Action Plan template

The Action Plan is a key learning component within the UDT training programme. It is designed to help participants apply the programme's learnings directly to their city's context, ensuring that the theoretical knowledge acquired is translated into practical strategies. This document will be developed gradually throughout the programme, allowing participants to continuously refine and expand their plans as they gain new insights and get feedback from trainers and peers. By the end of the programme, the Action Plan will provide a framework that cities can build upon for future UDT use cases.

In this context, the Action Plan is intended to be an informal, working document. It does not require formal approval by the city government before the end of the programme. Instead, it serves an exercise in strategic planning, providing a foundation for cities to develop more formalised plans post-training.

The structure of the Action Plan is designed to be completed in stages, aligning with different moments of the training programme. For instance, project objectives should be drafted before the in-person training, while other sections will be filled in as the programme progresses. This iterative process ensures that the Action Plan evolves in response to ongoing learning and collaboration. The document includes key sections such as the city's vision for digital twins, detailed project objectives, stakeholder analysis, diagnosis of potential bottlenecks, strategic actions, and a roadmap for implementation.

This is a proposed structure for each city's Action Plan. However, it can be adapted by participants so that it best fits its needs. The template includes a fictional example (in *Italics*) to illustrate each section.

City: *Lille*

Challenge: *Creation of an Urban Digital Twin concerning, ranging from transport with the "city transport infrastructure master plan", to environmental and energy consumption themes.*

Executive summary

a. **Overview**: briefly describe the purpose and scope of the Action Plan, including the urban challenge it wishes to address.

   Our action plan aims to support our departments, particularly on mobility issues, in the creation of digital twin use cases, addressing specific themes.

b. **Objectives**: state the main goals the city aims to achieve with this Action Plan.

   The objective is to improve the visibility that our metropolis has on the implementation of mobility policies (for example green mobility, or event management).

c. **Key stakeholders**: identify the main stakeholders involved in the project, including internal department and external partners, as well as their role in it.

   - *City departments:*
     - *Governing cabinet*
     - *Housing and Planning Department*

    - *Land Use Department*
    - *Land use planning Department*
    - *Mobility and Transportation Department*
    - *Digital Department*
    - *Project Management Assistance Department*
    - *Research and development*
    - *External Communication*

- *External stakeholders:*
    - *OASC*
    - *Eurocities*
    - *CSTB (Scientific and technical building center)*
    - *CEREMA (Public expertise for ecological transition and territorial cohesion)*
    - *ESTP (Great school of construction engineers)*
    - *MINnD2050 (Collaborative research project)*

1. City information

Provide basic information about the city:

- **Number of inhabitants**: *close to 1.2 million*
- **Size of the municipal budget**: *close to €2 billion annually*
- **Main city challenges**: *Transport: The MEL Mobility Plan - 2035 is composed of eight strategic orientations and based on 52 thematic actions. While based on actions relating to infrastructure and the development of new services, the Mobility Plan presupposes a "behavioral revolution" that should also lead every citizen of the metropolitan area to rethink his or her daily travel habits.*

  Road management: Great help needed on subject like new road development and flow studies with theoretical road users.

  Sanitation: Similar use, with a visibility need on new sanitation project development and maintenance.

  We finally also want to use all our real-time data collected all around the metropolis.

- **Overall role of digital twin in the city's strategy**: *Our role for digital twin is divided into two separate project, the first one is a twin made primarily for investment and communication purpose, with the major economical and real estate projects visible.*

  The second twin is for internal use, to track and to work on the metropolitan evolution. In order to support and track these evolutions, our UDT should enable the creation of a mobility data hub generating key services for the policy makers, technical officers and for the end users and local communities. In order to achieve this objective, first analyses undertaken on how to gather, share and answers these questions based on cycling infrastructures and users (free flow cycle, sensors, network knowledge, mobile data...).
  There is also life quality question (heat flow and spot, vegetation, etc…).

2. A vision for the digital twin

Articulate your city's vision for the digital twin as a tool for evidence-based policy-making.

What are the main challenges and opportunities you aim to address the digital twin?

- *Our main challenges:*
  - *Empowering ecological roadmaps through digital tools*
  - *enhanced decision-making support for regional development, based on indicators from the metropolis' strategic plans*
  - *Ensure the quality and transversality of projects (eco-design and collaboration)*
  - *Identify, qualify and strengthen levers for action*
  - *Enhance the value of local data and public access to it, and converge towards a Digital Twin of the territory. Promoting cross-referencing, interoperability and updating of data*

- *Our opportunities:*
  - *Actual Setting up of hot data strategy (active sensors).*
  - *Implementation and reliability of open data.*
  - *Growing national strategy on national digital twin*
  - *Growing expectations sharing indicators to municipalities or partners, or even to citizens.*

How do you envision the digital twin supporting your city government's policy goals?

- *Powering uses cases based interfaces, simulation tools and services for government strategies plans*
- *Sharing of issues, problems and public policy objectives between departments.*
- *Circulating and promoting access to key indicators within the departments.*
- *Identifying the producers and managers of the data. Knowledge of the data assets of management, stakeholders and partners involved*

Who will be the primary users of the digital twin (which departments or policy areas), and how will it benefit their work?

- *Governing cabinet*
- *Housing and Planning Department*
- *Land Use Department*
- *Land use planning Department*
- *Mobility and Transportation Department*
- *Digital Department*
- *Project Management Assistance Department*
- *Research and development*
- *External Communication*

What outcomes do you expect from implementing the digital twin?

The use of data previously unexploited within the metropolis, because it requires a graphical interface allowing a drastic simplification of its use. The objective being to enable decision-making support taking into account results from data that are more complex.

How will the digital twin integrate with existing city data and systems?

The objective of the digital twin is to support the work already produced by GIS and cartography teams, and not to replace these areas of expertise. In addition, the digital twin will rely on the exclusive and mandatory use of data from our open data platform, in order to guarantee the proper maintenance, standardization and updating of this data. This open data could be 3D/BIM models, vector or raster layers, sensor data, databases (tables of values).

3. Project objectives

The purpose of this section is to help participants start defining the specific challenge they would like to develop and focus on during the training programme. This involves identifying the concrete urban challenge the digital twin aims to solve, the expected outcomes, and the key elements necessary for successful implementation.

a. **Problem description**. What is the specific problem or challenge you want to address through a digital twin use case? Why is this problem relevant for your city?

Transport: The MEL Mobility Plan - 2035 is composed of eight strategic orientations and based on 52 thematic actions. While based on actions relating to infrastructure and the development of new services, the Mobility Plan presupposes a "behavioral revolution" that should also lead every citizen of the metropolitan area to rethink his or her daily travel habits.

b. **Expected output**. What data and insights do you expect the digital twin to produce? How will these outputs help in solving the identified problem?

We want to obtain a digital twin summarizing all of the metropolis' mobility issues, taking into account current road development projects. This twin should be able to calculate theoretical routes and travel times taking into account current mobility routes, as well as future projects.

c. **Target audience**. Who are the primary users of the information produced by the digital twin? Which municipal department or policy-makers will benefit most from these insights?

The main users of the digital twin will be the Mobility and Transportation Department, as well as all agents working in the field of civil works. They will use the digital twin to monitor traffic as well as the impact that major events or construction sites have on the urban mobility. This twin will provide help and support for the development of new road developments taking into account a maximum of variables. Additionally, the digital twin will allow policymakers and urban planners to make informed decisions that improve urban mobility, thanks to the information displayed.

d. **Data required and owners.** What data is required to produce the expected outputs of the digital twin? Who are the owners of these data sources, and how will you access them?
    - *Train, Bus, Bike and other mobility data coming from O&M companies*
    - *Construction site on the way coming mainly from the road maintenance service*

- *Traffic information coming from mobility department*
- *Taking into account Major Events coming from safety and*
- *External mobility data coming from mobile data*

These data sources will be accessed through open protocols (WMS/WFS), specific APIs and one-to-one protocols. This data sharing will be empowered by our data platform allowing governance with different level of access/security.

e. **Digital twin governance**. Who will be responsible for developing and managing the digital twin? Which municipal department will oversee its development and use? How will collaboration between the municipal department in charge of development and the one that will be making use of the information produced?

The development and management of the digital twin will be overseen by the Digital Department and the Project Management Assistance Department. The Mobility and Transportation Department will define the uses cases and participate in providing data.

f. **Funding**. How much do use case might cost? What are the potential sources of funding for your digital twin project? How will you secure the necessary financial resources?

Potential funding sources include the metropolitan budget, and possible grants from the European Union. Financial discussions ongoing.

g. **Other stakeholders involved**. Who are other key stakeholders (inside and outside the municipality) that might need to be involved in the use case? What roles these stakeholders play in the development, implementation and use of the digital twin?

For the moments, no other stakeholders needed to be involved in the use case. In a near future (mid 2025) the O&M company for transportation (ILEVIA) will be involved.

4. Diagnosis: bottlenecks and obstacles

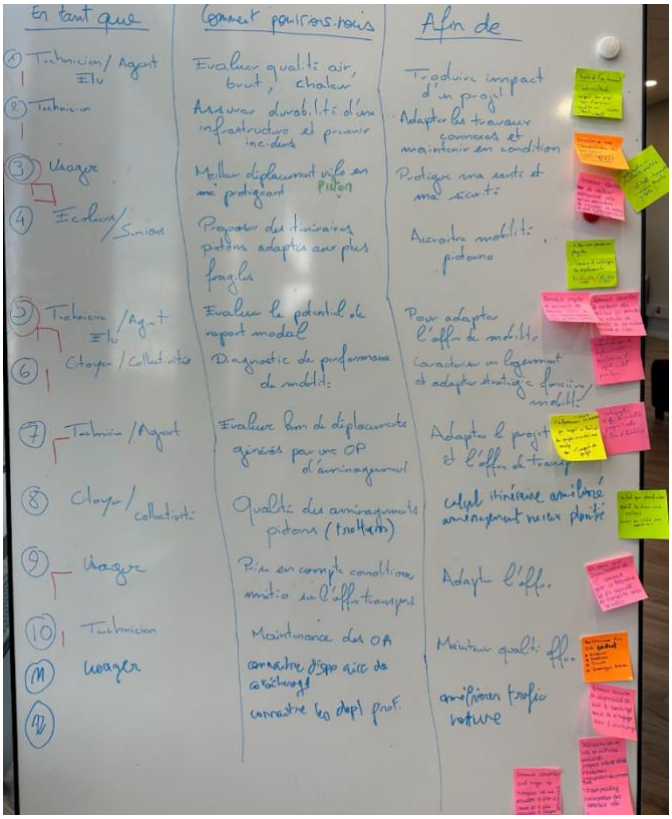
The purpose of this section is to help participants identify potential bottlenecks and obstacles that could hinder the implementation of the Urban Digital Twin (UDT) use case outlined in the previous section. This involves assessing whether the necessary requirements and capacities are present within the city administration. By identifying these challenges early, participants can develop strategies to address them, ensuring a smoother implementation process.

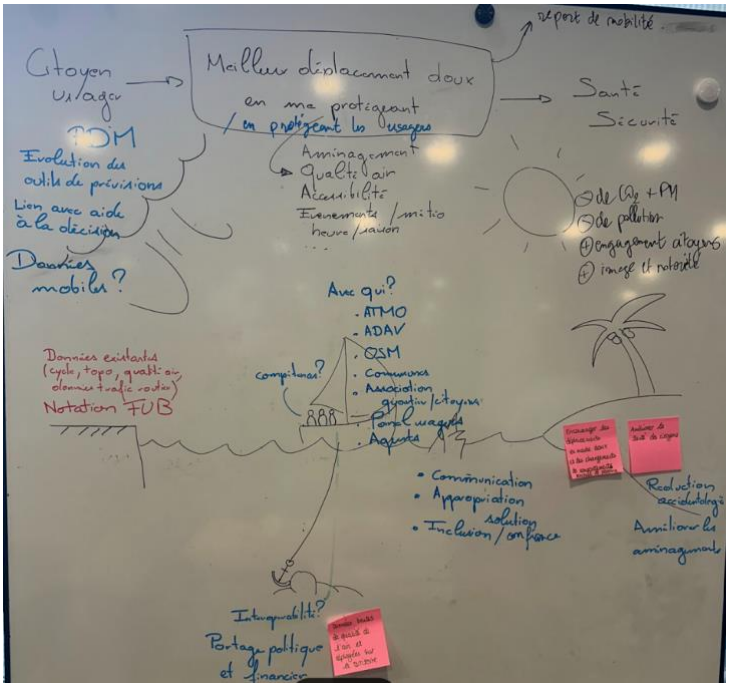
a. **Vision**. Is there a shared vision for, and understanding of, the digital twin among all key departments and stakeholders involved within the municipality (political and technical offices; data/IT department; user departments…)? How will you align different understandings to ensure a cohesive approach and buy-in of the initiative?

The vision of the digital twin varies within different departments, with each point of view on the subject depending on the observer and these skills. Firstly, the vision of the objective that a digital twin must meet differs depending on the people targeted. If it is a question of creating a solution usable by agents (with therefore a much more technical inclination), or if it is for decision-makers and politicians (with a more global vision and issues easy to understand in a short period) and finally for citizens (with ease of use, designed to meet their daily needs). Secondly, this vision of the digital twin depends a lot on the expertise of the different agents,

who will further promote a vision of the digital twin deeply linked to their specific needs rather than a global vision crossing different professional expertise (mobility, environment, habitat…).

We have already started our work on the subject by bringing together, around a workshop, numerous agents from mobility departments. This workshop aimed to bring together expertise from technical and mobility professions to try to bring out relevant topics for the construction of digital twin use cases dedicated to mobility.





(Example of reflections on the subject of best green travel while protecting citizen's life quality)

b. **Digital twin governance**. Who is responsible for decision-making related to the digital twin use and applications? How are roles and responsibilities distributed? Are there the coordination mechanisms in place between the department in charge of developing the digital twin and the department that will be making use of its insights? Is there a space for coordinating efforts between different departments and external partners?

The governance of the digital twin is a major issue within our metropolis; we are also in the process of reorganizing our workforce with the aim of creating a major digital department. In the future, a project director within our digital department will ensure the governance of the digital twin project, and whose objective will be the technical implementation, with the coordination of possible external service providers, and dialogue with the various internal departments responsible for the data that implemented.

- Political leadership. Are key political leaders committed to the project? Do they understand the potential of digital twins? If not, why not?

With the aim of obtaining strong political follow-up on the digital twin subject, we presented our project as well as our first thoughts on use cases to our management, who then bring these ambitions back to our commission, which will decide on the procedure to follow. In order to

facilitate joining on this subject, we are integrating the digital twin into the overall digital strategy.

- Internal alignment. Are all relevant departments engaged and working together? Are there any conflicts or silos between the departments involved that could hinder the project? How is inter-departmental cooperation facilitated? What resources will be provided to support internal alignment and ensure that all departments have a clear understanding of their role?

The governance of the digital twin internally strongly coincides with the aspects of data governance in the broader sense. This data governance, as part of our reorganization, emphasizes the centralization of data and its documentation, the use of open formats and open data access, as well as a level policy access required depending on the sensitivity of the data (user/citizen level, elected official/politician level, agent level).

- External partnerships. Does the city have the internal capacities to develop the digital twin on its own, or does it require external support? Do you have established partnerships with relevant external stakeholders (e.g. research institutions, private providers)? What is the role of these external partners? Are there any potential conflicts of interests or challenges in working with external partners?

Given our current capabilities, regarding both our workforce and our technical capabilities on these subjects of great expertise, we are considering collaboration with various external partners. These partners are both national and international and come from both public and private sectors. Some examples of partners are the OASC and Eurocities at the European level and the CSTB, CEREMA, ESTP and MINnD2050 at the French level.

- Embedment into policymaking process. Are there established procedures in the city government for using data-driven insights in decision-making? How will the insights from the digital twin be integrated into the policymaking process by the user department? Are there any barriers (administrative or political) to ensure that data-driven insights are incorporated into decision-making? What support will policymakers need to effectively use digital twin insights?

The reorganization of our digital department, with the emphasis on data management and their use through different means, coincides and occurs in an internal political context wishing to promote these improvements. This will give us the capacity to break down existing silos in the different departments and thus be able to make decision-making dependent on concrete arguments based on the use of data.

b. **Funding**. Is there sufficient funding allocated for the digital twin project or use case? Are the sources of funding secure (can they be sustained over time)? Are there any financial constraints that could limit the project's scope or sustainability? What alternative funding sources (grants, EU funding, partnerships…) can be explored?

Given the overall political calendar of our metropolis, discussions concerning the exact definition of the budget and staff dedicated to the development of the digital twin or these use cases have not yet begun. However, we are considering the possibilities of obtaining funding through our participation in European projects, aimed at developing and democratizing the digital twin with other European cities.

c. **Data**.

- Data infrastructure. Is your city's data infrastructure capable of supporting the digital twin, including collecting, integrating and processing increasing data volumes and complexity? If not, what capacity is needed?

Our infrastructure concerning the data necessary for the design of the digital twin will soon allow us to begin our work. Indeed, although certain adjustments are necessary, such as an increase in the volume available for the arrival of future data, our recently reorganized infrastructure will hopefully allow us to move beyond the problem of silos historically present in our metropolis. Our biggest challenge lies precisely in the inclusion of the other internal departments in this process of making data available.

- Data ownership and governance. Does the municipality have full control over the data required to develop, implement and maintain the digital twin? Is there any agreement with the stakeholders (public or private) that own the data? What are the protocols for data access and sharing with external stakeholders (either data owners or processers)?

The policy of our metropolis regarding data is the centralization and free access of the latter. Our objective is to maintain internal management of all the data collected by our metropolis, in order to facilitate access for agents. However, this data can sometimes require external service provider's intervention who collect them. These service providers' selection use public procurement. Concerning other data, it is sometimes required to use that coming from other public organizations such as the regions, or even national statistics (INSEE), with which our metropolis is in collaboration.

- Regulations and legal considerations. Are current data-related process in the municipality GDPR-compliant? Are there local or national regulations that must be considered to implement the digital twin (related to e.g. data-sharing, data ownership)?

The protection of personal information being extremely important for our metropolis, the managers of our databases must guarantee that no sensitive data should reach unauthorized users. To do this, an authentication system is required to be able to access certain data, thereby separating citizens, agents working in the metropolis, and political decision-makers. One of the objectives of our digital twin is to guarantee that the target using it has access to data of an identification level concerning them. This will involve the creation of use cases designed for different user categories.

c. **Procurement**. If the municipality requires the services of an external provider for the development of the digital twin, what criteria are used to evaluate bids and select suppliers? Are these criteria aligned with your project goals and needs? What are the operational responsibilities of the external providers? How is data ownership, technology ownership and control over the information produced managed in the procurement contracts?

The procurement strategy will have to ensure both economical performance and high technical value of selected providers. The tenders will include proof-based evaluations and challenging sessions to select the best offers.

MEL will share strict ownership rules and governancy. All technologies should be compliant when relevant with SECNUM-Cloud label and ensure GDPR compliance.

Refined specifications to be set with IT Departement

5. Strategic actions and timeline

This section outlines the strategic actions required to address the challenges identified in Section 4 and achieve the goals outlined in Section 3. Participants should identify and devise concrete actions and works lines by analysing the specific challenges and opportunities within the city context. For this, participants may consult with colleagues and key stakeholders, review best practices from other cities, and incorporate the learnings and insights gained during the training. Strategic actions should be procedural, beginning with foundational steps and progressing through to final implementation and evaluation stages.

	Goal	***Action***	***Timeline***
Startup stage - Develop a unified vision for the digital twin	*Ensure early-birds departments and partners are aligned in their understanding and objectives for the digital twin.* *Define key components of the DT strategy and definition of the targeted organization.*	*Support the development of first use cases for up to 3 departments (mobility, landuse and urban development).* *Identify DT supports in each department to initiate a stakeholder community.* *Develop early demonstrations of DT potential*	*Nov. 2024 to May 2025*
Launch stage – Developing the strategy	*Implement the coordination organization for the DT strategy and foster the definition of key use cases in each departments.* *Finalize the implementation strategy*	*Create a technical board comprising IT Department (Data, Architecture, user support), key data / use-case leader of technical department and HR.* *Validate the roadmap at a political and technical level*	*March 2025 to Summer 2025*
Development stage - Secure political support and funding	*Ensure sustained financial and political support for the project by applying to national call and EU's Horizon Europe programm. Develop partnerships with local, national and European research laboratories.*	*Apply for grants from National calls* *Pariticpate in consortium for the European Union calls* *Establish partnerships with local/national businesse and support R&D programs.* *Partcipate in national and international intitaitives related to LDT (Oasc, Eurocities, MINnD2050,…)*	*Summer 2025 - 2027*
Development stage - Upgrade data infrastructure	*Build a robust and scalable data infrastructure and interfaces capable of supporting the digital twin*	*Define transactions infrastructure to ensure data governancy and curation.* *Define and develop calculations / computations capabilities for simulation, IA or data model processing* *Define and develop front-end interfaces allowing spatial visualization, KPI extractions, graph representations and access to data*	*Winter 2025 - 2027*
Development stage - Enforce data quality	*Ensure seamless access to all necessary data while maintaining*	*Negotiate and formalise data-sharing agreements with stakeholders.*	*Summer 2025 - 2026*

and sharing strategy	*data integrity and legal standards. Enforce security and access rules*	*Develop protocols for data access, security, and compliance.* *Ensure data curation in relation with the Chief Data Officer*	
Development stage – Training and best practices / knowledge management	*Build capacity for data-driven policy-making within the city administration.*	*Develop and deliver training programmes for policymakers, internal departments and key external stakholders.* *Share practices to utilise data-driven insights effectively.* *Organize practical sessions on integrating digital twin outputs into decision-making processes.*	*2026 - 2027*
Development stage -- Develop the use case and implement measures	*Showcase short-term wins and build confidence among stakeholders based on high-impact uses cases*	*Analyze key uses-cases proposed by departments* *Define and develop specifications.* *Implement small-scale demonstrators* *Gather feedback and refine the definition process*	*Summer 2025 - 2027*
Diffusion and value evaluation stage - Monitor and evaluate progress	*Generate regular reports on project performance and implement internal / external communication strategy* *Ensure long-term IT maintenance and support to users* *Implement long-term benchmark approach and challenge technical choices*	*Establish monitoring and evaluation frameworks to track the progress and impact of the digital twin project.* *Implement maintenance plan and maintain user assistance capacities.*	*2026 - 2027*