

ESTUDIOS Y MONOGRAFÍAS

BEHAVIORAL ECONOMICS: REAL-WORLD CASE STUDIES

ELENA ORTIZ-TERAN
RAFAEL LÓPEZ-PÉREZ
(Editors)

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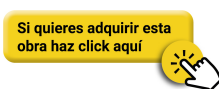
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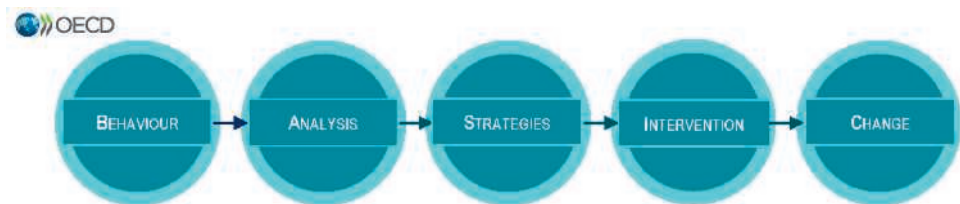
The centrepiece of this design is the configuration of a joint university-municipality team, in which the University of Alcalá provides theoretical frameworks, methodologies, and experience in applied research, while the city council contributes knowledge of the territory, decision-making capacity, and access to key actors. This alliance allows the pilot unit to serve as a stable bridge for knowledge transfer, integrating behavioural tools into the daily practice of municipal services without requiring a formal organisational restructuring.

Methodologically, the study combines three main elements:

- The use of behaviour change frameworks (BASIC, COM-B, and BCW) as the backbone of the analysis.
- The use of qualitative and participatory techniques (interviews, focus groups, photovoice, asset mapping, environmental audit) to understand the relevant behaviours of citizens and technical staff. These techniques are used not only as sources of information but also as participatory devices that allow the community to influence the definition of problems and solutions, bringing the process closer to levels of co-production (Arnstein, 1969; Fung, 2006; Sanz Vega et al., 2018).
- The creation of a controlled small-scale experimentation environment in which intervention prototypes are designed, piloted, and adjusted before their eventual scaling up.

The creation of this unit follows a gradual process comprising three main stages that correspond to the OECD's BASIC logic (OECD, 2019a).

Figure 1. The OECD's BASIC methodology (Behaviour, Analysis, Strategy, Intervention, Change)



Source: Adapted from OECD (2019). Tools and ethics for applying behavioural insights: the BASIC toolkit. OECD Publishing, Paris.

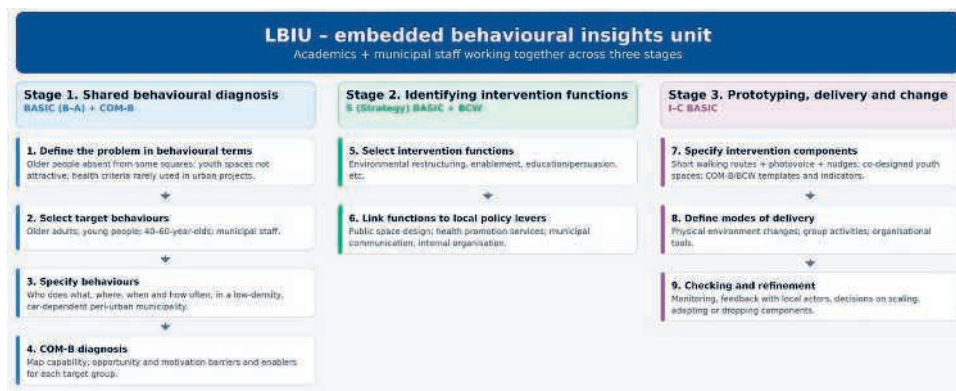


- **Phase 1. Establishment of the core promotion group (Behaviour-Analysis):** agreement between the research team and the local government to create a pilot unit, definition of general objectives and selection of a small group of leading municipal technicians. At the same time, the municipality is assisted in formalising its membership of the Healthy Cities Network, with an assessment of behavioural barriers among members of the government team being carried out from the outset.
- **Phase 2. Development of basic skills (Analysis-Strategy):** initial training of the core group in BASIC, COM-B and BCW, preparation of work templates and first joint behavioural diagnosis sessions applied to problems already identified by the municipality. This phase is supported by literature reviews and the report on the mapping of health assets and determinants in the municipality, which provides structured information on community resources, intersectorality and the perceptions of different population groups (interviews, discussion groups, photovoice, artisanal mapping with young people).
- **Phase 3. Integration into routine practice (Strategy-Intervention-Change):** incorporation of the LBIU into specific health promotion and public space projects, creation of a stable, cross-cutting steering group, and establishment of routines for documentation and feedback of results.

These phases are intertwined with three main methodological stages— understanding behaviour, identifying intervention functions, and defining content and implementation— through which the LBIU is built as the behavioural approach is applied to specific problems in the peri-urban municipality. Figure 2 summarizes these three stages and the unit’s cross-cutting role. This approach aligns with the literature on local health system governance, which shows that forms of intersectoral coordination and the sustained involvement of community actors condition the scope of interventions (Quilling et al., 2022; Schneider et al., 2019; Van der Bijl-Brouwer, 2019).



Figure 2. LBIU workflow through BASIC, COM-B and BCW



Source: Own elaboration. The figure shows the workflow (LBIU), in which academic and municipal staff collaborate in three stages.

2.1. STAGE 1: UNDERSTANDING BEHAVIOUR

The first LBIU meetings, still in the consolidation phase, focused on reformulating municipal problems by assessing them from a behavioural perspective, using the BASIC and COM-B methodologies as shared languages between the technical and academic teams.

2.1.1. Defining the problem in terms of behaviour

The starting point focuses on problems identified by the municipality in health promotion and the use of public space: the low use of certain spaces by older people, the low uptake of municipal facilities by young people, the increasing difficulties for the middle-aged population to prioritise healthy activities, and the low incorporation of health criteria in urban decisions. In the pilot phase, these problems are explicitly located in an environment with isolated, low-density housing, which limits people's opportunities to meet and use squares and streets in everyday life.

The LBIU reframes these challenges as specific behavioural problems that occur in these spaces and conditions, rather than treating them solely as deficiencies in infrastructure or service provision. For each problem, the following is defined: who should do what, where, when and how often, generating a limited list of target behaviours that will then be linked to indicators of change. This specification allows for the definition of operational indicators (e.g., number of users, changes in the use of spaces by age



group, frequency of participation in healthy activities, number of projects reviewed with COM-B/BCW templates prior to approval).

2.1.2. Select and specify target behaviours

Based on this definition, a set of behaviours is selected with objectives in four areas: older people, young people, middle-aged people, and municipal organisations.

- For older people, the target behaviour is to expand their daily universe, currently reduced to a few accessible spaces, by increasing their presence and permanence in certain itineraries and squares.
- For young people, the focus is on their relationship with municipal spaces, which do not compete well with private spaces in terms of flexibility, identity, and social climate.
- For the middle-aged population, the target behaviour involves incorporating short periods of physical activity and contact with the environment into contexts where these practices are not a priority.
- In the institutional sphere, the behaviour focuses on technical staff and how they incorporate health and care criteria into urban design and the management of projects and activities.

2.1.3. Identify what needs to change (COM-B diagnosis)

For each behaviour, a COM-B-based diagnosis is conducted, drawing on data from interviews, focus groups, photovoice, asset mapping, environmental audits, and administrative data.

- In the case of older people, a COM-B matrix and an asset map were constructed to identify how the combination of mobility limitations, discontinuities in public space, and perceptions of safety concentrated their daily lives in a few accessible spaces (doorway, senior centre, main park), reducing the physical and social opportunity to walk and stay in other potentially healthy environments.
- In the case of the young population, the combination of COM-B matrices and qualitative fieldwork (handcrafted mapping of assets, group discussions) made it possible to identify limited social and symbolic opportunities in municipal spaces (low flexibility of use, weak youth identity, and an unwelcoming social climate), which



translates into reduced motivation to use them compared to private options perceived as more accessible and attractive, close to their tastes and leisure time schedules.

- In the middle-aged population, the combined use of COM-B and qualitative techniques highlighted that the life context (workload, caregiving, and domestic tasks) makes it difficult for healthy activities to compete with other priorities, creating barriers mainly in terms of motivation, time, and energy rather than a lack of municipal resources.
- In the case of municipal technical staff, a specific COM-B matrix was developed to systematically classify barriers and facilitators in terms of capacity (training in urban health and the use of COM-B/BCW frameworks), opportunity (internal protocols, availability of time and information to integrate health criteria into projects) and motivation (presence of biases such as status quo, loss aversion or bias in urban design decision-making).

The result of this process is a series of COM-B matrices per group that include textual citations, classification of barriers and facilitators, and a list of levers of change for each target behaviour. These matrices function as a methodological bridge between diagnosis and the selection of intervention functions through the BCW.

2.1.4. Use of evidence and previous cases

Prior to formulating concrete proposals, the university research team conducted structured literature reviews and case studies of successful health promotion and behavioural science initiatives at the local level, with a focus on comparable urban and peri-urban contexts. These reviews included reports from international organisations (OECD, WHO, healthy cities networks) and documented municipal experiences, which were used to identify design principles and intervention functions with prior evidence of effectiveness. These cases included applications of behavioural mapping, which illustrated the possibility of combining climate and urban planning objectives with health in local contexts (Hale et al., 2022). On this basis, the unit adapted the interventions to the municipality's specific context, combining lessons learned from successful cases with the local behavioural diagnosis and the mapping of assets developed for the municipality.



2.2. STAGE 2: IDENTIFY INTERVENTION FUNCTIONS

2.2.1. Select intervention functions (BCW and APEASE)

With the COM-B map completed and the literature reviewed, intervention functions are selected using the BCW, which links COM-B components to functions such as education, persuasion, environmental restructuring, and empowerment (Michie et al., 2011; West & Michie, 2020).

In the study of the **technical equipment**, the following functions are prioritised:

- Environmental and urban restructuring (e.g., shade prototypes and user-friendly signage in squares and streets).
- Enablement and processes (simple protocols and a minimum set of urban health indicators integrated into projects).
- Selective education/persuasion (brief training with local examples).

Similarly, for older adults, young people, and the middle-aged population, priority is given to combinations of intervention functions that modify the environment, facilitate access, and create social opportunities (e.g., tactical urbanism prototypes, adjustments to schedules or information channels, use of community assets) rather than appealing solely to individual willpower.

These decisions are worked out in regular meetings of the joint municipal-university team, where different options are discussed, and the most appropriate ones are selected based on their operational feasibility, acceptability to the groups involved, and expected impact on equity, following the APEASE criteria.

Table 1. Designing a healthy route using the APEASE criteria

Step / APEASE criterion	Key questions for the LBIU	Design decisions for the healthy route
1. Acceptability	Are the proposed route and changes desirable for older people, families, technical experts, and policy makers?	Short workshop with older people and associations to validate the route, stops, and timetables; adjustment of the route to avoid steep slopes or sections perceived as unsafe.



Step / APEASE criterion	Key questions for the LBIU	Design decisions for the healthy route
2. Feasibility	Can it be implemented with the municipality's current resources, timeframes, and capabilities?	Review with town planning and works departments to identify sections where signage/painting is sufficient and sections that require minor repairs or lowering; planning in 2–3 micro-phases that can be undertaken by municipal services.
3. Effectiveness/cost-effectiveness	Is it likely to increase walking and use of the square by older people, and at what cost per user?	Selection of 2–3 changes with the greatest impact per cost: benches at key points, clear signage with distance/time, small pleasant "landmarks" (viewpoint, garden, water point); definition of indicators (users, length of stay, weekly frequency).
4. Affordability	Does it fit within the budget available for minor improvements and signage?	Estimate the costs of signs, paint, 3–5 benches, and some light shade elements; adjust the design to a small annual budget, prioritising actions that can be carried out with the council's own resources.
5. Side effects	Could it generate unexpected negative effects (traffic conflicts, noise, neighbourhood tensions)?	Check with the local police and neighbourhood to identify potential conflicts; introduce minor detours or time recommendations if traffic, parking, or coexistence problems arise.
6. Equity	Does it reduce, maintain, or increase inequalities between neighbourhoods and groups?	Prioritise the route in areas with a higher elderly population and fewer resources; plan a second route in another neighbourhood to avoid concentrating benefits in a single area and improve territorial coverage.
7. Final components	What specific elements will the route include once filtered by APEASE?	Signposted route with clear start and end points; benches and shade every 150–200 m; start panel with distance, estimated time, and brief safety messages; possible points with local stories or photovoice.
8. Monitoring and review	How will the route be evaluated and updated?	Periodic user counts and brief surveys of older people; annual review of APEASE criteria to decide on maintenance, expansion, or adjustments to the healthy route.

Source: Own elaboration based on the APEASE framework and guidelines for designing healthy routes at the municipal level.



At this point, the problems identified are not only resolved by the team of technicians from the municipality and the university, but are also transferred, through different methodologies, to the final projects of the final years of the university's Building Engineering and Architecture courses, so that students can propose urban and construction solutions that are explicitly evaluated with APEASE.

This not only helps generate more realistic and equitable proposals but also keeps the university, through the LBIU, involved in the implementation phase of public policy, reinforcing the bidirectional nature of these units in their work with local authorities.

2.2.2. Translation into policy categories

The intervention functions are translated into operational policy categories at the local level:

- Planning and management of public space (e.g., tactical urbanism prototypes).
- Provision of health promotion services and programmes (projects to improve health and emotional well-being).
- Municipal communication and marketing.
- Internal organisation (cross-cutting groups, COM-B/BCW templates, visible indicators).

Table 2 summarises this integration for the creation of an action protocol in each phase of what the unit does using the BASIC methodology, what data it uses (e.g., number of participants, number of spaces intervened, COM-B matrices generated, number of prototypes designed) and what main result is expected (e.g., list of target behaviours, prioritised intervention functions, prototyped components).

Table 2
LBIU protocol by BASIC phases

BASIC phase	What the LBIU does	What data it uses	Main expected outcome
Behaviour	Select priority municipal issues and reformulate them in terms of specific behaviour.	Initial list of municipal problems, planning documents, and exploratory meetings	Shortlist of prioritised behavioural problems formulated as "who does what, where, when, and how often".



BASIC phase	What the LBIU does	What data it uses	Main expected outcome
		with political and technical teams.	
Analysis	Conduct a behavioural diagnosis using COM-B and asset mapping for each target behaviour.	Interviews, focus groups, photo-voice, asset mapping, environmental audit, administrative data, and field observation.	COM-B matrices by group, synthesis of barriers and facilitators, and a list of levers for change by behaviour.
Strategy	Select intervention functions using BCW and APEASE criteria and translate them into local policy categories.	COM-B matrices, review of literature and previous cases, mixed team discussions, and draft municipal projects.	Set of prioritised intervention functions and a map of policy categories (public space, services, communication, internal organisation).
Intervention	Co-design and prototype small-scale interventions consistent with the selected functions.	Data on available resources, operational constraints, input from technical staff and community actors, and design sketches.	Prototyped intervention components (physical changes, activities, organisational tools) and pilot implementation plan.
Change and institutionalisation	Implement pilots, monitor and adjust, documenting lessons learned for incorporation into routines and standards.	Process indicators (participation, use of spaces, route compliance), preliminary outcome indicators, and qualitative feedback.	Prototype adjustments, recommendations for scaling up or incorporation into standards/protocols, and reusable lessons for future policies.

Source: Adaptation of the BASIC framework for behavioural public policies proposed by the OECD, applied to the LBIU working protocol in a small peri-urban municipality.

2.3. STAGE 3: CONTENT AND IMPLEMENTATION

2.3.1. Components of interventions

This is the stage at which the intervention functions are broken down into specific components, consistent with the BCW:



- For older and middle-aged people, short weekend routes through natural or heritage environments are combined with photovoice elements and small “nudges” (signage, reminders, route structure) that make it easier to start and complete the experience.
- For young people, interventions include reconfiguring spaces to make them more accessible, co-design processes in which they define uses and rules, and messages adapted to their channels and languages.
- At the institutional level, the components include simple templates for applying COM-B/BCW in projects, regular cross-cutting meetings, and a small panel of visible indicators to monitor the use of spaces and participation.

Although the chapter does not list Behaviour Change Techniques (BCT) one by one, each component follows a logic recognisable in the behaviour change literature, applied to the constraints and opportunities of the municipality.

Figure 3. Breakdown of Intervention Functions according to BCW



Source: Prepared by the authors based on Michie et al. (2011) and the LBIU protocol (De-Haro Moreno, 2025).

2.3.2. Delivery method

Interventions are implemented through three types of channels:

- Physical changes to the environment (tactical urbanism prototypes, signage, shading, furniture).
- Group and participatory activities and processes (workshops, photovoice sessions, co-design, asset mapping).
- Internal organisational tools (protocols, cross-cutting groups, indicator panels).

Priority is given to low-complexity, low-cost formats that can be managed by municipal services and are consistent with the sandbox logic: testing in a limited number of spaces or programmes, measuring, and only then considering scaling up or incorporating them into regulations.

2.3.3. Verification and refinement

Each prototype incorporates a monitoring scheme with:

- Process indicators: participation (number of people per group and activity), use of spaces (counts by time slot and profile), compliance with routes, qualitative feedback collected in interviews and groups.
- Preliminary outcome indicators: observed changes in usage patterns, perceptions of comfort, safety, or well-being, incorporation of health criteria, and COM-B/BCW templates in municipal projects.

This data is discussed within the internal cross-functional group and with community stakeholders, allowing adjustments to the interventions, decisions on which elements to consolidate into standards or protocols, and which components require redesign or abandonment. This cycle of testing and refinement not only adjusts interventions but also consolidates the LBIU as an internal reference unit for structuring municipal decisions from a behavioural perspective, completing the “Change” phase of BASIC in terms of institutionalisation and learning.



3. RESULTS

3.1. DEFINING THE PROBLEM IN BEHAVIOURAL TERMS

The initial problem, as noted in the introduction, was not only to improve health promotion, but also to address the municipality's inability to sustainably activate daily use of public spaces or participation in healthy activities among different population groups. Despite the availability of programmes, facilities, and a local health strategy, certain spaces remained underused by older people, young people, and the middle-aged population, and health criteria were rarely explicitly incorporated into urban and social decisions.

The LBIU reformulated this problem in behavioural terms as a combination of four patterns: (i) very narrow itineraries and brief stays by older people in public spaces; (ii) low appropriation of municipal spaces by young people compared to private alternatives; (iii) difficulties for middle-aged people in prioritising care and physical activity; and (iv) irregular application of health and care criteria by municipal technical staff in projects involving squares and streets. The LBIU's work focused on these specific behaviours, rather than abstract categories such as 'lack of participation' or 'underuse of public space'.

3.2. SELECTING AND SPECIFYING TARGET BEHAVIOURS

Qualitative work and dialogue between the LBIU and the municipal technical team enabled the identification of a limited set of target behaviours across the four areas mentioned above. Table 3 summarises these behaviours and the peri-urban context in which they occur.

Table 3 *Target behaviours by group and peri-urban context*

Group	Problem observed in the peri-urban municipality	Target behaviour (formulated in behavioural terms)
Older people	Very short daily itineraries, concentration in a few safe spaces, and low permanence in squares and parks.	Extend and maintain walking routes and time spent in certain public spaces (squares, parks, short routes) beyond the usual points.
Young people	Municipal spaces are perceived as unattractive compared to private options; low appropriation and unequal use of facilities.	Use municipal youth spaces and facilities appropriately, participate in activities, and define uses and rules.



Middle-aged population	Difficulty prioritising healthy activities in contexts of high workload and care responsibilities; low participation.	Incorporate short weekend routes in natural or municipal heritage environments as a regular practice of physical activity and care.
Municipal technical staff	Health and care criteria are not widely considered in the design of squares and streets; urban decisions are guided by inertia and timing.	Systematically apply a health and care filter to urban projects (e.g., using COM-B/BCW templates and minimum indicators).

In older people, the diagnosis shows that their daily horizon has narrowed around a few accessible spaces, limiting their physical and social opportunity to walk and stay in other spaces. It is determined that the vast majority of older people end up moving almost exclusively between their front door, the senior centre, and the main park, because these are the only routes they perceive as safe, shaded, and with sufficient benches.

Among young people, experts and associations agree that municipal spaces do not compete well with private spaces in terms of flexibility, identity, and social climate, a trend reflected in the low uptake of public facilities. The analysis points to limited social and symbolic opportunities in municipal spaces (lack of flexibility, identity, and social climate), which reduces the motivation to use them compared to private options. Secondary schools and youth centres are perceived as temporary spaces, with fixed furniture, rigid rules, and closed programming, while places such as go-karting tracks, churros shops, and kebab shops function as comfortable, long-lasting meeting points.

In the middle-aged population, the diagnosis indicates that it is not enough to offer healthy activities in difficult living contexts and expect them to become a priority. It is observed that the life context makes it difficult for healthy activities to compete with other demands, affecting motivation and opportunity more than the available offer. These people reach the end of the day between work, caregiving, and domestic chores with little mental space to go for a walk, sign up for an activity, or use a municipal resource, even though they know it would be good for them.

At the institutional level, the analyses showed that the problem was not a lack of will but rather the absence of structures and routines that would enable the incorporation of health criteria into the usual project cycle. In the case of technical staff, the COM-B matrix identifies capacity deficits (limited training in urban health and in the use of COM-B/BCW), opportunity constraints (lack of protocols requiring projects to be reviewed using health cri-

teria and little time to integrate local health data), and motivational barriers linked to biases such as status quo, loss aversion, or present bias.

3.3. IDENTIFYING WHAT NEEDS TO CHANGE: COM-B ANALYSIS

The objective of the COM-B analysis was to identify which conditions of capability, opportunity, and motivation needed to change for the defined behaviours to occur more frequently in the municipality, while accounting for the characteristics of the peri-urban environment.

Table 4 Summary of the COM-B diagnosis by group

Group	Capacity (C)	Opportunity (O)	Motivation (M)
Older adults	Basic information about resources, but difficulty visualising new routes and managing physical limitations.	Few routes are perceived as accessible and safe; dispersed urban planning often requires a car for many activities.	Preference for well-established routines, fear of straying from familiar places, and perception that exploring other places requires a great deal of effort.
Young people	Awareness of municipal services, but limited ability to influence their configuration.	Municipal spaces are inflexible, with rules and designs that do not fit their patterns of use; strong competition from private spaces.	Low symbolic identification with municipal spaces; perception that "they are not for them" compared to private options.
Middle-aged population	Sufficient knowledge about the benefits of physical activity and routes available through municipal programmes.	Long working hours, caregiving responsibilities, and car travel reduce the scope for healthy activities.	Difficulty prioritising self-care over other demands; tendency to postpone healthy decisions.
Municipal technical staff	Limited training in urban health and use of COM-B/BCW; little experience in applying behavioural frameworks to projects.	Lack of internal protocols requiring the integration of health criteria; little time to review health data in the project cycle.	Status quo biases, loss aversion, and present bias favour familiar solutions with low perceived risk.

Among technical staff, capacity limitations were observed in specific training in urban health and in the use of COM-B/BCW, along with oppor-



tunities constrained by the lack of protocols and time to review health data. Among older people, physical and social opportunities were strongly conditioned by dispersed urban planning and the perception of safety associated with few familiar routes. Among young people, symbolic and social opportunities were weak in municipal spaces, reducing motivation to use them; among middle-aged people, motivation was strained by busy schedules that relegated self-care to the background.

Overall, the COM-B analysis enabled moving from generic diagnoses to a map of specific barriers and facilitators by group.

To operationalise this information, the LBIU linked each barrier to BCW intervention functions and to specific components of the unit. Table 5 summarises these relationships.

Table 5 *Link between COM-B barriers, intervention functions, and LBIU components*

Group/area	Specific barrier	COM-B	Prioritised BCW functions	LBIU component/technique applied
Older people	Movement restricted to a few perceived safe spaces.	Physical and social opportunity.	Environmental restructuring; habilitation.	Improvement of short routes (benches, shade, user-friendly signage) connecting familiar spaces with less-used ones.
Young people	Municipal spaces that are unattractive compared to private alternatives.	Social opportunity; automatic motivation.	Environmental restructuring; modeling; selective education/persuasion.	Reconfiguration of youth spaces, co-design processes for uses and rules, schedules, and specific communication on youth channels.
Middle-aged population	Difficulty prioritising healthy activities over other demands.	Opportunity; reflective motivation.	Enablement; education/persuasion; small nudges (Banerjee & John, 2024).	Design of short weekend routes in natural or heritage environments, materials focused on well-being, and reminders associated with the activity cycle.
Municipal technical staff	Lack of protocols and time to integrate	Capacity; organisational opportunity.	Empowerment; education; organisational restructuring.	COM-B/BCW templates integrated into the project circuit, cross-cutting the LBIU



Group/area	Specific barrier	COM-B	Prioritised BCW functions	LBIU component/technique applied
	health criteria into urban projects.			group and a minimum panel of urban health indicators.

3.4. BEHAVIOURAL DIAGNOSIS: WHAT NEEDS TO CHANGE

The behavioural diagnosis indicates that the necessary changes are concentrated in three areas: strengthening specific capacities (especially among technical staff), expanding physical and social opportunities in a dispersed peri-urban environment, and rebalancing motivation in the face of routines and biases that favour the status quo.

3.5. IDENTIFIED INTERVENTION FUNCTIONS

Based on the COM-B diagnosis and following the BCW guide, the LBIU identified a limited set of priority intervention functions: environmental restructuring, empowerment, and selective education/persuasion. These functions are combined differently across groups, avoiding a sole focus on informing citizens by reinforcing co-creation and enhancing tools.

At the institutional level, elements of organisational restructuring (cross-cutting group, templates, indicators) were added to enable more consistent decision-making aligned with the behavioural diagnosis. The existence of a unit dedicated to coordinating these functions across the board makes it easier to maintain consistency between interventions aimed at different groups and over time.

3.6. MUNICIPAL POLICY CATEGORIES

The intervention functions were translated into four policy areas that could be managed by the council: planning and management of public space, provision of health promotion services, municipal communication, and internal organisation.

The LBIU acts as a hub connecting these categories: it introduces behavioural criteria into public space projects, adjusts municipal programmes to align them with the COM-B diagnosis, guides messages and communication channels, and promotes internal routines (cross-cutting groups, indicators) that enable changes to be sustained beyond the pilot phase. This



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