suggests a level of agreement or endorsement. Additionally, active engagement in discussions, workshops, and other participatory activities demonstrates a willingness to adopt and integrate the methodology.

Data collection method and tools

The data collection will be conducted through individual interviews,focus group discussions and questionnaires. The combination of these approaches will enhance the depth and richness of the responses, providing a more comprehensive understanding of participants' perspectives. As the aim is to capture emotions, perceptions, and personal experiences, the data collected will be qualitative in nature. The analysis is structured around key sub-categories (see Figure 8) that provide a comprehensive understanding of how participants perceive and engage with the IRM methodology. These include their level of understanding, the perceived value and impact of their participation, the acceptance of the results, and the anticipated future implications.

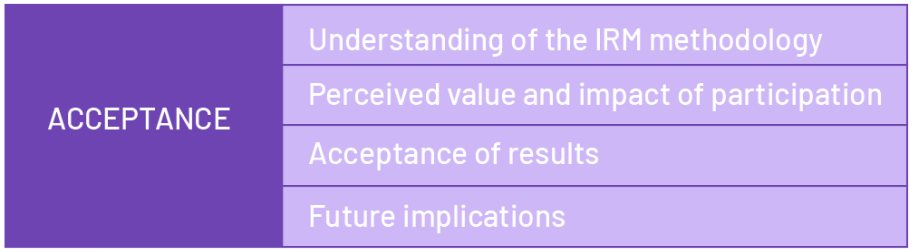


Figure 8. Sub-categories of Acceptance

Individual interviews, focus group discussions and questionnaires are essential tools for assessing the acceptance of the methodology and the results obtained, as they provide in-depth insights into participants' perceptions, experiences, and attitudes. Individual interviews allow for a more personal and detailed exploration of opinions, enabling participants to express their thoughts freely without external influence. In contrast, focus groups facilitate dynamic discussions, where interactions among participants can reveal shared experiences, collective attitudes, and potential concerns. Questionnaires, meanwhile, contribute by generating standardized and comparable data across a broader sample, enabling the quantification of perceptions and the identification of generalizable trends. The combination of these methods enriches the data by capturing both individual reflections and group dynamics, offering a more holistic understanding of how the methodology is perceived. Given their qualitative nature, these tools are particularly effective in uncovering nuanced perspectives, emotional responses, and underlying factors influencing acceptance, making them invaluable for evaluating the methodology’s impact and

integration within the community.

- **Individual interviews** involve structured discussions with a select number of open-ended questions, aimed at engaging representative end users of the IRM. These interviews are particularly valuable for obtaining detailed insights into the IRM methodology. A skilled and experienced facilitator is typically required to conduct them effectively. Each session, lasting approximately one hour, will take place in person and begin with a brief overview of the interview's purpose. The conversation will then centre on key factors influencing the acceptance of the IRM methodology among active residents. After the interviews, a summary will be compiled, highlighting recurring themes and significant issues along with general conclusions. This summary will be shared with participants to verify the accuracy of their perspectives and sustain their involvement in the discussion. The full interview can be seen in ANNEX B.

- A **focus group interview** is a semi-structured discussion in which a group of users share their opinions and expectations about various elements of the service presented to them during the session, guided by a moderator (Rabiee, 2004). This method is particularly effective for exploring perspectives in depth, identifying common themes, and gathering collective insights on service expectations, especially when reaching a large number of participants through surveys is challenging. The session begins with participant introductions, followed by an overview of the project and the specific intervention being analysed, ensuring that all participants understand the context. The remainder of the discussion is dedicated to exploring key aspects under examination, such as the acceptance of the IRM methodology. The full interview can be seen in ANNEX B.

- The questionnaires were designed using a Likert-type scale, aiming to assess participants' perceptions in a structured and quantifiable manner. A set of questions was developed for each result. This set of questions addresses these three fundamental concepts: first, personal satisfaction with the outcome, which reflects the extent to which participants feel content or satisfied with the results obtained; second, the fulfillment of expectations, related to how well the perceived results align with participants' prior expectations; And third, the level of improvement achieved, depending as well on the specific action. In addition, aspects such as usefulness and satisfaction with the management of the action, among others, have also been included. The deployment of these questionnaires was carried out in the following way. A general distribution was made for results that are available to the public, such as the neighborhood office, party wall embellishment and tactical urbanism, e. For results involving already known participants, such as the medical dispensary, the energy community, the capacity building, the Auzomapp and the mobility assessment tool, a more personalized deployment was implemented through phone calls, personal email or meetings.

Once data from has been collected, the next step involves processing and analysing the information to ensure its accuracy and relevance. This begins with data cleaning, where inconsistencies, errors, and missing responses are identified and addressed to maintain the integrity of the dataset. Any redundant or irrelevant data is carefully filtered out to ensure that only meaningful insights are considered. Following this, the data is systematically categorized

based on predefined categories related to the assessment of acceptance, such as understanding of the methodology, perceived value and impact, acceptance of results, and future implications. For qualitative responses, thematic analysis is employed to identify recurring patterns and key narratives that provide a deeper understanding of participant perspectives.

Results

This section first presents the findings from the individual and focus group interviews conducted with citizens to assess the acceptance of the IRM methodology, and then the results of the questionnaires for evaluating the acceptance of the outcomes and their implications(Figure 10).

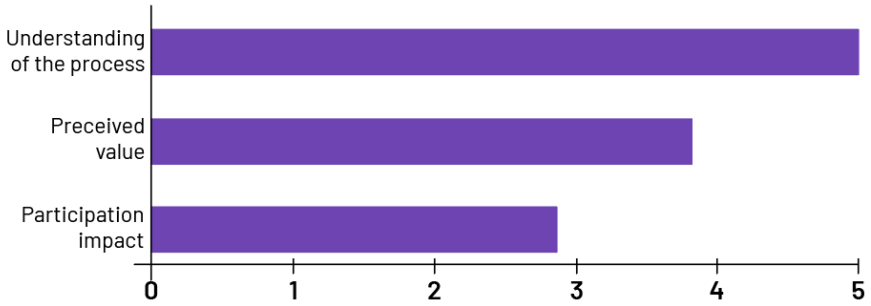


Figure 9. Average score of Acceptance's sub-categories

The results show a very high level of understanding of the process, reaching a score of 5 out of 5. This indicates that the IRM methodology has been easy to understand and to apply for the different members of the core team. Regarding the perceived value, the assessment is also very positive, with a score close to 4 out of 5. As for the impact on participants, the evaluation is likewise positive, although slightly below 3 out of 5, which suggests significant room for improvement in this area.

Beyond simply rating aspects such as their understanding of the process, its perceived value, and the impact of their participation, citizens shared valuable reflections on the reasons behind their assessments. These insights offer a deeper understanding of how the methodology was received, highlighting not just its strengths but also areas for improvement in fostering broader engagement and trust in participatory approaches.

i. The participants demonstrated a clear understanding of participatory process regarding the IRM methodology and generally perceived it as a positive experience. They found the process to be well-structured and comprehensible, which facilitated their engagement. However, a recurring concern was the slow pace of the methodology. While most participants appreciated the approach, the prolonged timeline caused frustration among some individuals who were unable to grasp the full scope of activities or see tangible progress. This, in turn, led to a perception among certain community members that the process lacked visibility, which hindered broader comprehension and engagement.

ii. Regarding the perceived value of their participation, respondents expressed that they felt their contributions were acknowledged and that their voices were heard. The methodology fostered an inclusive environment where all participants felt empowered to share their perspectives. However, there was a general sentiment that greater participation could have further enriched the outcomes. While the process effectively encouraged individual input, some participants believed that a broader and more representative engagement would have led to even more meaningful discussions and insights.

iii. The participation impact perceived by citizens received a lower score, not due to dissatisfaction with the outcomes but because citizens believed the process could have been significantly stronger with broader involvement. While participants were pleased with the impact they achieved, they unanimously felt that if more community members had taken part, the results would have been much more meaningful and transformative. This highlights the need to encourage wider participation in future initiatives to maximize collective impact.

Finally, the interviewees were asked a concluding question based on the Net Promoter Score (NPS) to assess their potential future engagement. This approach allowed us to evaluate the extent to which participants felt comfortable with the process, as well as their willingness to utilize it again or recommend it to other citizens. All responses were affirmative, indicating that participants felt comfortable with the process and would be willing to use it again or recommend it to other citizen. In this sense, the interviewees expressed a positive attitude towards the possibility of participating in and engaging in future participatory projects and initiatives in the city or in their neighborhood (see Figure 10).

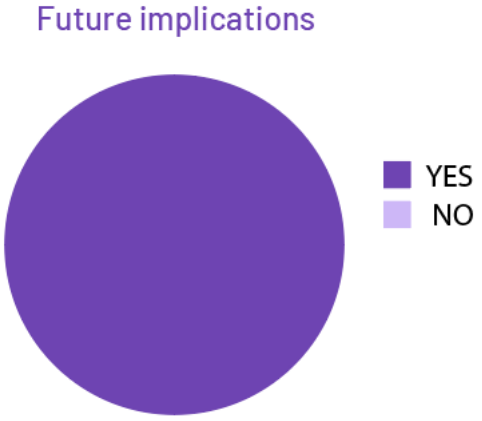


Figure 10. Future implication

The acceptance of the methodology is closely linked to the acceptance of its results. In this context, citizens were asked to evaluate their overall satisfaction with the proposed solution and the extent to which it met their expectations. Depending on the type of solution being assessed, additional aspects were also evaluated, including the likelihood of recommending it, its perceived usefulness, the degree to which it facilitated their work, and the level of improvement achieved through the solution. The results obtained for each solution are presented below.

Pill Dispenser

The pill dispenser was used by five individuals in the neighborhood, one of whom was underage. Of the four individuals eligible to evaluate the intervention, two responded to the survey. The feedback obtained was highly positive, as all questions received scores above 4 out of 5. The items *"I am satisfied"* and *"The pill dispenser has met my expectations"* achieved an average rating of 4.5 out of 5. Furthermore, all respondents recommended the use of the product with the maximum score of 5 (see Figure 11) .

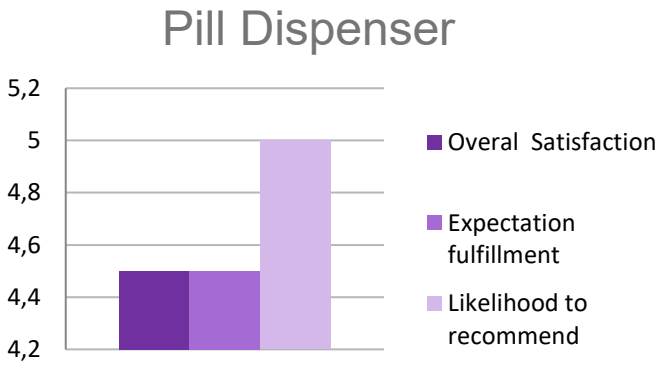


Figure 11. Pill dispenser

Mobility assessment tool

The implementation of the mobility assessment tool, which allowed citizens to test their mobility status and capacities, was highly valued. Overall satisfaction reached a score of 4.3, the same result obtained for expectation fulfillment. Slightly lower, though still positive, was the score related to the likelihood of recommending this service to others. Taken together, the service provided was very well assessed.

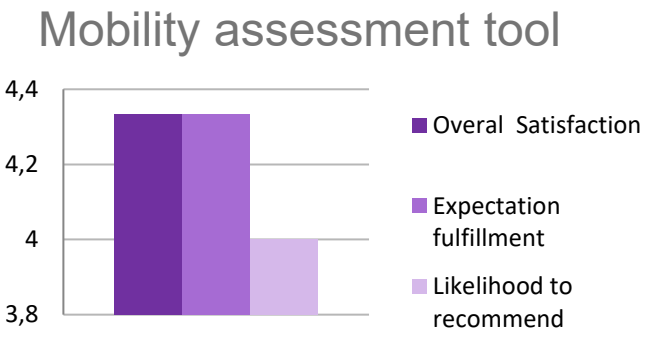


Figure 12. Mobility assessment toll

Auzomapp

The Auzomapp has been well received by municipal employees, who positively valued the benefits that this tool can bring to incident management, such as centralization, enhanced control, faster response times, traceability, and increased interaction with citizens. However, it has not yet been fully implemented, as its deployment requires internal adjustments in incident management, including the definition of roles and responsibilities. For this reason, although its usability has been assessed positively for future use, it is not yet possible to evaluate either the fulfillment of expectations or the likelihood of recommendation.

Tactical Urbanism

The evaluation of the tactical urbanism intervention indicates a generally high level of citizen satisfaction. Respondents rated the extent to which the solution improved the previous condition of the space at an average of 4 out of 5, highlighting a substantial perceived enhancement in comparison to the prior state. The degree of personal approval toward the solution was slightly lower, with an average score of 3.8 out of 5, yet still reflecting a positive overall reception. However, a minority of respondents (7 out of 58) expressed disapproval, assigning ratings between 1 and 2 (see Figure 12). These results suggest that, while tactical urbanism interventions can generate broad support and tangible improvements in public perception, they may also face resistance from a subset of citizens, underlining the importance of inclusive design processes and continuous dialogue to address diverse expectations within the community

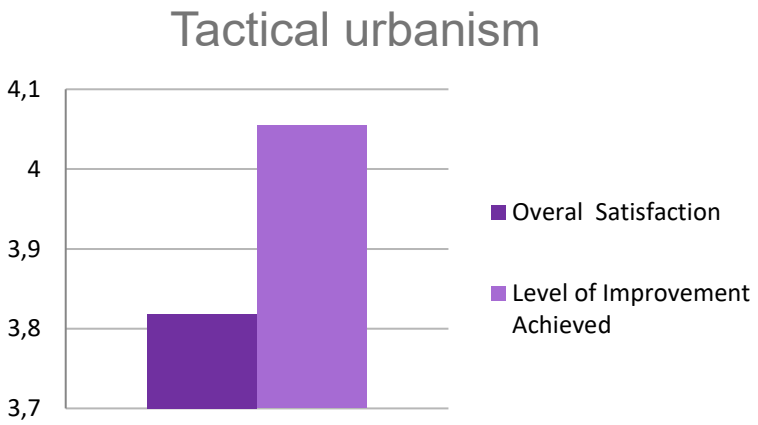


Figure 13. Tactical urbanism

Party wall embellishment

One of the interventions that received the highest scores was the embellishment of the party wall. Citizens expressed strong appreciation for the mural, highlighting both its aesthetic value and its contribution to improving the surrounding environment. The intervention obtained an average score of approximately 4.5 out of 5, reflecting a very positive evaluation. Importantly, all respondents reported being satisfied with the result, as every evaluation scored above 3 on the 5-point scale (see Figure 14). These findings indicate that artistic and visual enhancements in public spaces are consistently valued by residents, not only for their aesthetic appeal but also for their perceived contribution to the quality and identity of the neighborhood.

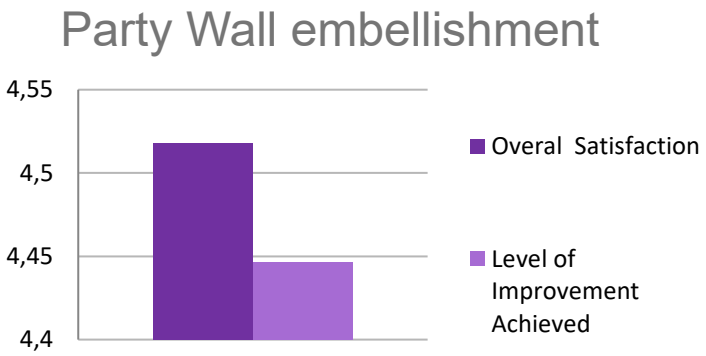


Figure 14. Party Wall embellishment

Neighborhood office

The acceptance of the neighborhood office was also considered highly positive. It obtained an average score slightly above 4 out of 5 in relation to satisfaction with the office, fulfillment of expectations, usefulness of the services, and its contribution to keeping residents better informed about the DROP project. Most respondents expressed satisfaction with the neighborhood office, with the exception of three participants who rated the office and its services between 1 and 2 (see Figure 15) . These individuals stated that they had neither the need nor the interest to visit the office. In addition, two respondents, although satisfied with the office and its services, expressed dissatisfaction with the role the office played in keeping citizens informed about the DROP project

Although a small number of respondents expressed lower levels of satisfaction or raised concerns about specific aspects the overall assessment indicates that the neighborhood office was well received. Moreover, several respondents emphasized the potential value of replicating this solution in other neighborhoods, which points to its broader applicability and perceived relevance.

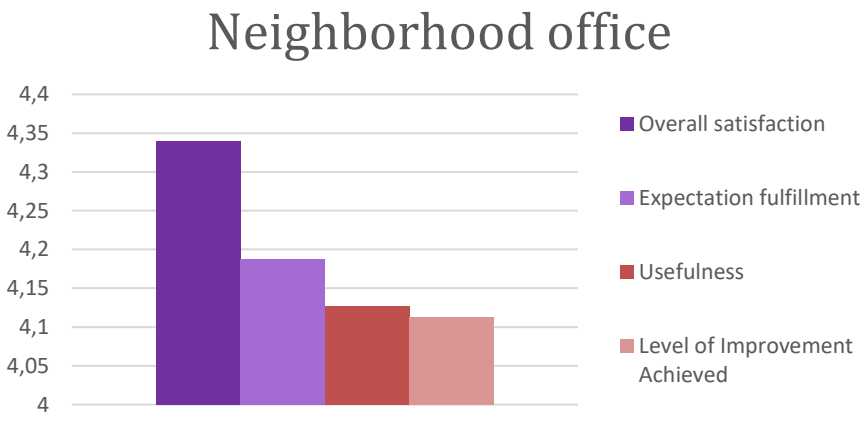


Figure 15. Neighborhood office

Capacity building

The capacity-building program was highly valued by participants who engaged in the course. Overall, participants reported a high level of satisfaction with the training received, with an average rating of 4.6 out of 5. This indicates a generally positive perception of the course content, structure, and delivery. In terms of the extent to which the program met participants' expectations, a slightly lower average rating of 4.4 was observed, suggesting that while most expectations were largely fulfilled, there remains some scope for further alignment with participant needs. Finally, the willingness of participants to recommend similar courses to others was rated somewhat lower, at an average of 4.0, reflecting a positive but comparatively more moderate endorsement. These results suggest that, overall, the program was successful in delivering valuable training experiences, while also highlighting areas for potential

enhancement to increase participant satisfaction and recommendation rates.

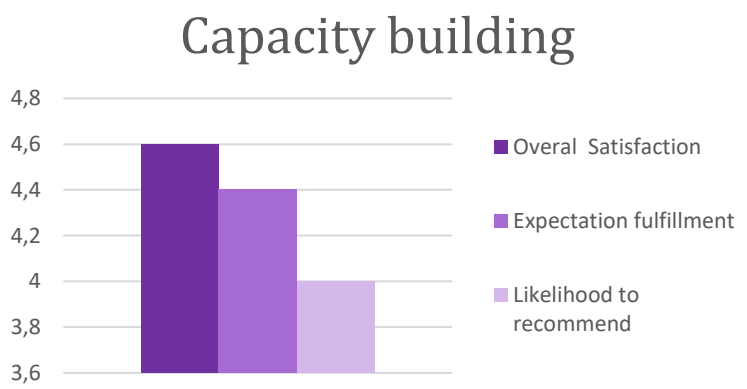


Figure 16. Capacity building

Energy community

The energy community initiative has been one of the actions that mobilized the largest number of participants. Similar to the other initiatives, it was highly valued by the residents of Santa Ana. Overall satisfaction with this action received a score of 4.5 out of 5, as did the management carried out around the energy community. Expectation fulfillment obtained a slightly lower, though still positive, score of 4.0. The likelihood of recommending the initiative was the highest-rated item by citizens, reaching 4.8.

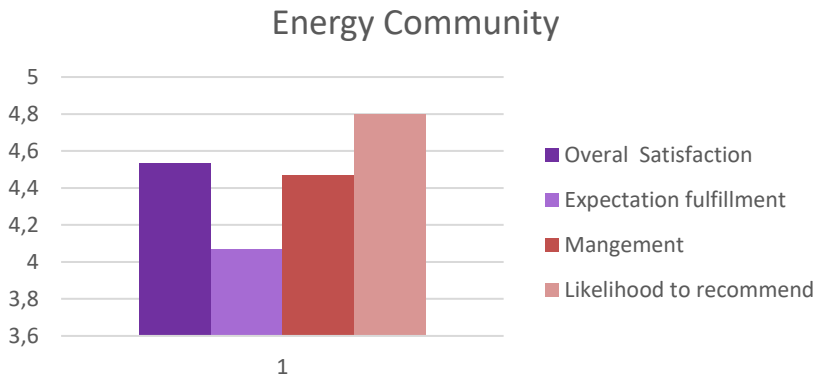


Figure 17. Capacity building

Conclusion and discussion

The interviews conducted with citizens regarding their acceptance of the IRM indicate that the approach is generally well received and understood. Participants recognized its potential to achieve the intended outcomes, reinforcing its validity as a structured and effective methodology. However, despite this positive reception, several challenges were identified, particularly concerning the process's length and intensity. Many participants found the methodology to be overly time-consuming and exhausting, which could impact sustained engagement and broader participation in future implementations.

One of the key strengths of the methodology, as highlighted by the interviews, is the perceived value it brings to participants. Citizens acknowledged the benefits of their involvement and recognized the relevance of the process in shaping their environment. Nevertheless, a major challenge remains in attracting a wider audience. Difficulties in engaging a broader segment of the community suggest that additional efforts are needed to make participation more accessible and appealing.

Although it is still premature to fully assess the long-term acceptance of IRM, the willingness of participants to engage in similar initiatives in the future is an encouraging sign. Their openness to continued participation suggests that, with adjustments to improve efficiency and inclusivity, the methodology has the potential to become a widely accepted framework for citizen-driven renovation processes. Future refinements should focus on streamlining the process to reduce fatigue while enhancing outreach strategies to encourage broader participation.

In addition to the methodology itself, the outcomes achieved were positively received by the broader citizenry, confirming that initiatives developed through methodologies such as IRM provide tangible benefits for the community

7. Conclusions

The conclusions of this evaluation follow two main lines of analysis. First, the report examines whether the methodology used is suitable for measuring and collecting relevant information. Second, it evaluates whether the results obtained are appropriate and reflective of the expected impact.

By analysing these aspects, the evaluation aims to determine the effectiveness of the IRM methodology in achieving its intended goals while also identifying areas for improvement in its implementation and adoption.

The evaluation model encompasses three aspects of the IRM methodology:

Performance: The evaluation model assesses the efficiency, effectiveness, and overall success of the IRM methodology in achieving its intended objectives and delivering desired outcomes. The performance indicator is centred on quantitative facets of the methodology, with a particular emphasis on numerical outcomes. In this context, it asses the results derived from the methodology and its application.

In relation to the performance of the IRM, it is concluded that it has had a satisfactory impact, as most of the proposed KPIs have been met, achieving the indicators set for those where a specific value was available. However, there is an exception in the following KPIs:

Average quantitative involvement of the local inhabitants. Mobilizing the residents of Santa Ana has been an arduous task, requiring considerable effort and dedication. Various methods have been used to reach them, including leafleting, mailing, posting flyers in the neighbourhood, press releases, and leveraging online platforms. Additionally, key community figures, such as members of the executive commission or portal representatives, have been involved to act as intermediaries. Each co-creation and participation activity has had to make a significant effort to engage local residents.

However, despite these efforts, widespread involvement has not been achieved, and overall interest in the neighbourhood remains moderate. On the other hand, it has been observed that activities held outdoors within the neighbourhood itself tend to generate greater engagement.

To prevent the same challenges from recurring in future co-creation and participation activities in the neighbourhood, several preventive measures can be implemented:

- Strengthen the presence in the neighbourhood from the start: As observed, activities that take place directly within the neighbourhood have more impact. From the project's outset, events should be organized in public, open spaces to ensure accessibility and visibility, making sure residents feel part of the process from the beginning.

- Engage local leaders from the start: To increase participation, it would be useful to involve local leaders or respected figures from the community from the outset. These leaders can act as project ambassadors, encouraging participation through their influence.

- Create a regular and accessible activity calendar: Instead of sporadic events, a regular

calendar of activities should be designed, one that better aligns with the availability of residents. Organizing continuous events can help maintain interest over time and generate greater involvement.

- Offer incentives: To encourage greater participation, small incentives such as symbolic prizes, community benefits, or public recognition can be offered to motivate neighbours to engage more actively.

Usage: The evaluation model tracks the usage of the IRM methodology and its outcomes, including the development of new products, services, solutions, regulations, ideas, and problems and needs of the community. The indicators of use try to collect the perspective of those people, in this case the staff of the municipality, in relation to the ease of use and implementation of the methodology.

The usage of the IRM methodology has been generally satisfactory. However, one specific aspect has received a low rating: the ease of application, which has been evaluated at 1 out of 5. This suggests that, without external support, individuals do not feel sufficiently empowered to lead and promote the IRM methodology within their institutions.

To improve the ease of application of the IRM methodology and empower individuals to lead its implementation within their institutions, several measures can be adopted:

- Development of guides and support materials: Create step-by-step guides, video tutorials, and explanatory documents that simplify the understanding and application of the methodology. These materials should be designed to be self-explanatory, minimizing the need for external assistance.

- Simplification and adaptation of the process: Assess which specific aspects of the methodology are the most complex and consider simplifying them without compromising effectiveness. Additionally, develop adapted versions for different types of institutions to facilitate integration.

- Structured training and initial support: Offer both theoretical and practical training sessions for future users of the methodology. These sessions can include simulation exercises, case studies, and personalized mentoring to ensure a better grasp of the process.

- Mentoring model and technical support: Implement a mentorship system where experienced users of the methodology can guide those who are still in the learning process. Additionally, provide an accessible technical support channel to answer questions in real time.

Acceptance: The evaluation model also measures the level of agreement, approval, or recognition of the methodology by the citizens and the community, providing insights into how well the IRM methodology is embraced, acknowledged, or adopted by individuals. The indicators

related to acceptance, try to measure the experience, feelings and opinions of the citizens and relevant factors that have participated throughout the methodology. This is intended to understand to what extent the IRM has been successful among the people who have participated and co-created it.

The acceptance of the IRM methodology can also be considered successful, with most evaluated aspects receiving positive ratings. However, one particular item—"participation impact perceived by citizens"—was rated slightly below 3 out of 5. While this is not a critical concern, it does indicate room for improvement.

Participants expressed satisfaction with the impact they were able to generate through the methodology. However, they unanimously agreed that if a larger number of community members had been involved, the outcomes would have been significantly more meaningful and transformative. This suggests that the perceived impact of participation is directly linked to the KPI on the average quantitative involvement of local inhabitants.

Based on the results derived from the application of the methodology, the seven evaluated initiatives were generally assessed positively. With few exceptions—stemming from critical perspectives regarding specific outcomes or opposition to particular initiatives—the initiatives were perceived as effectively addressing and fulfilling the needs and expectations of the neighborhood. The deliverable also proposes the means and tools for data collection, data analysis and data reporting.

In relation to data collection, the document outlines a robust data collection process, involving various sources such as surveys, censuses, activity recording, administrative data, and interviews with stakeholders. This comprehensive approach ensures that data is gathered from diverse perspectives and sources, contributing to a holistic understanding of the project's impact.

To outline the approach for data analysis, the document highlights the use of a variety of methods for data analysis to identify trends and patterns, focusing on changes in Key Performance Indicators (KPIs) over time and comparing the performance of different groups or domains. This approach indicates a commitment to thorough and nuanced analysis to derive meaningful insights from the collected data.

In relation to data reporting, the document emphasizes the importance of reporting the results of the evaluation through annual/project reports, dashboards, or web applications, providing an overview of key findings and recommendations for improving the effectiveness of KPIs and the programs they track. This indicates a focus on transparency, accessibility, and actionable insights derived from the evaluation process. The deliverable proposes the usage of a platform created in a previous project to optimize resources.

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9. Annexes

Annex A: Usage indicator.

interview script

Perceived Usefulness:

This dimension assesses whether users believe that using the methodology will enhance their job performance or daily activities.
Likert scale of 1 (not useful) to 5 (very useful):

- To what extent do you think the methodology has contributed to achieving the goals of creating smart neighborhoods?
- How effective has the methodology been in fostering collaboration between stakeholders, such as residents, stakeholders, and policymakers?
- How would you rate the overall impact of the methodology on the planning and execution of the renovation process?

Open-ended questions:

- How would you describe the overall impact of the methodology on the planning and execution of the project?
- Has the methodology helped in addressing the specific needs of the neighborhood? If so, how?
- In your opinion, does the methodology offer clear benefits compared to other approaches you have used or are familiar with? If so, which?

Perceived Ease of Use:

This aspect explores users' perceptions regarding how easy it is to learn and use the methodology.
Likert scale of 1 (very challenging) to 5 (very straightforward):

- How easy or intuitive was it to understand the methodology and its components?
- How would you evaluate the clarity and organization of the guidance provided by the methodology?
- How would you rate the ease of implementing the methodology and steps?

Open-ended questions:

- Were the tools and steps within the methodology straightforward to implement? Why or why not?
- Did you encounter any challenges or barriers when applying the methodology? If so, what were they?

Do you think the methodology is flexible enough to adapt to different contexts or specific challenges? If not, what changes would you suggest?

Annex B: Final interview: drop citizens

This interview is part of the evaluation process of the IRM developed in DROP aimed at assessing the acceptance indicator. It analyses the perception, opinion and feelings of the participants regarding the methodology and its outcomes.

Overall ACCEPTANCE of methodology and results

Measuring the acceptance level of the process, both methodology and outcomes.

1. Understanding the IRM Methodology
   - How would you describe your experience with the process used in this project?
   - Were the methods and tools employed during the process clear and easy to use?
   - Were there any steps that you found challenging or less effective?

2. Perceived Value and Impact of Participation

   - Did you feel that your input was valued and taken into account throughout the project?
   - How satisfied are you with the level of collaboration and communication among participants?
   - Did you feel empowered to contribute meaningfully to the co-creation process?

3. Acceptance of Results

   - To what extent do you agree with the results or outcomes of the project? Why?
   - Do you believe the results reflect the collective input of all participants?
   - What aspects of the results do you think could be improved?

4. Future Implications and Feedback

   - Would you be interested in participating in similar co-creation projects in the future? Why or why not?
   - What recommendations would you make for improving the methodology?

List of abbreviations and acronyms

Table 4 Abbreviations used in the report

Abbreviation	Description
API	Application Programming Interface
EPBD	Energy Performance of Buildings Directive
drOp	Digitally enabled social district renovation processes for age-friendly environments driving social innovation and local economic development
DHW	Domestic Hot Water
DSO	Distributions System Operator
EU	European Union
FAIR	Findable, Accessible, Interoperable and Reusable
KPI	Key Performance Indicators
LTF	Local Task Force
NGO	Non-profit organizations
ICT	information and communication technology
IRM	Integrated Renovation Methodology
SRI	Smart Readiness Indicator

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