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Deliverable 3.3

ELABORATOR Twinning: Guidelines and templates towards the cross-case co-creation process

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Project Executive Summary

ELABORATOR stands for 'The European Living Lab on designing sustainable urban mobility towards climate neutral cities'. The EU-funded project uses a holistic approach for planning, designing, implementing and deploying specific innovations and interventions towards safe, inclusive and sustainable urban mobility. These interventions consist of smart enforcement tools, space redesign and dynamic allocation, shared services, and integration of active and green modes of transportation.

They will be specifically co-designed and co-created with identified "vulnerable to exclusion" user groups, local authorities and relevant stakeholders. The interventions will be demonstrated in a number of cities across Europe, starting with six Lighthouse cities and six Follower cities with three principal aims:

I. to collect, assess and analyse user needs and requirements towards a safe and inclusive mobility and climate neutral cities;
II. to collect and share rich information sets made of real data, traces from dedicated toolkits, users' and stakeholders' opinions among the cities, so as to increase the take up of the innovations via a twinning approach;
III. to generate detailed guidelines, policies, future roadmap and built capacity for service providers, planning authorities and urban designers for the optimum integration of such inclusive and safe mobility interventions into Sustainable Urban Mobility Plans (SUMPs).

ELABORATOR Lighthouse cities

- Milan (Italy)
- Copenhagen (Denmark)
- Helsinki (Finland)
- Issy-les-Moulineaux (France)
- Zaragoza (Spain)
- Trikala (Greece)

ELABORATOR Follower cities

- Lund (Sweden)
- Liberec (Czech Republic)
- Velenje (Slovenia)
- Split (Croatia)
- Krusevac (Serbia)
- Ioannina (Greece)

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INTERNATIONAL ROAD ASSESSMENT PROGRAMME	UK	**IRAP**
UNIVERSITY OF BRISTOL	UK	**UBRIS**

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List of abbreviations and acronyms

Acronym	Meaning
LH	Lighthouse city
FC	Follower city
OC	Observer city
CoP	Community of Practice
WP	Work Package
LL	Living Lab

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Deliverable executive summary

The ELABORATOR project aims to support cities across Europe in their transition towards climate neutrality by promoting the implementation of mobility interventions towards inclusive, sustainable, safe and affordable mobility. The project aims to provide tools and methods to support a truly collaborative and participatory approach in achieving inclusive transport infrastructure development in 12 cities across Europe.

Deliverable 3.3 presents the work of Task 3.2 the ELABORATOR Twinning: Cross-case methodology for co-creation towards effective uptake of interventions, which aimed to develop the overall approach for the co-creation process involving Lighthouse and Follower cities at different stages of the project. This Deliverable Report presents guidelines and templates for co-creation process between Lighthouse and Follower cities for the design stage of the project, co-creation cycle protocols and guidelines for robust twinning processes. While the focus of this report is the processes for cooperation between Lighthouse and Follower cities, twinning processes, particularly in relation to the Community of Practice are also applicable to Observer cities. The report further provides specific templates and examples from the early sessions conducted in 2024, as part of Task 3.2.

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1 Introduction

1.1 The concept of Twinning

1.1.1 The ELABORATOR twinning methodology

The twinning methodology of ELABORATOR seeks to bring together the ELABORATOR Lighthouse, Follower and Observer cities in a knowledge hub and built-in learning cycle where they will be able to share experiences and lessons learnt, best practices and techniques. Learning across European cities will be supported by the twinning methodology, drawing on real-world deployment, demonstration, evaluation and assessment, together with citizens and stakeholders, in different geographical, demographic, economic, cultural and societal contexts. Within the ELABORATOR project, twinning is defined as the "reproduction of an intervention in a different urban socio-economic context, with relevant needs and identified expectations of outcome" (ELABORATOR Grant Agreement, p. 7). This means that twinning activities will support reproduction and local uptake of interventions in different urban socio-economic contexts where local needs have been taken into account and possible outcomes have been explored. The twinning methodology is intended to contribute to long-term viability of the measures as well as the capacity of the cities to continue develop sustainable urban mobility.

1.1.2 The history of twinning

The concept of twinning, in different shapes, has been applied in the context of international development and cooperation for several decades as an alternative approach to technical assistance for learning between organisations. The Swedish International Development Cooperation Agency (SIDA) developed a concept of twinning in the 1960s, drawing on theories of learning in organisations, to improve cooperation and learning between organisations and institutions in Sweden and their counterparts in developing countries. SIDA's twinning approach built on copying or modelling, where the Swedish partner served as a model and the expected results were shared with two or more similar organisations (Jones & Blunt, 1999). Another strand of twinning methodology derives from the 'town twinning' movement (also referred to as 'twinned cities'), which has had similar objectives (Zelinsky, 1991; Laucht & Allbeson, 2023). 'Town twinning', in a Western European context, was developed in the 1950s by citizens and local governments, and closely related to the founding of the Council of European Municipalities and Regions (CEMR), to foster peace and local autonomy (e.g. Zelinsky, 1991; CEMR, 2007; Clarke, 2009; Langenohl, 2015). At that

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time Jean Bareth, one of the founders of the CEMR, described town twinning as "the coming together of two communities seeking, in this way, to take action with a European perspective in the aim of facing their problems and developing between themselves closer and closer ties of friendship" (Langenohl, 2015; CEMR, 2007, p. 2). The concept has been used in a wide array of contexts since then; to ease tensions during the cold war, to improve local government, support development in the global south, and building the European Union (Clarke, 2009). In the process of expanding the European Union (European Commission, 2012) twinning has been highlighted in developing democracy, improving the organisation and procedures of administrative and technical services in neighboring countries of the European Union (TACIS City Twinning; Commission of European Communities, 1999), but also within health care (Cadée et al., 2016) and sustainable urban transportation (In Tandem Project; World Health Organization (WHO, 2001)). In particular within the European Union context, twinning has been developed and used as a tool for institutional cooperation in a vast number of projects over the years, both between countries of the European Union as well as in collaboration with non-EU members (European Commission, 2023)[1].

1.1.3 Definitions of twinning

Despite the vast variety of practices and definitions of Twinning as a concept, it is frequently described as a process that contributes to knowledge and cultural exchange, capacity building, empowerment, citizen participation and social inclusion (e.g. Jones & Blunt 1999; CEMR 2007; Langenohl, 2015; Cadée et al., 2016, European Commission, 2023). In the TACIS City Twinning program, initiated by the Commission of European Communities, twinning was defined as "a formal and substantive collaboration between two organizations and/or cities" (WHO, 2001, p. 2). WHO (2001) points out that twinning should be a two-way process where both cities benefit and where interactions are substantial over a longer period of time. Capacity building, exchange of best practices, effectiveness, relationship building, networking and solidarity are benefits of city twinning that are suggested by the WHO (2001). In the context of health care, Cadée et al. (2016) has defined twinning in similar notions; "Twinning is a cross-cultural reciprocal process where two groups of people work together to achieve joint goals" (Cadée et al., 2016, p. 8). Besides the importance of reciprocity and the cross-cultural aspects of twinning, Cadée et al. (2016) highlights

[1] https://neighbourhood-enlargement.ec.europa.eu/funding-and-technical-assistance/twinning_en
https://international-partnerships.ec.europa.eu/funding-and-technical-assistance/technical-assistance/twinning_en
http://www.twinning.org/en/page/a-quick-overview
https://international-partnerships.ec.europa.eu/document/download/dfe8dce0-6fce-4ba6-811d-ca0a7b44f61f_en?filename=twinning-user-guide_en.pdf
https://netzerocities.eu/twinning-learning-programme/

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the dynamic and continuous nature of the process and the building of relationships. The experiences of SIDA indicate related conclusions. For successful twinning it is important that both partners are involved in all steps of the twinning process, such as planning, design, implementation, review and follow-up. If this is not the case, for example when short-term consultants are used for parts of the process, the twinning is unlikely to support long-term development. The long-term, joint process is put forward as a main advantage of the twinning model (Jones & Blunt, 1999). Furthermore, key principles of twinning, such as the need of flexible and reflexive approaches to the dynamic twinning process, the importance of structures, and the idea of reciprocity (Cadée et al., 2016; Wibeck et al., 2022), are of significant importance in the ELABORATOR Twinning process, and will be further explored in section 3 of this document.

1.2 The ELABORATOR method

The ELABORATOR project combines **Design Thinking** and **Agile Methodologies** through a co-creative approach, emphasizing continuous collaboration, iteration, and stakeholder engagement in all stages of design and implementation. This integration fosters ongoing innovation and cooperation among all involved parties.

Key Elements comprise:

- **Co-Creation Framework:** Every stage of the process involves co-creation, aligning with human-centered design and problem-solving. The Double Diamond model (Sioutis et al, 2024) is reflected in the focus on co-designing, co-producing, and co-evaluating solutions, ensuring inclusivity and addressing real societal needs, especially for marginalized groups.
- **Iterative and Adaptive Approach:** Agile methodologies, which include continuous feedback loops, are mirrored in the project's "meet in the middle" approach. This promotes continuous interaction between stakeholders (public, private, and citizens) with support from technical and academic partners to refine interventions. Interventions thus evolve based on local conditions and stakeholder input, which requires an adaptive design approach throughout the project.
- **Stakeholder Engagement:** The process of co-designing, co-producing, and co-evaluating ensures collaboration and incremental development, with regular feedback integration. Continuous stakeholder engagement ensures an

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agile design process, in which interventions and processes are continuously refined through stakeholder input and cross-cutting dialogues.

These methodological elements ensure that ELABORATOR interventions are inclusive, adaptive, and continuously improved through collaboration between stakeholders, technical experts and scientists.

1.3 Aim and outline of the document

The aim of this document is to provide practical guidelines and protocols to cities for the successful twinning of ELABORATOR Interventions between Lighthouse and Follower Cities.

Deliverable 3.3 presents the work of Task 3.2 the ELABORATOR Twinning: Cross-case methodology for co-creation towards effective uptake of interventions, which aimed to develop the overall approach for the co-creation process involving Lighthouse and Follower cities at different stages of the project. This Deliverable Report presents guidelines and templates for co-creation processes between Lighthouse and Follower cities for the design stage of the project, co-creation cycle protocols and guidelines for robust twinning processes.

The focus of this report is to outline the processes for cross-site cooperation between Lighthouse and Follower cities. The report provides templates and examples from the early sessions conducted in 2024, as part of Task 3.2.

This document is structured to provide both an overview and practical guidelines, templates and protocols for the different stages of the twinning process. Following the Introduction, section 2 provides a quick overview of the Lighthouse and Follower Cities. Section 3 presents the different steps of the twinning process: (1) Identifying Expectations, Interests and Needs, (2) Find your Match, (3) Twinning Workshops, and (4) Twinning Processes, including brief examples from the session conducted as part of the ELABORATOR project during 2024. Section 4 then provides practical guidelines, templates and protocols for each of these steps.

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1.4 Linkages to other ELABORATOR Tasks

Deliverable D3.3 has distinct linkages to WP 2, other tasks in WP 3 and WP 5, 6 & 7.

WP 2: In particular two of the Deliverables, namely **D2.1 (Inclusion Plan)** and **D2.2 (Evaluation Plan)** bear relevance for this deliverable as they provide guidelines and criteria for inclusion and evaluation of project activities. Selected criteria, such as the inclusion indicators can be included in the different steps of the ELABORATOR Twinning and feature in particular in the guidelines and protocols for the twinning process.

WP 3: **Task T3.1 (Discovery of stakeholders, needs, practices, and data**) and **Task T3.3 (Interventions Definition and Solutions' Twinning)** provide information about the local context and action plans, which inform the early processes of the ELABORATOR Twinning. These have been relevant for the process of matching Lighthouse cities with Follower cities, and processes were aligned during the early exploratory workshops during 2024. There is also a close link to the Community of Practice (CoP), which is organized as part of T3.3. D3.3 will also provide tools that are potentially relevant to **Task T3.4 (Multi-stakeholder Governance in LLs)** when exploring/designing the multilevel governance of LLs.

WP 5, 6 and 7: **(Implementation Phase)**

D3.3 will be relevant for the implementation phase, handled by **WP5** and **WP6.** Elements of the early twinning processes have already guided some of the selection process, and protocols for the twinning will guide processes across cities for various selected interventions. As such, the protocols provided in this Deliverable, will inform both the implementation as well as the evaluation and impact assessment phase (WP 7), as documentation by both Lighthouse and Follower cities can support the evaluation of social, environmental, and safety impacts of the implemented interventions.

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Figure 1: Copenhagen-Lund Twinning Workshop – June 2024

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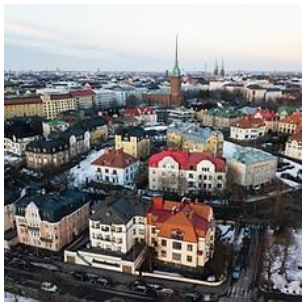
2 ELABORATOR CITIES

2.1 LIGHTHOUSE CITIES

2.1.1 Helsinki (Finland)





Set in the Jätkäsaari district, the Helsinki Living Lab focuses on enhancing traffic safety through digital solutions. The activities will target areas where the need for interventions is greatest.

The first initiative involves testing new technologies for collecting, visualizing, and analyzing accident-related data. To improve traffic safety, it is crucial to understand the risks associated with traffic. This includes not only analyzing accidents but also considering feelings of insecurity, near misses, and risk situations not covered by official statistics. The Helsinki Lab aims to address this by implementing an extensive, participatory map-based survey and testing new technological solutions for collecting such data, thereby targeting interventions more effectively to improve safety for vulnerable road users (VRUs) in the short term.

Another focus is optimizing parking locations for shared e-scooters. Currently, parking for shared e-scooters is limited in Helsinki. The Lab will restrict and study parking practices to enhance urban space usage, accessibility, and safety.

Additionally, the Lab aims to improve safety at intersections by installing real-time warning systems to reduce accidents involving pedestrians and cyclists. This initiative has the potential for broader implementation to enhance VRU safety in the long term.

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2.1.2 Copenhagen (Denmark)

The Copenhagen Living Lab aims for a better understanding of vulnerable road users' (VRUs) interactions and patterns to improve traffic management and planning. This initiative is set against the backdrop of significant changes in parking within the Medieval City Center, where 600 car parking spaces will be relocated to parking houses and bike parking will be shifted from squares to nearby streets.

The Lab examines the macro and micro-level impacts of these changes before and after their implementation. On a macro level, the Lighthouse project analyses behavioural, temporal, and spatial patterns in central Copenhagen, while on a micro level, it focuses on near encounters in specific intersections and behaviour in shared spaces. The initiative explores whether reducing parking lots in the Medieval City Center will lead to decreased car traffic, modal shifts, and reduced air pollution.

Additionally, the Lab addresses traffic safety at specific intersections and investigates near-encounter areas. In Copenhagen, bikes often crowd squares and streets, impeding pedestrian movement. To alleviate this, bike racks are being relocated from squares to nearby streets, encouraging better bike parking practices. The Lighthouse project will study the effects of this change. By improving the understanding of VRUs' interactions and patterns, the project aims to enhance traffic management and planning, thus increasing convenience and safety for VRUs. This will be achieved through both a macro perspective, assessing city-wide behavioural patterns, and a micro perspective, examining behaviours and interactions in specific intersections.

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2.1.3 Milan (Italy)



Milan faces persistent road safety challenges in its public transport, grappling with traffic fatalities and inadequate accessibility for vulnerable road users (VRUs). With an eye to the upcoming 2026 Winter Olympics in Milan and Cortina, the Milan Living Lab will focus on making the Olympic routes universally accessible, deploying cutting-edge sensors for visually impaired individuals and implementing tactical urbanism strategies along Via Novara. These interventions aim to create safer, more pedestrian-friendly environments and demonstrate Milan's commitment to inclusive urban development. The interventions will use stakeholder engagement to ensure that diverse perspectives—from disability advocacy groups to urban planners—are integrated into the design and implementation phases.

The Living Lab also incorporates digital technologies such as participatory mapping and decision support systems (DSS) to enhance urban planning processes. By mapping pedestrian infrastructure and using DSS to prioritize accessibility projects, Milan aims to establish a scalable model for future urban developments. This approach not only improves immediate safety and accessibility around Olympic venues but also sets a precedent for sustainable urban planning across the entire city.

In the long term, Milan seeks to redefine public spaces along Via Novara, transforming it from a thoroughfare to a cultural hub prioritising pedestrian and cyclist safety. The Living Lab's comprehensive mapping efforts and ongoing stakeholder consultations are poised to leave a lasting impact, guiding future redevelopment efforts towards greater accessibility and urban inclusivity throughout Milan's diverse neighbourhoods.

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2.1.4 Issy-les-Moulineaux (France)

The Issy-les-Moulineaux Living Lab aims to address an area highlighted by various stakeholders as dangerous for cyclists due to heavy traffic and unsafe bike lanes. The focus of the Lab is thus on enhancing safety for cyclists and subsequently for pedestrians, facilitating easier access to offices for workers and the nearby Ile Saint-Germain for families. The Lab also aims to promote sustainable transport modes, aligning with Issy-les-Moulineaux's urban redesign goal for major roads to prioritise bikes and pedestrians.

Issy will do so by engaging with stakeholders such as the city departments in charge of the road's infrastructure, cyclist associations, cyclists themselves, road users, and companies around the area. They will also undertake measurement campaigns to guide the interventions, which will consist of installing the Flowell technology for ground-level light markings to pre-empt potential collisions. The direct impact of the Lab is to achieve a less dangerous interaction phase between the different road users and to increase the number of bike users and pedestrians in the area. One of the identified mid-term goals is to use the experimentation made during ELABORATOR to better define the new organisation of the urban space where we want to have more space for bikes and pedestrians as the evaluation period will help us to define the elements. which will occur from 2025 to 2027. In the long-term view, the goal is to foster a city-wide cultural shift towards sustainable transport and enhanced safety.

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2.1.5 Zaragoza (Spain)

The Zaragoza Living Lab aims to develop safer and more accessible public spaces, particularly for women, children, the elderly, and people with disabilities. It will be located around the New Romareda Stadium, which has a hospital, seven schools, and an elderly home within a 500-meter radius. This area sees a convergence of pedestrian, bike, and traffic flows and is served by urban buses, trams, and shared services. The goal is to test and co-design safe, universal approaches at the neighbourhood level, balancing daily mobility needs with the big events scheduled at the stadium.

The main objective of the Zaragoza Living Lab is to leverage the New Romareda Stadium project to transform public spaces. The Lab will collaborate with local stakeholders and residents to shape the future mobility of this district. Consequently, the Municipality will test alternatives for public space transformation once the stadium is completed. To achieve this, the Living Lab will undertake several activities:

- Characterising local pedestrian mobility with on-site data collection and evaluation using an on-demand diagnostic mobility lab;
- Deploying a shared bicycle and e-scooter station for key local actors, enhanced with a Citizen Science Kit for mobility and environmental data collection;
- Conducting co-creation and safety evaluations through GIS-based surveys, a Mobility co-design Videogame, and participatory processes to gather local input;
- Testing future scenarios via pedestrian microsimulations to create public space design alternatives.

The expected impacts include promoting active mobility and responsible vehicle use in shared spaces, reducing car dependence for families at nearby schools, improving cycling infrastructure and public space distribution, and continuing to promote sustainable transport.

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2.1.6 Trikala (Greece)

Trikala faces mobility challenges due to underserved rural public transport, leading to car dependency, environmental impact, and city centre congestion. Some key issues include climate change, road safety, urbanization, and poor air quality from car emissions.

To address this, the Trikala Living Lab will promote sustainable mobility solutions like bicycles and efficient public transport, aligned with the Cities Mission. The city's Sustainable Urban Mobility Plan (SUMP) aims to enhance life quality through interventions like unifying bike paths, leveraging ICT infrastructures, and redeveloping public spaces to encourage sustainable transportation.

The main objective is to integrate and create new services for safe commuting, especially for vulnerable groups such as the elderly and women. Solutions include park-and-ride stations with bicycle fleets, sensors for route monitoring, software for bicycle station oversight, smart crossings for traffic control, and data-driven bike lane redesigns. The SMARTA2 app will be integrated to improve accessibility and safety. Participatory workshops will address obstacles and evaluate safety for women cyclists and other vulnerable groups. Expected impacts are increased bike usage and road safety awareness, reduced car dependency, better traffic management, and improved safety for vulnerable groups. Long-term goals include new urban planning strategies, reduced emissions, and increased sustainable mobility, supporting Trikala's vision of becoming a climate-neutral, Smart, and Resilient city by 2030.

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2.2 FOLLOWER CITIES

2.2.1 Lund (Sweden)



The Lund Living Lab represents a pivotal initiative aimed at reshaping urban mobility within the city's historic core, driven by the goals of enhancing safety, liveability, and sustainability. By leveraging insights and data generated through the Living Lab, Lund seeks to make informed decisions that not only improve the quality of urban life but also advance its ambitions of achieving net-zero emissions. Key objectives include the reduction of car traffic in specified areas, the promotion of eco-friendly transportation options such as cycling, the establishment of car-free zones to enrich urban experiences, and the mitigation of CO2 and other harmful emissions stemming from transportation activities.

The Lund LL will do so through real-time traffic data analytics to gain a comprehensive understanding of transportation dynamics. It will experiment with transforming urban streets into pedestrian and cycling zones during designated periods, closely analysing the resulting impacts. Additionally, Lund will collaborate with partner cities to replicate successful interventions and deploy an integrated data platform designed for seamless information sharing across the broader ELABORATOR project. In the short term, the Living Lab aims to create safer environments and foster greater adoption of sustainable transport modes among residents and visitors. Looking ahead, its long-term objectives envision a cityscape characterized by sustainable urban mobility solutions that significantly reduce emissions and enhance overall environmental quality. Ultimately, the Living Lab aligns closely with Lund's strategic vision of fostering a more inviting, sustainable, and resilient urban environment for future generations.

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2.2.2 Liberec (Czech Republic)



The Liberec Living Lab focuses on addressing a specific aspect of the broader challenge of inadequate infrastructure for sustainable mobility, crucial for the city to achieve its climate commitments. The project targets parking issues within housing estates as a pilot initiative in Liberec. These estates, typical of many urban areas, suffer from insufficient parking capacity, which poses safety concerns and hinders accessibility for all road users, including pedestrians and cyclists. Moreover, the lack of proper infrastructure for electromobility exacerbates reliance on private cars, going against the city's goal of climate neutrality.

The primary objective of the Liberec Living Lab is to enhance traffic safety in housing estates while promoting sustainable mobility citywide, thereby supporting Liberec's climate goals. Key outputs include implementing technical solutions such as vehicle plate detection and sensors to monitor parking space occupancy and turnover. This data will inform the establishment of effective parking regulations and facilitate the redesign of public spaces to accommodate electromobility and improve overall traffic flow. Methodologically, the Living Lab proposes a blend of technical solutions, such as Intelligent Transportation Systems (ITS) and sensors, alongside community engagement strategies. Public participation through interviews, public hearings, and civic forums will ensure that the parking regulations are widely accepted by residents and endorsed by city officials. In the short term, the Living Lab aims to reduce vehicle trips within housing estates, establish effective parking regulations, develop electromobility infrastructure, and redesign public spaces to prioritize non-car traffic. Looking ahead, its long-term goals include enhancing traffic safety, reducing emissions and air pollution, and increasing the use of sustainable transportation modes throughout the city.

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2.2.3 Velenje (Slovenia)



Velenje is committed to utilizing the Living Lab framework to foster collaboration and innovation in urban mobility, with a particular focus on advancing micro-mobility solutions that support the city's vision for a more environmentally sustainable and interconnected future. Alongside addressing the pressing need for sustainable mobility, the municipality aims to tackle environmental issues while ensuring inclusivity, safety, and efficiency for all residents.

The primary objectives of Velenje's Living Lab encompass establishing a collaborative ecosystem involving municipal authorities, citizens, and stakeholders to co-create and implement mobility interventions, especially in micro-mobility. Additionally, the Living Lab aims to deploy advanced mobility measurement tools, contribute to climate neutrality goals, and assess the effectiveness of innovative solutions. Velenje's approach will be comprehensive, involving co-design workshops with local communities, anonymous online surveys to gather quantitative mobility data, and promoting active and green mobility modes. The integration of traffic sensors and cameras will ensure data-driven decision-making, targeting interventions effectively. Furthermore, Velenje plans to engage in knowledge exchange with lighthouse and follower cities to adopt best practices.

In the short term, the Living Lab anticipates increased public engagement in mobility planning, enhanced access to sustainable transportation options, improved data collection capabilities, and a reduced carbon footprint. Looking ahead, Velenje aims to position itself as a model city in Slovenia for climate-neutral urban mobility and aims to increase the adoption of micro-mobility solutions over the long term.

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2.2.4 Split (Croatia)



The City of Split has strategically identified critical locations plagued by illegal parking, paving the way for a pioneering project involving video surveillance installation to curb violations and enhance traffic safety. Initially focusing on four high-traffic areas, this initiative aims to automatically detect infractions and issue fines, with plans to expand across the city pending successful implementation.

Among the Lab's primary goals is the reduction of illegal parking to reclaim space for pedestrians, cyclists, and other non-motorised users, thereby promoting urban mobility. Notably, the corridor along “Ulica Domovinskog rata” has been pinpointed as a crucial area, with intersections identified as particularly unsafe in Split's current urban landscape. The Living Lab in Split is set to implement a comprehensive approach. It will involve robust data collection to inform decisions, active community engagement in co-creation processes, and the integration of advanced technologies such as video surveillance systems for enforcement. This multifaceted strategy also includes infrastructure redesign initiatives and the promotion of alternative transportation methods to align with the city's climate neutrality objectives. In the short term, the Living Lab anticipates tangible improvements in traffic safety and efficiency, aiming to mitigate congestion and reduce accidents. These immediate gains are expected to foster a more pleasant urban environment for residents and visitors alike. Looking ahead, the Lab envisions a transformative role in shaping Split's future urban planning practices, ensuring sustainability, resilience, and enhanced quality of life in the long term.

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2.2.5 Krusevac (Serbia)



The Living Lab in Krusevac addresses the city's urban mobility challenges, such as traffic congestion, limited accessibility, and a low share of public transport, which affect residents' daily lives and contribute to environmental concerns. The Lab aims to pioneer innovative solutions to transform Krusevac into a model city for sustainable and inclusive urban mobility. The primary objectives are to alleviate immediate mobility challenges by enhancing accessibility, reducing congestion, and prioritising sustainable transport modes. Additionally, it aims to establish a blueprint for future urban mobility solutions that can be scaled and replicated, aligning with the city's vision of becoming a smart and sustainable urban centre.

Through collaborative workshops and participatory sessions, the Living Lab will engage with stakeholders to identify optimal intervention locations. This approach gathers valuable insights from key community actors and ensures a comprehensive understanding of the urban landscape's unique challenges and opportunities. Co-creation with citizens and shop owners will shape the new design of public spaces, capturing diverse perspectives and fostering a sense of ownership and community pride. The selection of intervention locations will prioritise strategic convergence to amplify the overall impact, underscoring a commitment to inclusivity, transparency, and innovative solutions.

In the short term, the Living Lab aims to showcase improvements in urban mobility, such as reduced traffic congestion, increased sustainable transport usage, and enhanced safety for pedestrians and cyclists. Long-term impacts include integrating smart technologies in urban planning, improving air quality, and shifting towards a more connected and environmentally conscious city.

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2.2.6 Ioannina (Greece)



The Living Lab of Ioannina aims to establish a platform connecting local authorities, citizens, cultural clubs, neighbourhood groups, and private companies, fostering a new ecosystem for interaction and experimentation. Central to this initiative is the promotion of sustainable mobility, specifically through the design and implementation of a common-use e-bike system and its docks.

The geographic focus extends from the city centre, encompassing urban activities, to the lake waterfront, which includes leisure, tourism, and sports activities. The Living Lab aims to co-design the municipal e-bike system, focusing on the optimal placement of e-bike docks considering land use, population density, and usability. It also aims to design bike lanes connecting the city centre to the lake waterfront and address safety issues related to bike mobility. To achieve these objectives, the Ioannina Living Lab will organize meetings with small teams to address specific issues and larger meetings to familiarize all stakeholders with the project's aims. Data will be collected through questionnaires and on-the-spot interviews to understand the real needs of the city. In the short term, the Living Lab aims to identify major mobility issues and relate them to the shared e-bike system. In the long term, it will participate in technical and land use planning to co-design the final solution. This initiative aligns with goals for reducing traffic, improving air quality, enhancing urban life quality, and supporting climate neutrality. The ultimate aim is to create a shared vision for sustainable mobility, foster a sense of ownership among stakeholders, and ensure the successful implementation of the proposed solutions.

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3 ELABORATOR TWINNING

3.1 Step 1 – Identifying Expectations, Interests and Needs

The first step of the twinning process is to understand the expectations, interests and needs of the involved Lighthouse and Follower cities to subsequently design the co-creation process in accordance. In the ELABORATOR project, we conducted early workshops and inquiries with the cities to establish a joint understanding of the twinning process, the challenges, interventions, stakeholders and living labs across the involved partners.

This first step focuses on an initial survey which was employed ahead of the second 'in real life' consortium meeting in January 2024, to establish a robust foundation for the initial matchmaking process. The survey was elaborated as part of a joint inquiry, including aspects and questions from multiple Work Packages and Tasks. In the following two sections we outline the twinning section of the survey and present a brief analysis of the results, while section 4.1 provides the template for the survey.

All 12 cities were asked to respond to the survey, of which 10 (5 Lighthouse and 5 Follower cities) responded on the twinning section which is presented in the following two sub-sections (3.1.1 and 3.1.2).

3.1.1 Expectations for the Twinning process

At the onset of any participatory process, it is of great importance to establish the expectations of the participating entities towards the overall process, and to establish a common understanding for what the twinning process entails. To provide the preconditions for this point of departure, we asked the initial question:

- What are your expectations for the twinning process? (e.g. what and how are you expecting to learn from other cities' interventions, how are you envisioning the process)

The results of this rather openly formulated question ranged from very specific interventions and processes that cities expected to explore within the project to more generic learning goals. Lighthouse cities expressed their expectation to learn about services and interventions used in other cities, having exchange about key

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challenges, to one city with previous experience that pointed to the value of unexpected outcomes, such as unforeseen mutual utility despite different contexts and approaches, as well as expected ones, such as best practice exchange. An interesting notion from the Lighthouse cities was thus the value of their own learning process in connection to this exchange and testing of 'their' solutions in their Follower cities' contexts.

Follower cities emphasized the expectation to have a frequent exchange with the other cities involved, to learn about different approaches to their common challenges, to exchange experiences from use cases and to obtain insights and ideas for the definition of the interventions. Examples of concrete learning goals that Follower cities expected were focused on e.g. "innovative strategies, best practices, and practical solutions that have proven to be successful in enhancing sustainable urban mobility".

Both Lighthouse and Follower cities expressed the expectation to establish partnerships and collaboration among them to support co-creation and learning.

3.1.2 Interests and Needs

Two subsequent questions explored the interest, in terms of interventions, as well as the cities' needs for the twinning process, asking:

- What are your needs for the twinning process? (e.g. feedback on specific features of the process, methodological/technical support)
- Are there any specific types of interventions or methods that you are interested in learning more about from other cities?

Only a few of the Lighthouse cities expressed specific needs, and one of the cities highlighted that these would need to be defined in the coming period. Other Lighthouse cities pointed to the need for in-depth understanding of the twinning city (-ies), and to be connected to the relevant practitioners in the twinning city (-ies). Follower cities emphasized that they would require more knowledge about the implementation process, as well as technical support and feedback.

The second question regarding interventions yielded a concrete list to guide the subsequent process of pairing both Lighthouse cities and Follower cities for the matchmaking events described in step 2.

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3.2 Step 2 – Finding your Match

Matchmaking takes its point of departure in the concept of twinning, but not necessarily by pairing city 'twins' (i.e. a Lighthouse and a Follower City as 'pair'), but to identify interests, innovations or key features in Lighthouse Cities, that are of interest to one or several follower cities. This agile mode of conduct also opens up to Lighthouses engaging in twinning activities, which enhances the fundamental notion of cross-case learning, as proposed in the ELABORATOR project.

The matchmaking process thus draws on the idea that cities are given possibility and contact spaces to explore each other's interests, planned interventions and that the process facilitates an open and inclusive context for Follower Cities to identify one or several Lighthouse Cities that they would like to engage with.

Based on the outcomes of the survey (see 3.1) and the initial city profiles, as well as ongoing dialogues that were part of the workshops in WP 2 (T2.1 and T2.3), which provided additional knowledge about the concrete challenges, outlines of the living labs and anticipated type of interventions for the Lighthouse and Follower cities, the cities were grouped in pairs for the matchmaking exercise.

While Matchmaking takes place from the onset of the project in both formal and informal settings, as cities present their challenges and share their experiences and plans, we here present a distinct concept that was applied during the second plenary meeting of the ELABORATOR Process in January 2024. The Matchmaking sessions were divided into two phases. In the first phase, the Follower cities engage in multiple rounds of discussion to obtain a comprehensive understanding of the planned interventions by the Lighthouse cities. In the second phase, the Follower cities identified at least two Lighthouse cities that they aim to follow during the initial stages of intervention implementation. During the first ELABORATOR plenary session in Issy-les-Moulineaux, in January 2024, this Matchmaking session was held on day 1 (Phase 1) and day 2 (Phase 2) of the meeting, to allow cities to reflect internally and to have informal dialogues with other Lighthouse and Follower cities.

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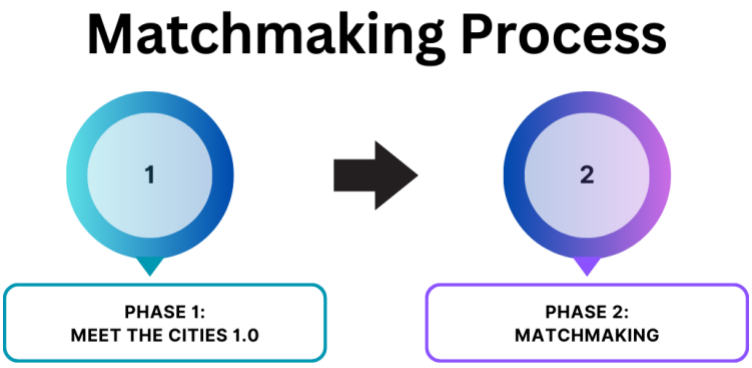

Figure 2: The Twinning Matchmaking Process

Phase 1: Meet the Cities 1.0

The Lighthouse cities were placed on three separate tables in pre-arranged pairs and given 20 minutes per round to engage with the Follower cities. Two Follower cities, also pre-arranged in pairs, rotated between the tables enabling them to meet all of the Lighthouse cities round-by-round.

Figure 3: Find Your Match Exercise – Issy-les-Moulineaux January 2024

The first round began with a 1-minute pitch from each Lighthouse, outlining their earliest planned interventions, timelines, and any additional priorities. During this first round, the Lighthouse cities focused on what interventions they had planned and the challenges these interventions aimed to address

Following these short introductions, Follower cities were given the opportunity to ask questions to both Lighthouse cities, taking notes and jointly reflecting on possible items of relevance with regards to their specific challenges and possible elements of the interventions.

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In the second round, Follower cities rotated in pairs between the tables, while Lighthouse cities welcomed the new group of Follower cities to their table. At the start, Lighthouse cities provided a brief 2-minute summary of round 1 discussions, explaining and then focusing on a short elaboration on how they planned to engage stakeholders and users, focusing on aligning different needs and ensuring their participation throughout the project for ongoing decisions. Again, Follower cities were given the possibility to ask questions, take notes and engage with the Lighthouse cities to learn more about the planned interventions and engagement plans.

After a final rotation between tables, the last round included a 2-minute recap of the previous rounds, by each of the Lighthouse cities, followed by a short presentation on the anticipated outcomes and what the Follower cities could learn from their intervention process. During the subsequent discussions, Follower cities were given the possibility to ask questions and engage with the Lighthouse cities to learn more about the planned interventions and anticipated outcomes. Follower cities were again encouraged to take notes, to support their reflections and selection process after the workshop.

Phase 2: Matchmaking

On the second day of the meeting, the entire consortium met in plenary. First, each Follower city was asked to briefly present their reflections on the previous workshop phase, identifying at least two Lighthouse cities and specific interventions they were interested in. Follower cities were encouraged to share their reflections and motivate their choices, highlighting how these interventions related to their specific challenges. Following each presentation the selected Lighthouse cities were offered the opportunity to comment on or address any questions.

Once all Follower cities had presented, the floor was opened to the entire audience, allowing any Lighthouse city to offer feedback or share reflections. While this exercise facilitated an initial matchmaking between cities, and allowed Follower cities to inquire about various aspects of planned interventions and how to align specific challenges with potential solutions, the process requires further dialogues and interaction between cities. Finally, a broader discussion focused on the organization, composition and role of the Community of Practice between the Lighthouse and Follower cities.

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3.3 Step 3 – Twinning Workshops

The Twinning Workshops aim to advance the cross-case learning between cities and can be held either between a Lighthouse and one or two follower cities, or between several cities with shared challenges, interests, or interventions, to explore joint ideas and structure their twinning processes. In this section we present a generic setup of a twinning workshop and exemplify with the workshop held between the Lighthouse city Copenhagen, Denmark and the Follower city Lund, Sweden in June 2024.

3.3.1 PREPARATION

Prior to the workshop, preparatory interactions between the involved cities and the academic or technical partner who is supporting the process is essential. As part of preparatory meetings, the involved cities need to decide the number and scope of interventions on which the workshop should focus and outline their reasoning for this selection.

In the example of the Twinning Workshop between Copenhagen and Lund, two preliminary meetings were held to tailor the workshop content to their specific needs. As part of these meetings, cities were asked to identify areas of interest and potential interventions, and to provide details about the key actors involved in their implementation.

This information is relevant to the workshop design, as areas of mutual interest need to be identified prior to the workshop to ensure relevant and efficient processes for knowledge exchange between the cities. Furthermore, the preparatory meetings, allowed the cities to jointly discuss which practitioners will participate in the workshop. While the number of participants from each city can vary depending on the number of interventions that are being discussed at the workshop, our recommendation is that at least two practitioners per intervention participate from each involved city. Participants from each city should comprise urban planners and practitioners who are actively involved in the interventions (Lighthouses), or will be actively involved in the intervention planning and implementation (Followers).

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3.3.2 The Workshop

The Twinning Workshop is structured into five interactive sessions, each designed to promote collaboration and knowledge-sharing between cities. The following sections provide a more detailed breakdown of each session, providing specific examples from the workshop conducted between Copenhagen and Lund in June 2024.

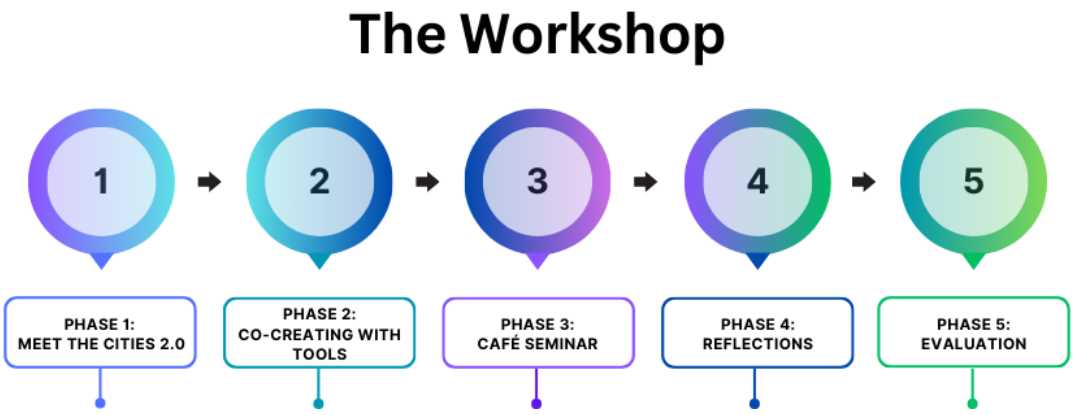

Figure 4: Phases of the Twinning Workshop

Phase 1: Meet the Cities 2.0

This session serves as the workshop introduction, featuring a brief visual presentation by the Lighthouse focused on introducing the key aspects of the interventions. This presentation focuses on the interventions selected during the preparatory meeting and lasts approximately 10-15 minutes. The goal of this session is to provide a broad overview of each intervention without going into detail. The facilitators allocate time for audience questions and moderate discussion.

Copenhagen, as the Lighthouse City, was guided by specific questions to ensure the presentation covered essential aspects without overwhelming participants with excessive details.

Phase 2: Co-creating with Tools

This session presents the centrepiece of the workshop, designed to foster peer-to-peer dialogue by minimising the impression of a "teacher-student" dynamic. The

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participants are divided in groups, preferably each discussing a different intervention or topical aspects of interventions. The composition of the groups is thus guided by their professional expertise and previously assigned interest. The groups are provided with city maps, markers, post-its, and small cut-outs representing elements relevant to the intervention, such as people, cars, and buses to visualise urban movement (see 4.3). This interactive session should be allocated at least 45 minutes.

During the Twinning workshop in June 2024, practitioners from Copenhagen shared details of the tools and methods they used in their interventions, while their Lund counterparts explored how these could be applied to similar challenges in their own city. The aim was that participants from the Follower city Lund would develop initial solutions for their urban issues with guidance from Copenhagen's practitioners, or explore potential approaches to identifying solutions.

Figure 5: Co-Creating with Tools – Copenhagen, June 2024

Phase 3: Café Seminar

This session provides an additional layer of discussion, where each group reflects on the ideas generated during the "Co-creating with Tools" session. In plenary, each group presents their findings, shares insights, and receives feedback from other participants. The aim of this session is to encourage an open dialogue and sharing of ideas between both cities. Each group should be allocated 15 minutes to present and discuss their findings. We recommend the moderators to provide a number of overarching questions to guide this session, and, if feasible, to document the

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outcomes of this discussion for reference in future dialogues, by means of audio recording or note-taking.

In the workshop between Copenhagen and Lund, this appeared to be a crucial element for the practitioners of the Follower city to clarify concepts and obtain input from peers, further enriching their learning experience. Additionally, practitioners from Copenhagen could also share any insights they gained from Lund in the previous session.

Phase 4: Reflections

The purpose of this session was to ensure that participants individually summarise their learning process and document contributions from the workshop using an online worksheet. Each city completes a worksheet featuring the previously 'sketched - on maps' and a series of questions related to the interventions and learning outcomes. Participants use colour-coded post-its corresponding to their group's intervention to log their answers to ensure that responses can easily be linked to specific interventions. This reflexive exercise facilitates the documentation of key insights from the workshop and ensures that both cities left with a clear understanding of what was discussed. The extent of this session is approximately 20 minutes.

In the workshop between Copenhagen and Lund, the platform Miro was used to create and share the worksheets. Any type of platforms that allow interactive mapping and commenting could be used for this task (e.g. Whiteboard options that are available for several online communication platforms), but the use of an online platform is recommendable to allow the integration of pictures taken during session 2 (see 4.4 for examples).

Phase 5: Evaluation

The final part of the workshop is a brief interactive evaluation session conducted using a poll with real-time feedback. This allows participants to provide immediate feedback while the workshop is still fresh in their minds. Questions concern the overall experience, the content, the format and the lessons learned, and can be flexibly adapted to each workshop. The feedback session would require approximately 10 minutes, and we recommend the use of an online platform, such as Mentimeter for real-time access and feedback.

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During the workshop in June, feedback was essential for refining future workshops and improving templates and guidelines for the ELABORATOR project. The practitioners' experiences provided valuable insights on successful elements of the workshop, and spaces for improvement.

3.3.3 Adapting the Twinning Workshop to Multiple Cities

Overall, the workshop structure as presented in section 3.3.2 is designed to create a dynamic and engaging environment in which the participating cities can exchange knowledge, identify shared challenges, and co-develop solutions, all while building a stronger network of urban practitioners. While the first workshop, which is exemplified above only comprised two cities, the general outline of the workshop could be replicated with one Lighthouse city and multiple Follower cities, or even extending to Observer cities.

To accommodate multiple Follower cities in the workshop, the overall structure can remain as outlined in 3.3.2, but some adjustments are required to ensure effective learning for all participants.

First, a pre-workshop meeting with all participants should be held to identify common areas of interest, followed by individual meetings between the Lighthouse city and each Follower city. This will ensure that the workshop discussions are relevant to all cities. If some topics are specific to a single city, the workshop can proceed as originally planned. During the workshop itself, additional time should be allocated for questions, given the larger number of participants. The Café Seminar should allow at least 20 minutes per group to accommodate the multiple Follower cities presenting their findings. Furthermore, in the "Co-creating with Tools" phase, facilitators should consider that larger groups will require more space, as each city will need its own map. Overall, it is essential that facilitators aim to create an inclusive setting and manage the available time effectively to ensure that all participants have the opportunity to learn, share and discuss.

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3.4 Step 4 – Twinning Process

Following the match making and the initial twinning workshop(s), the twinning process requires careful documentation and reflexivity throughout the project while offering opportunities for collaborative learning.

The Twinning Process is taking place in several arenas and follows a series of Twinning Principles that are of importance for ensuring an inclusive, engaging, structured and reciprocal process (Prencipe & Tell 2001; Cadée et al., 2016; Wibeck et al., 2022).

3.4.1 Twinning Arenas

The ELABORATOR Twinning Process is taking place in three arenas: (i) the Community of Practice, (ii) the cross-case learning between two and more cities that takes place by means of direct bi-/multilateral dialogues, and (iii) documentation and reflexive processes within both Lighthouse and Follower cities. While activities overlap across these three arenas, they are in the following sections separately described in more detail.

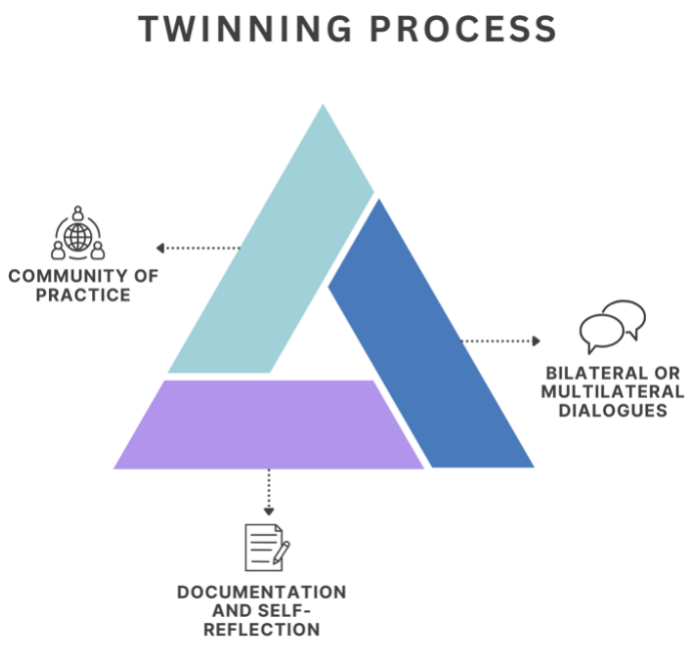

Figure 6: The Twinning Process

Furthermore, the project involves Observer cities interested in knowledge exchange for future interventions. These cities aim to enhance their SUMPs based on project outcomes. Their role is to validate the transferability of interventions. In spring 2025, a call for Observer cities will invite delegates to join project training, study visits, and the Community of Practice (CoP) for knowledge exchange.

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Community of Practice

The ELABORATOR Community of Practices (CoP) brings together experts, stakeholders, and interested actors from various backgrounds, including city partners, consortium partners, and other interested parties. The CoP is a forum for sharing and adapting experiences on the urban interventions that are co-designed and implemented in the project's Lighthouse and Follower cities. This primarily online community is made up of ELABORATOR project members, external experts, and other key local actors.

The CoP allows partners to connect with a network of professionals and experts with experience in the field within individual cities and beyond; gain insights into innovative practices and emerging trends in urban mobility; contribute their expertise to shape sustainable and efficient urban environments; have the opportunity to influence and learn from the project's initiatives across different cities.

The CoP consists of (i) city officials, external experts such as urban planners, technology providers, and other stakeholders; (ii) individuals passionate about sustainable urban development and innovative mobility solutions; (iii) other interested individuals that are willing to share insights, collaborate on challenges, and contribute to collective learning.

The goal is to create a supportive environment for defining and sharing urban interventions across ELABORATOR cities, and specifically to:

- Share knowledge and experiences in urban mobility and sustainable city planning.
- Collaborate on defining and implementing urban mobility interventions.
- Develop solutions that align with sustainable product policy frameworks, emphasizing user empowerment and circularity in production.
- Leverage modern technologies to create inclusive and effective urban environments.

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Key responsibilities of the CoP include providing support and feedback on:

- Twinning of interventions: Develop and refine replication plans tailored to unique urban needs of ELABORATOR cities.
- Validation and adaptation: Assess and improve urban mobility interventions and digital tools.
- Implementation support: Guide and support the implementation process to ensure inclusivity, safety, and sustainability.
- Knowledge Hub development: Contribute insights and feedback to enhance the ELABORATOR Knowledge Hub.

The CoP meets quarterly, either online or in person (hybrid), to discuss ongoing activities, address common challenges, and exchange solutions. Working group meetings will also be tailored around each twinning group to foster interventions to unique contexts.

Ways of working

Each ELABORATOR city will have internal members from their organizations and/or technical/supporting partners, along with external members.

Each ELABORATOR city will be asked to nominate external experts.

Quarterly CoP meetings will be aligned with project milestones. These meetings will be primarily online or in a hybrid format.

Each meeting will cover project updates, review deployment needs, and support development of replication plans.

Membership

Internal members: Project members directly involved with ELABORATOR, including Lighthouse and Follower cities and their supporting partners.

External members: Interested stakeholders from related sectors like NGOs, industry representatives, and other interested parties.

Members can be accepted through an open call from the ELABORATOR project or be directly nominated by ELABORATOR partners.

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Bilateral or Multilateral dialogues

While the CoP facilitates a wider forum for collaborative learning amongst Lighthouse and Follower cities concerning interventions or context-specific dialogues, individual cities might benefit from more targeted exchanges. Follower cities could engage in dialogues with the Lighthouse city that they chose to follow, and/or other Follower cities that are engaging in implementing similar interventions. These dialogues can take the form of smaller meetings or workshops that follow the principles of the Twinning Workshop. Section 4.4 provides generic templates to guide these dialogues. If feasible, Observer cities can join these meetings and use the note-taking template (see 4.4).

Documenting the aspects discussed in these dialogues, summaries of outcomes, and sharing these, are important aspects for the collaborative learning process of the ELOBORATOR project. These should preferably be shared with the entire CoP at one of the regular meetings open to all cities and CoP partners, in addition to providing these outputs in written format (see suggestions for templates in section 4.4).

Documentation and self-reflection

In addition to the two outlined processes that describe the interaction between Lighthouse and Follower cities, a central process for the Twinning process is the documentation of learning processes by each city, followed by sufficient time for self-reflection. These instances are of great value for this process, as they ensure the collection and evaluation of activities and impacts related to each intervention, across time and different typologies of interventions. Similarly it is important that each city reflects on their processes, identifies challenges and enablers to the intervention implementation, what worked, and what did not, what might be missing and requires additional support from other cities, technical partners or whether specific questions should be raised and become topics in a CoP session or other bi- or multi-lateral dialogues.

Cities can be guided by the provided documentation templates as provided in Section 4.4, but may also need to adapt these depending on their contextual settings, circumstances, etc.

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A general recommendation is for each city to include documentation and self-reflection as part of their implementation process, deciding on a suitable number of dialogues during the implementation & evaluation period. Ideally this should happen at least three times during an implementation cycle (i.e. at the onset, mid-term, and end of the process).

Cities be supported by their technical partners and use the documentations as material for the identifying aspects and feedback during the CoP sessions.

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3.5 Twinning Principles

Drawing on insights from earlier studies (Prencipe & Tell 2001; Cadée et al., 2016; Wibeck et al., 2022), we propose the consideration of three key principles that characterise the twinning process; (i) Twinning as a continuous, iterative, and dynamic process that requires flexibility and reflexivity, (ii) Knowledge articulation and codification, and (iii) Reciprocity. In the following we outline these principles and how they can benefit the twinning process.

3.5.1 Twinning as a dynamic and iterative process that requires flexibility and reflexivity

Twinning processes have been identified as being continuous and dynamic, as they are constantly ongoing, perhaps with indistinct starting and end- points but with distinguishable phases. Rather than following a specified timeline and path with a predefined end goal, the twinning process is shaped, and reshaped, by an iterative approach where outcomes, experiences and lessons learned are constantly fed back into the process. The dynamic nature of these processes can be challenging as they can be experienced as disorganised and become difficult to predict, oversee and manage. To address these challenges, strategies that build on flexibility, openness and the ability to adjust and adapt along the way are needed. Reflexivity is an approach that support such a strategy that means that the organizations and their individuals regularly and systematically evaluate and reflect upon the process and that the outcomes of these are used to inform further development. Space must be made for these reflexive 'check-points' during process design, and they need to be intentional, concerning both the goals and outcomes of the process as well as the process itself (Cadée et al., 2016; Wibeck et al., 2022). These reflexive 'check-points' can also provide opportunities to revisit important aspects of the project, such as the ELABORATOR Inclusion plan (D2.1), to evaluate and reflect on who has been included, and who has not, and what activities would be required to increase inclusion. The templates provided in section 4, as well as the structures and systems presented in the next section (3.5.2), are intended to support a reflexive approach and management of the twinning process.

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3.5.2 Knowledge articulation and codification

During the dynamic and iterative twinning process, a large amount of knowledge and experiences are generated. As this knowledge and experiences accumulate over time, perhaps ad-hoc and intangible, it is important to also articulate it for it to be transferable and useful in a larger context, which can be referred to as the codification of knowledge. To support knowledge articulation and codification, structures and systems are needed both at an organisational level and for regular and intentional documentation. Structures that clarify different responsibilities, e.g. who is involved and when, and that are not dependent on specific individuals are beneficial. Key-positions in the organisation could be identified, to ensure continuity in knowledge articulation even when new individuals enter the position. For continuity in the organizational structure, it is essential to ensure participation and engagement in the twinning arenas, as well as to ensure acceptance by the organisation and the involved individuals. Administrative support and systematic, regular and intentional documentation are important for the accumulated knowledge and experiences to be recorded, articulated and shared. The identification of reflexive 'check-points' during the process design is a part of building these systems for support and documentation as that will ensure regular and systematic reflections and evaluation (Prencipe & Tell 2001; Cadée et al., 2016; Wibeck et al., 2022). The CoP is an important arena where knowledge and experiences can be articulated and shared throughout the ELABORATOR Twinning process. By systematically documenting and sharing the accumulated knowledge and experiences derived from the ELABORATOR Twinning process, this information can be codified and utilized to construct the ELABORATOR Knowledge Hub for sharing at a larger scale.

3.5.3 Reciprocity

As the twinning process is built on the interaction between two or more partners (Lighthouse cities and Follower cities), reciprocity becomes an important characteristic. The process needs to be reciprocal in terms of shared responsibilities as well as the notion of an equal partnership and mutual exchanges of experiences and knowledge where all partners feel ownership of the process. As such, the twinning process can be described as a series of turn takings of giving, receiving and reciprocating. Besides investing time and finances, this is also a personal investment

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where peer-to-peer and organisational relationships are built, and power relationships need to be managed (Prencipe &Tell 2001; Cadée et al., 2016). Reflexive 'check-points' can thus be useful to shed light on the reciprocal aspects of the twinning process and support the identification of development needs in relation to mutual exchanges and shared responsibilities. The templates provided in section 4, as well as the structures and systems presented in the above section (3.5.2), are intended to support a reflexive approach and understanding of the reciprocal aspects of the twinning process and how they can be improved.

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4 Protocols and Templates

This section aims to provide protocols, instructions and materials to support the different twinning processes outlined in section 3.

4.1 Survey (Step 1)

In preparation for the ELABORATOR Twinning processes, we asked all cities for information regarding their expectations and needs for the Twinning Process, but also what they might be interested to share as part of the second project meeting (Issy-les-Moulineaux, January 2024).

Table 1: Twinning Survey

TWINNING	Short description (please specify whether this is related to any specific type of intervention/living lab)
What are your expectations for the twinning process? (e.g. what and how are you expecting to learn from other cities' interventions, how are you envisioning the process)	
Are there any specific types of interventions or methods that you are interested in learning more about from other cities?	
What are your needs for the twinning process? (e.g. feedback on specific features of the process, methodological/technical support)	
Which co-creation methods would you be interested to learn more about (e.g. surveys, digital tools, citizen panels etc.)?	
Would you like to share experiences from any earlier interventions with regards to technical/methodological aspects or co-	

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creation methods that you have previously used? If so, please specify and provide the email address of who would be the contact person ahead of the January meeting.	

4.2 Guidelines and Templates for 'Finding your Match' (Step 2)

In this section, we provide information to be presented to the audience and templates for the workshop.

Instructions Session 1:

Round 1:

Why have you planned this type of intervention? What are the challenges you are aiming to address with this intervention?

Round 2:

Lighthouses summarise round 1 (2 mins each). How do you plan to engage stakeholders and users to be part of the interventions? [How do you plan to align the different needs of different stakeholders and users? How do you plan the participation of stakeholders and users during project execution for ongoing decisions?]

Round 3:

Lighthouses summarise the previous rounds (2 mins each). What outcomes do you envision? What can a Follower City learn from your intervention process?

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The following template is used as canvas on the table for discussions between Lighthouse and Follower cities:

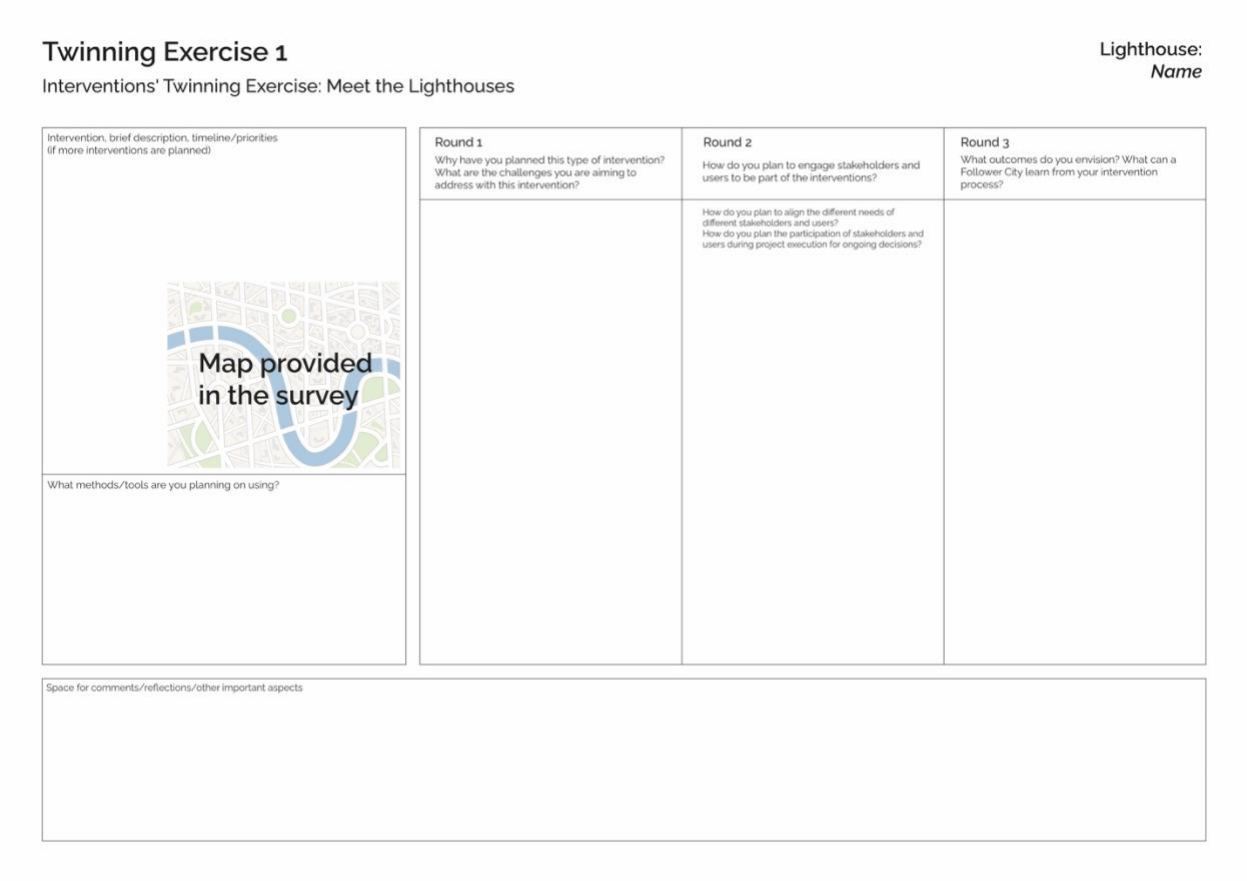

Figure 7: Twinning Exercise 1 LH Template

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The following notes template is handed out to each Follower city:

Twinning Exercise 1

Interventions' Twinning Exercise: Meet the Lighthouses

Follower:

Lighthouses	Type of intervention	Round 1 Why have you planned this type of intervention? What are the challenges you are aiming to address with this intervention?	Round 2 How do you plan to engage stakeholders and users to be part of the interventions?	Round 3 What outcomes do you envision? What can a Follower City learn from your intervention process?
Lighthouse 1				
Lighthouse 2				

Space for comments/reflections/other important aspects

Figure 8: Twinning Exercise 1 FC Template

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Instructions, Session 2:

Part 1 (2 minutes):

Each Follower city will briefly present their reflections on day 1. They will identify at least 2 Lighthouses, the interventions they are interested in and why (in relation to their specific challenges).

Part 2 (3 minutes):

After each Follower has presented, the floor will open up to the entire audience in order for any Lighthouse to share reflections or inputs.

Part 3 (after every Follower has presented):

Discussion on the community of practice between all Lighthouse and Follower cities.

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4.3 Guidelines and Templates for Twinning Workshops (Step 3)

A facilitator guide has been designed to help steer the workshop. This guide is comprehensive of all workshop stages and has a series of tips to help facilitators to ensure smooth execution. The Individual parts of this guide are presented below.

Figure 9: The Facilitators Guide

Pre-workshop

- Meetings with the city representatives to understand the needs of each city
- The Follower City will list what Lighthouse interventions they're interested and briefly explain why
- Discussion on Community of Practice

To ensure the best outcome for this workshop, it's fundamental to have a group of practitioners from each city

Lighthouse City

Group of city planners that have an active role in the interventions that will be discussed during the workshop. The practitioners will help the Follower understand the issues it may encounter

Follower City

Group of city planners that have an interest in learning about the Lighthouse's interventions with a view towards appropriating their techniques and making use of them in their own city

After the meeting, the Lighthouse and Follower City will fill in a pre-determined spreadsheet with the information on the interventions discussed during the meeting and the practitioners that will join

The spreadsheet will be structured as follows:

Lighthouse intervention #1	Lighthouse's practitioners	Follower's learning objectives from intervention #1	Follower's practitioners
Lighthouse intervention #2	Lighthouse's practitioners	Follower's learning objectives from intervention #2	Follower's practitioners
Lighthouse intervention #3	Lighthouse's practitioners	Follower's learning objectives from intervention #3	Follower's practitioners
Lighthouse intervention #n	Lighthouse's practitioners	Follower's learning objectives from intervention #n	Follower's practitioners

Workshop

- 5 sections for a half-day workshop
- There must be a small introduction at the beginning and a 15 minute break after part 2
- Participants: at least one practitioner per city per intervention

1. Meet the Cities 2.0

- Lighthouse depicts the interventions the Follower is interested in through a visual slide presentation focusing on the needs of the Follower
- Time for questions

10 minutes per intervention

2. Co-creating with tools

- Practitioners will be divided in groups, one per intervention
- Tools: city maps (A1 format) with a series of questions based on the interventions they will be discussing, series of cut-outs to help visualise movement flows

45 minutes

3. Café seminar

- Practitioners of the Follower city will, in turn, share what where the topics of conversation and what initial ideas they had to solve their issues
- Time for questions and reflections

15 minutes per group

4. Reflections

- Online worksheet with the maps previously worked on at the centre accompanied by questions (*displayed in "Follow up" section of the booklet)
- The questions will revolve around the lessons learnt within the twinning

15 minutes

5. Evaluation

- Quick round of 2 to 4 questions on Mentimeter to evaluate the workshop and learn where it can be improved

5 minutes

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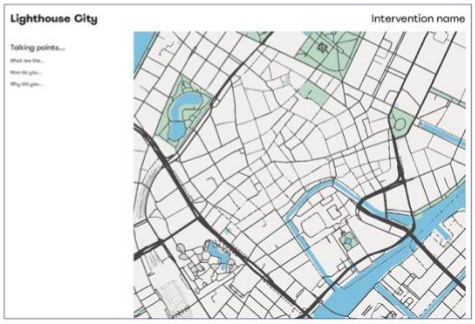
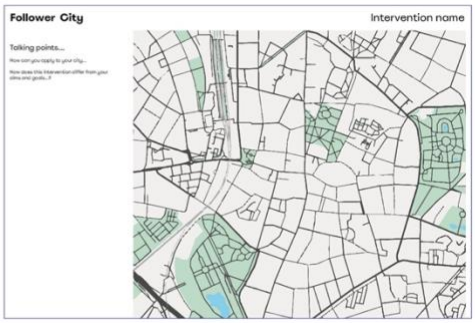
Workshop toolkit

Cutouts

Map template





Follow up

- The online worksheet completed in the "Reflections" phase should be shared with all the other partners in the project
- The practitioners of each city will discuss their learnings in a plenary

Lighthouse City

- Practitioners will outline the conversions that took place and highlight the positive outcomes that resulted.

Follower City

- Practitioners will share the lessons learnt within the twinning in regards to co-creative processes, methods used and other aspects of the intervention

Online worksheet

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Throughout the workshop, facilitators will have multiple tasks to ensure its smooth operation.

Before the workshop

- The facilitators will communicate with the cities to set up as many meetings as needed to structure the workshop in the correct way
- It will be fundamental to study in depth the needs of the Follower City and the tools of the Lighthouse to tailor the workshop to their case

During the workshop

- Briefly introduce the workshop parts to help with the phases
- During the "Co-creation with tools" phase, initially only hand out the Lighthouse map, and after 10 to 15 minutes, hand out the Follower's one
- Before the "Reflections" part, take a picture of the maps the cities worked on and upload it to the online worksheet

After the workshop

- The facilitators will ensure that all the information from the workshop is collected and shared to all other partners in the project
- Since the participants will share their experience in a plenary later on, the facilitators will have to communicate with the cities in order to help them with time management and main discussion points

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4.4 Documenting the Twinning process (Step 4)

The following Templates are aimed to support cities and facilitators in the Twinning process. They are divided into (1) Templates for Bi-and Multilateral Meetings, and (2) Templates for Individual Documentation and Reflective dialogues, both for preparation ahead of dialogues, but also for note-taking during internal meetings with stakeholders and partners of one city.

These Templates are intended to be regularly revisited and improved collaboratively with support from stakeholders and technical/academic partners, to continuously adapt to the needs of the project. This will be facilitated as part of the CoP meetings, but also through individual follow-ups with partners and during workshops at Consortium meetings.

4.4.1 Template for Bi-and Multilateral Meetings

Table 2: Preparatory Template for Cities

Name of City		
Other cities involved (LH/FC/OC)		
Name of the Intervention(s)		
Information about involved Participants		
Name	Position	Role in relation to the ELABORATOR Intervention
Aspects to be discussed in relation to the Intervention(s)		
General description (e.g. Timeline, Scope, …)		
Motivation why this intervention was selected		
How are the inclusion indicators (D2.1) followed up?		

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How are other evaluation indicators (D2.2) followed up?		
Other relevant information to be documented		
Identified Barriers		
Identified Enablers		
Aspects/Questions for which support is required	Type of support	By whom

[please feel free to add any other relevant questions or aspects]

Table 3: Template for note-taking during the bi-/multilateral dialogues

Name of City		
Other cities involved (LH/FC/OC)		
Name of the Intervention		
Information about involved Participants		
Name	Position	Role in relation to the ELABORATOR Intervention
During or after the meeting, reflect on (some of) the following questions, and take notes individually or as a team:		
What are the similarities between the interventions?		
What are the differences between the interventions?		
How are inclusion indicators followed up?		
How are other relevant evaluation indicators followed up?		
What can we learn from each other?		
How can we support each other?		

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Are there barriers we can or cannot overcome together?		
Do we need support from an external actor? If yes, who?		
What are the next steps (for us together)?		

[please feel free to add any other relevant questions or aspects]

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4.4.2 Template for Individual Documentation and Reflective dialogues

Table 4: Template for Individual Documentation, one for each intervention/city

Name of City		
Other cities involved (LH/FC/OC)		
Name of the Intervention		
Information about involved Participants		
Name	Position	Role in relation to the ELABORATOR Intervention
What lessons learned from the other LH/FC are relevant for us?		
How can we use these for developing our intervention?		
What is directly applicable from the other LH/FC?		
What can be applicable with modifications?		
What characteristics of our city/case need to be considered in relation to lessons learned from other LH/FC?		
What can we learn in terms of following up inclusion indicators?		
What can we learn in terms of other evaluation indicators/practices?		

[please feel free to add any other relevant questions or aspects]

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Table 5: Template and Guidelines for Reflective Dialogues (internal)

Name of City		
Other cities involved (LH/FC/OC)		
Name of the Intervention		
Information about involved Participants		
Name	Position	Role in relation to the ELABORATOR Intervention
Iteration and reflexivity		
What has worked well during the twinning process so far?		
What has worked less well?		
What changes are needed for the twinning process to go well going forward?		
Revisiting the Inclusion plan – are there any aspects that we missed?		
Structures and systems/ documentation and articulation		
Have knowledge and experiences been documented and articulated? How and when?		
Who in our/your organization is engaged? Why?		
Has this/Have these individual(s) the capacity (position/time/knowledge/experience/resources) for this?		
Is there someone else who could contribute who is not involved? Who? How?		
Do structures/organizations need to be developed further?		
Reciprocity		
What have been the roles of the LH/FC in the twinning process?		
How are the LH/ FC interacting with each other?		
Have all partners contributed equally to the twinning process? How would you describe the Mutual exchanges? Why? Why not?		

[please feel free to add any other relevant questions or aspects]

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5 Conclusions & Recommendations

This deliverable provides guidelines and templates for the Twinning process within the ELABORATOR Project. Drawing on early experiences, it exemplifies the outcomes of initial matchmaking and twinning workshops and interactions between Lighthouse and Follower cities within the project.

This document forwards three main recommendations:

(1) Need for flexibility and reflexivity

Throughout the Twinning process, reflexive checkpoints can be integrated into the process, supporting internal dialogues within cities and to prepare for dialogues across cities. These checkpoints facilitate regular and systematic evaluation and reflection, for example in relation to the ELABORATOR Inclusion Plan (D 2.1).

(2) Processes and documentation

To ensure viability of Twinning processes and cross-case learning over longer time periods, structured processes and documentation are essential. These do not only support the interaction and dialogues across cities but also support the individual cities to articulate their needs, identify actors and capacities that might contribute to the process, and to encourage the further development of structures and processes within and between the cities towards a sustainable and reciprocal Twinning process.

(3) Role of the Community of Practice (CoP)

The CoP is an important arena for knowledge articulation and requires careful planning and documentation to facilitate the cross-case learning processes for Lighthouse, Follower and Observer cities. Templates provided in this document (see 4.4) can be adapted to individual meetings for preparation and documentation and support the process of identifying opportunities, but also barriers and specific needs for support towards effective intervention twinning.

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