



DELIVERABLE

D3.2 The PoliVisu Policy Making Model (DRAFT)

Project Acronym:	PoliVisu	
Project title:	Policy Development based on Advanced Geospatial Data Analytics and Visualisation	
Grant Agreement No.	769608	
Website:	www.polivisu.eu	
Contact:	info@polivisu.eu	
Version:	1.0	
Date:	15 February 2018	
Responsible Partner:	Polimi	
Contributing Partners:	21C	
Reviewers:	Thimo Thoeve (GHENT) Joran Van Daele (GHENT) Bart Rosseau (GHENT) Matteo Satta (ISSY) Stanislav Štangl (SITMP) Susie Ruston McAleer (21C) Geert Mareels (AIV - Ethics manager) Lieven Raes (AIV) Jiri Bouchal (ISP) Geert Vanstraelen (Macq)	
Dissemination Level:	Public	X
	Confidential – only consortium members and European Commission Services	

Revision History

Revision	Date	Author	Organization	Description
0.1	02/01/2018	Paola Pucci	Polimi	Initial draft
0.2	06/01/2018	Grazia Concilio	Polimi	Contribution to extended draft
0.3	09/01/2018	Grazia Concilio, Paola Pucci, Giovanni Vecchio	Polimi	Contribution to extended draft
0.4	12/01/2018	Susie McAleer	21C	Contribution to extended draft
0.5	15/01/2018	Grazia Concilio, Francesco Molinari, Paola Pucci, Giovanni Vecchio	Polimi	Contribution to extended draft, section 3.6 TBD
0.6	31/01/2018	Grazia Concilio, Francesco Molinari	Polimi	Final draft, with some comments from the partners moved to D6.1
0.7	12/02/2018	Francesco Molinari, Giovanni Vecchio	Polimi	Taking reviewers comments onboard
0.8	14/02/2018	Francesco Molinari, Giovanni Vecchio	Polimi	version for Consortium approval
1.0	15/02/2018	Giovanni Vecchio, Grazia Concilio, Lieven Raes	Polimi AIV	Final version incorporation feedback from the Consortium approval

Every effort has been made to ensure that all statements and information contained herein are accurate, however the PoliVisu Project Partners accept no liability for any error or omission in the same.

Table of Contents

1. Introduction	5
1.1. What a policy is	5
1.2. What a policy cycle is	6
2. The PoliVisu policy making model	7
2.1. The PoliVisu representation of the policy cycle from the DoA	7
2.2. The role of data in the PoliVisu policy cycle	9
2.2.1. Data processing	10
2.2.2. Data analytics	10
2.2.3. Data visualisation.....	11
2.3. The Living Lab experimental dimension	11
2.4. Use of data tools and methods within the Policy Experimentation Cycle	13
2.4.1. Policy Design.....	13
2.4.2. Policy implementation.....	15
2.4.3. Policy evaluation.....	16
3. Mapping the PoliVisu pilots on the policy making model: the pilots’ guidance workshop	16
3.1. Goals and preparation	16
3.2. Structure	18
3.3. The Milan case	19
4. Way forward	21
5. References	23
6. Annex 1. Template for pilot input collection	24

List of Tables

Table 1 Alternative approaches to collective decision making	15
Table 2 Guidelines of the workshop interactive session #1	18
Table 3 Guidelines of the workshop interactive session #2	18
Table 4 preliminary outcomes of pilot goal analysis in coherence with the PoliVisu policy cycle.....	20

List of Figures

Figure 1 Key Elements of the PoliVisu Policy Experimentation Cycle	8
Figure 2 Data integration in the PoliVisu Policy Experimentation Cycle	10
Figure 3 Behavioural changes as the result of Living Lab experimentations	11
Figure 4 Applying the Living Lab experimental dimension to PoliVisu’s policy making cycle.....	12
Figure 5 The learning flow across multiple policy experimentations.....	13
Figure 6 Milano Workshop agenda (December 2017)	17
Figure 7 Moments of the Milano workshop.....	17

Executive Summary

D3.2 is the first of two deliverables planned inside Task 3.3 of the Polivisu project until M12. It presents in detail a policy making model based on the specific perspective of the PoliVisu project. In fact, big data can effectively contribute to collaborative policy experimentation, but such contribution is still mostly underexploited. As previously shown in relation to urban mobility policy (see PoliVisu deliverable D3.1, “The experimental dimension of policy cycle”), the potential uses of big data in relation to policy issues are manifold but still not much explored: a dedicated policy cycle can thus help to take advantage of big data by considering at which stages of a policy process they may intervene and which contributions they may provide.

PoliVisu intends to achieve the above by conceptualising the policy making process as a fast policy experimentation cycle that transforms traditional processes into a continuous policy adaptation cycle. At this stage, the policy cycle proposed by Polivisu is based on theoretical stances and considers how the policies of the three pilot cities are currently located within such model. Nonetheless, the PoliVisu policy cycle will be used as reference for the next steps of the experimentations and will be revised by taking into account the experimentations led in the pilot cities involved in the project.

This deliverable aims at outlining such policy cycle model, providing a draft that later on in the project will be modified and improved referring to the pilot cities’ experimentations.

An introduction to the model has been presented by POLIMI to the Polivisu pilots during the kick-off meeting in Gent, November 2017, followed by a document circulated in the early days of December and finally a detailed presentation during a Workshop organized in Milan in the second half of December. The work carried out aimed at translating operationally the model for the pilots to improve its adoption while planning early actions for their project activities. During the Milano workshop, the explanatory value of the model has been outlined also by presenting the Milano experience so as to achieve an operational understanding of the three main policy cycles (namely design, implementation and evaluation) from an experimental perspective.

The structure of this document is as follows:

- Section 1 is an introduction to what is intended as policy and policy cycle within the Polivisu project, to set the stage for the following parts.
- The core of the document is Section 2, in which the policy making model is presented. This is conceptualised as a data assisted policy experimentation cycle, consisting of three interrelated cyclical processes: design, implementation, and evaluation, each cycle consists of succeeding steps some of which can go to another circle (see figure 1 of the present document at page 9). Data uses are considered in relation to processing, analytics and visualization, considering the various tools and techniques that may intervene in the different steps of the cycle and emphasising the living lab experimental dimension of policy.
- Finally, Section 3 describes the interactive approach adopted during the workshop held in Milan on 20th – 21st December 2017 which was conceived as a methodological bridge between Deliverable 3.2 and Deliverable 6.1 “Pilot Scenarios”, also due in month 3.

1. Introduction

Big data can effectively contribute to collaborative policy experimentation, but such contribution is still mostly underexploited. As previously shown in relation to urban mobility policy, the potential uses of big data in relation to policy issues are manifold but still not much explored: a dedicated policy cycle can thus help to take advantage of big data by considering at which stages of a policy process they may intervene and which contributions they may provide. This deliverable intends to contribute in this sense by proposing a policy making model based on the specific perspective of the PoliVisu project.

The PoliVisu project is in fact designed to advance policy development in the age of big data, to deliver a scalable and transferable solution for accelerating the adoption of data-driven policy-making. More specifically, it is designed to stimulate innovative solutions to societal challenges by making it easier for policy makers and their stakeholders to access, visualise and use a wide variety of big data sources to explore and co-create policy. PoliVisu intends to achieve the above by conceptualising the policy making process as a fast policy experimentation cycle that transforms traditional processes into a continuous policy adaptation cycle. The policy cycle proposed by PoliVisu will be revised by taking into account the experimentations led in the pilot cities involved in the project; however, in such first stage of the project it is significant to outline the policy cycle that will be used as reference for the next steps of the experimentations. Before discussing the structure of the cycle and the position of the pilot cities in relation to it, it is relevant to briefly outline what PoliVisu understands as policy.

1.1. What a policy is

A policy is considered by PoliVisu as “the process of choice between alternative ways to solve a collective problem” (Dente, 2015, p.8). More precisely, a policy is a deliberate system of principles to guide decisions and achieve rational outcomes, identifying a course of action adopted for the sake of expediency, facility etc. to solve a collective problem, that is, a problem requiring public intervention. It is thus crucial to assess what the nature of the problem is (Tennøy, 2010), to select what information is deemed to be relevant (Gao, Tang, Hu, & Liu, 2013), and to define what might be selected for implementation.

A collective problem is an issue that involves several actors who recognize a situation/condition as a problem. In the urban field, problems do not present themselves as given. In fact, problems are constructed by the subjects who deal with them. This process, defined as problem setting, “is a process in which, interactively, we name the things to which we will attend and frame the context in which we will attend to them” (Schön, 1983, p. 39). Since these problems are collective, many actors are potentially involved. They may refer to different territorial scales (from a local citizens association to the European Union), they may have different resources (economic funds, technical know-how, political consensus) and may have different roles within the same process (an actor may start a process, another may give its support, another one may oppose it). These actors define the problem, the process to make decisions, the ends to be achieved and the means to be used, starting from a definition of a problem as a collective problem (i.e. a problem requiring public intervention).

The complex nature of collective problems makes it possible to address them potentially in different ways. In fact, according to how a problem is defined, different are the ends to be achieved and the means to be used. *Alternative ways.* The complex nature of collective problems makes it possible to address them potentially in different ways. Problems in fact are never given in themselves: if it were so, it would only be necessary to solve them – that is, to select the best tools amongst the ones available to achieve the desired ends. Instead, according to how a problem is defined, different are the ends to be achieved and the means to be used. In this sense, it is possible to define different alternative scenarios: that is, to describe the possible development of different phenomena (land use transformation, environmental evaluation, business...), assuming alternative developments – or scenarios – of some driving variables. Scenarios can help to choose between diverse ways of addressing a certain problem, assuming that the available options are alternative to each other and cannot be pursued at the same time.

Choice. Choice refers to the decision of which course of action should be pursued to address a problem. Less and less policy is exclusively done by institutions and received by the system; instead, choices are increasingly the result of complex negotiations through networks of actors. This aspect raises the issues of decision making and governance. The decisional processes can be understood using different decisional models, that refer to “the decision maker, his cognitive features, the activities of research for a solution, the modalities and the criteria of the choice and most of all... the relations among these different elements” (Bobbio, 1996, p.13). These models can explain how processes work but also “indicate how decisions should be made if we want to maximize effectiveness and efficiency in the solution of the problem” (Dente, 2015, p. 14).

Process. Process refers to the temporal dimension involved by policy. It is not an action ended in itself, but rather implies a sequence of actions, that are combined with each other and can involve different temporal ranges.

Each policy seeks to produce specific effects or outcomes. Intended effects can be the reduction of damages and/or the achievement of benefits, in relation to specific subjects and fields. However, unintended effects may be generated, too, so that it is necessary to tentatively assess what areas may be impacted by any proposed policy.

A policy intends to achieve its aim and generate the expected results by developing a strategy, that is, a large, overall plan. A strategy can comprise many tactics, that is, smaller actions, tasks and procedures that contribute to the achievement of the overall aim. A policy in fact can aim at its target using a varied set of tools. Policy tools are those resources, techniques and means through which an actor attempts to address a problem and achieve its goals. Tools are involved at all stages of the policy process and can be used at different stages – to set the agenda, formulate the problem, take decision, implement it and provide an evaluation.

An example, related to the issue of car parking, may help to clarify these founding concepts. If a city develops a system to have real-time information on the crowding index of a park-house. This is not a policy: it is an issue of management, which is addressed with a technological system that may show how many vacant lots are available in one or another park-house. In this case, the issues of parking are addressed as they are today, not as a problem that we need to solve. Instead, a policy for parking would first define this as a problem. For example, a city may decide that car parking in the city causes congestion (because the number of cars in the city is too high). Consequently, the problem addressed by a policy would be congestion, the intent of the policy would be its reduction, and the consequent policy goal would be the reduction of the number of cars that are headed to the centre. To achieve this goal, several policy actions are possible: define a car-free zone or a pricing scheme; increase the price for central parking lots, to discourage their use; build interchange parking in outer public transport nodes; provide discounts for commuters reaching the centre by public transport, after leaving their car at the interchange parking.

1.2. What a policy cycle is

Understanding policy as a process, PoliVisu provides a model based on the policy cycle. The policy cycle “has developed into the most widely applied framework to organize and systemize research on public policy” (Jann and Wegrich, 2004, p. 45) and defines policy activity as consisting of five sequential stages:

- *agenda-setting*, which “is concerned with the way problems emerge, or not, as candidates for government’s attention” (Howlett et al., 2009, p. 92);
- *policy formulation*, which involves “identifying and assessing possible solutions to policy problems or, to put it another way, exploring the various options or alternative courses of action available for addressing a problem” (Howlett et al., 2009, p. 110);
- a process of *decision-making*, in which there are formal (and informal) deliberations over the alternatives drawn up in the policy formulation stage;
- a process of *policy implementation*, in which the decision is put into practice, compromise and commitment matter, and the assumptions of the planning stage may be challenged (Flyvbjerg et al., 2010);

- *policy evaluation*, in which there is an assessment of whether the policy has been successful and/or could be improved or indeed if it should be terminated (Marsden & Reardon, 2017).

However, a policy cycle is never so clearly defined in real-world processes. In fact, such well-defined stages provide a nonetheless simplistic explanation of how a policy works, assuming for example policy as sequential in nature (Dorey, 2005; Hill, 2009, 143; Ryan, 1996). The steps identified in a traditional rational process of policy cycle can be problematic at least for three main reasons:

- policies need to be designed, in a process that takes time, provides occasions for learning and requires revisiting the previous steps;
- policy making should take into account external conditions and adapt to their eventual change;
- The effects of policies are often indirect, diffuse, take time to appear. Policy is a process that implies a sequence of actions and involves different temporal ranges.

Furthermore, policy making depends on politics, people, socio-economic factors, other previous and ongoing policies. These elements should be considered when:

- defining what is the problem,
- identifying information relevant to understand the problem,
- exploring alternative actions and choosing the most suitable one,
- defining how to implement the selected action
- evaluating impacts and achievements.

The policy model of PoliVisu intends to consider these elements and to draw on data in relation to the different stages of a policy process (see below) with the aim to reduce the gap between city policy making and operations by converting traditional high level strategic policies into more adaptive, better, context driven solutions, thanks to the use of big data.

2. The PoliVisu policy making model

2.1. The PoliVisu representation of the policy cycle from the DoA

PoliVisu sets out to transform the traditional policy making process by conceptualising it as a data assisted policy experimentation cycle, consisting of three interrelated, stepwise or cyclical, processes: A) Design, B) Implementation and C) Evaluation (Figure 2). This novel conceptual approach aims to help better align the decisions between:

- long-term policy making and short-term city management
- long-term city management and short-term political issues

by converting traditional high level strategic policies into more adaptive, better, context driven solutions - thanks to the use of (big) data for policy experimentation.

A brief summary of the three interrelated policy cycles follows here:

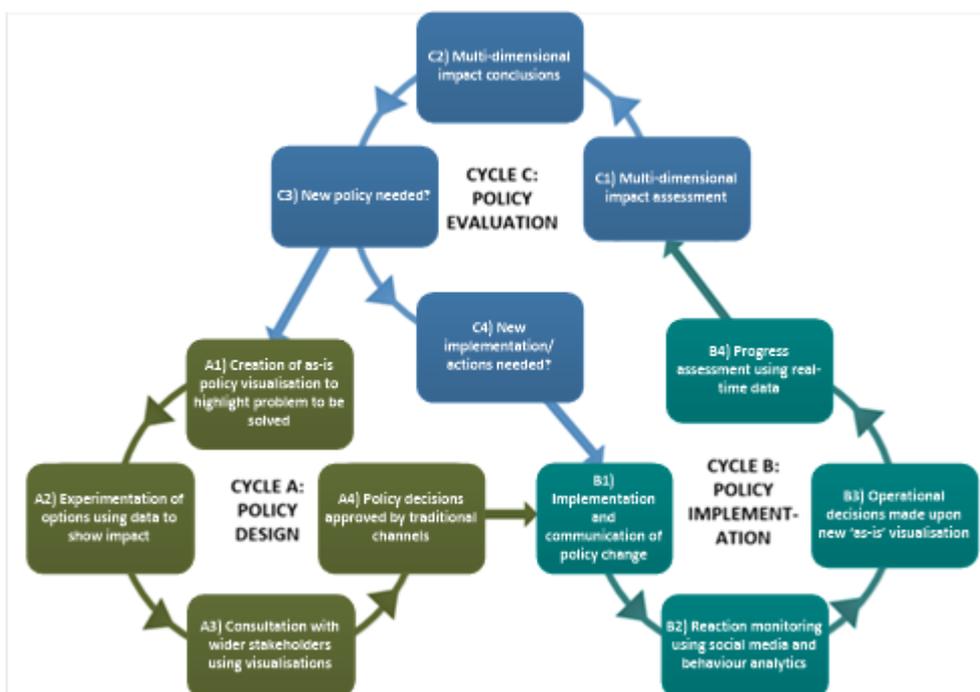


Figure 1 Key Elements of the PoliVisu Policy Experimentation Cycle

CYCLE A. Policy design: The identification process begins with consulting different stakeholder groups. The policy need will be researched by or on behalf of the public institution and evidence for the policy needs will be collected from stakeholders and the community. During this phase, it is key to collect objective data about all the policy areas involved (for example: mobility impact, environmental impact, impact on society and financial implications). Based on this research and other evidences, a public institution often produces a discussion paper summarising the evidence and suggesting the main principles for future policy. Based on consensus of the discussion paper (or, at least, clearly defined positions), concrete policy options can be developed. PoliVisu supplements and speeds up this paper process through online visualisations of the different policy options impacts to experiment with finding new solutions. One or more concrete policy options can then be subject to a further consultation with stakeholders and the public using traditional and social media methods. After the consultation step and feedback step, a policy decision will be formulated.

CYCLE B. Policy implementation: The first step is the communication of the decided policy as a result of the policy design process. PoliVisu explores the policy using relevant data to provide insights by advanced visualisation techniques, including interactive map tools and graphs. The next step is to publish the policy. A combination of own media and external publication channels are used to explain the policy. Next PoliVisu helps with reaction monitoring. Part of this is also the ability to measure source reliability. With the information gathered, the impact of an announcement can be assessed by measuring the number of reactions, the location, the mood etc. to verify public acceptance. The impact data will be collected and managed via specific components that will be used, adapted or developed during the project by integrating advanced visualisation tools dealing with live and big data, social media tools to collect reactions and web publication interfaces to publish information. The collected inputs will be managed and analysed – using the advanced PoliVisu tools or cities own management dashboards for policies. The outcomes can be used to support both operational decisions and policy decisions dependent on elements as impact, importance, time to implement.

CYCLE C. Policy evaluation: The policy evaluation process focuses on monitoring and analysing impact during the multidimensional impact assessment phase. A multidimensional approach is crucial to compare the impact on different policy areas like environmental impact, mobility impact, financial impact, impact on citizens lives, citizen compliance monitoring etc. As a result of multidimensional impact assessment, implementation actions and multidimensional long-term monitoring actions will be formulated. The implementation actions can be

used in the implementation process and lead to new policy decisions there. The multidimensional long-term monitoring can also influence the implementation process, but also the way new policies will be designed in the future. Within the latter, final policy conclusions and long term effects will be defined.

2.2. The role of data in the PoliVisu policy cycle

The PoliVisu DoA discussed how available (big) data from different sources – notably available at city level, in relation to the nature of the identified project pilots – can distinctively contribute to the three processes of policy experimentation introduced above: the design of policy solutions, as well as their implementation and the (real time) evaluation.

In the design process, data can contribute:

- to explore the effectiveness of past policies and better knowing the current urban phenomena affecting the problem;
- to define the current situations as a preliminary step for scenario construction, in terms of existing trends, conditions and resources;
- to develop ‘alternative scenarios’ based on alternative options. In this case, data can be useful for:
 - showing images/visions to check the feasibility of different project solutions;
 - exasperating/increasing trends and visualizing the consequences;
 - proposing visions for the medium and long-term period.
- to a wider involvement of citizens by promoting forms of ‘crowdsourcing’, in term of harnessing collective intelligence and creative solutions from networks of citizens in organized ways that serve the needs of planners;
- to guarantee the range and quality of available information about a sequence of actions, their consequences in different times, and a clear definition of their implications as a result of policy design and implementation.

In the implementation process, data can have a twofold role, namely to support:

- real-time visualisation of policy changes;
- reaction monitoring using social media and analysis of changing behaviours.

In either case, data uses are finalized:

- to contribute to put a policy into practice and eventually reshape it;
- to guarantee information concerning the response of the setting to the policy;
- to provide elements for eventually refining the policy defined in the previous steps and improve policy implementation management.

In the evaluation process, data can contribute to the multidimensional impact assessment of a policy already implemented, by e.g. helping to formulate a comparative analysis of the initial and current policy setup; or to real time policy evaluation, by e.g. monitoring the ongoing implementation of significant measures within the policy implementation phase.

Figure 3 below shows how the layers of Data Processing, Analytics and Visualisation framed within the PoliVisu model jointly contribute to the goals of Information Collection and Sharing within the three processes of the policy experimentation cycle.

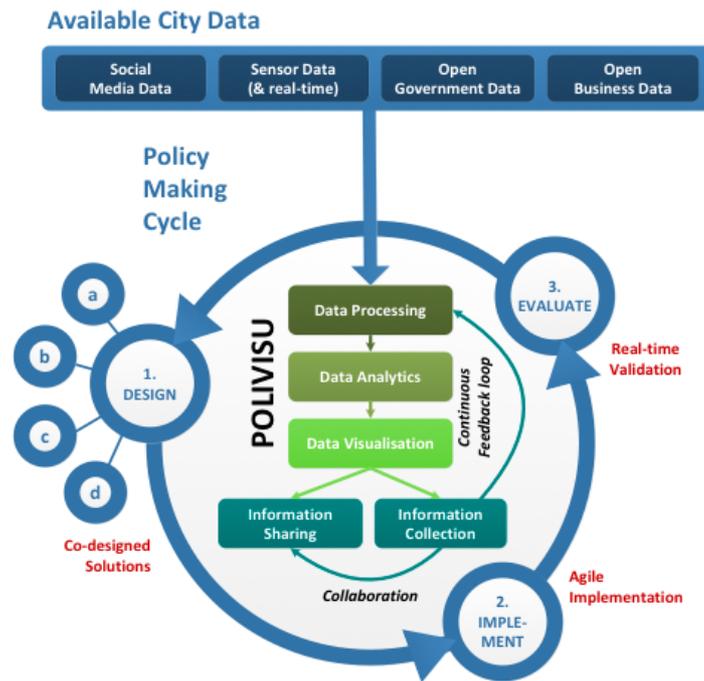


Figure 2 Data integration in the PoliVisu Policy Experimentation Cycle

2.2.1. Data processing

PoliVisu accesses very diverse data sources including big datasets, sensor data, social media, open data, metadata, spatial data, etc. We aim to store any data coming from sensors or other sources as ‘smart data’. This means that it can be used in any application, can be analysed and correlated with other sources of data and can be used to provide detection of patterns to understand the effective functioning of infrastructures, transport system, services or process within the city. Depending on the needs, this smart data architecture can focus on Geo Time series™ in which all sensor data or any probe measuring an event will be defined in time and space (location). This allows to manage data in a very efficient way and agnostic on the types of applications using the data.

Another important responsibility are the processes and techniques to make the data usable for policy making in terms of privacy through anonymization, aggregation, blurring, etc. Big data ("extensive datasets – primarily in the characteristics of volume, variety, velocity, and/or variability – that require a scalable architecture for efficient storage, manipulation, and analysis" as defined in ISO/IEC CD 2046) provides a high level of detail on mobility and traffic flows. The level of detail captured and stored therefore raises questions about data security and privacy.

2.2.2. Data analytics

The resulting smart data solutions provide a horizontal and reproducible approach for analytics and functional applications like:

- analysis of road safety, the use of traffic infrastructure and car parks;
- understanding the impact of weather, seasons, date and time on traffic and mobility;
- predict the evolution of infrastructure usage (incl. traffic models);
- predict faults or problems on city systems, transport infrastructure, congestions.

The data analytics layer performs traffic calculations, discovery of correlations within or between data sources, detection of trends, social media or sentiment analysis, impact assessment, spatial analysis and modelling. In PoliVisu, data analytics are provided by Warp 10/Cityzen Data, the Macq system, TruthNest, the Open Transport Map Traffic Modelling and other geospatial components.

2.2.3. Data visualisation

The data visualisation layer foresees the necessary tools, GUI components, libraries and widgets to present the results of the data analytics in a set of powerful yet easy-to-use and intuitive visualisations. A strong focus is on presenting the spatial-temporal aspect of the data in an “interactive” and “connected” way. Interactivity means that the user can interact through the GUI and the system will respond (near) real-time. Connectivity is realised by integrated, linked and synchronised graphs, (heat)maps and tables. This layer also delivers functionality to integrate multiple dimensions of data into a single-screen visualisation, to present a correlation between metrics or to highlight trends. Another important aspect of data presentation is the use of inline and smart user guidance and tooltips taking into account that an increasing amount of data visualisations will be handled on touch and mobile devices. In PoliVisu, WebGLayer, TruthNest, the Macq web frontend and other geospatial components deliver data visualisation functionality.

2.3. The Living Lab experimental dimension

As already described in PoliVisu Deliverable 3.1, an experimental dimension is crucial in policy making. It makes the policy evaluation scope transversal to the other steps of the policy cycle as well supportive of the other steps. It transforms the policy making into a Living Lab process as it introduces co-design and co-experience as ways of embedding new points of view, new values in the context of the policy. Design and implementation, in this perspective, become reciprocally integrated and:

- learning is enhanced and extended to participants by designing ‘with’, not merely ‘for’;
- experiences are exchanged and sharing is more effective than information transfer and sharing;
- involved actors become the owners of the socio-technical solutions together with technological actors and decision makers;
- changes in behaviours (main goal of any policy) are activated throughout the experiments.

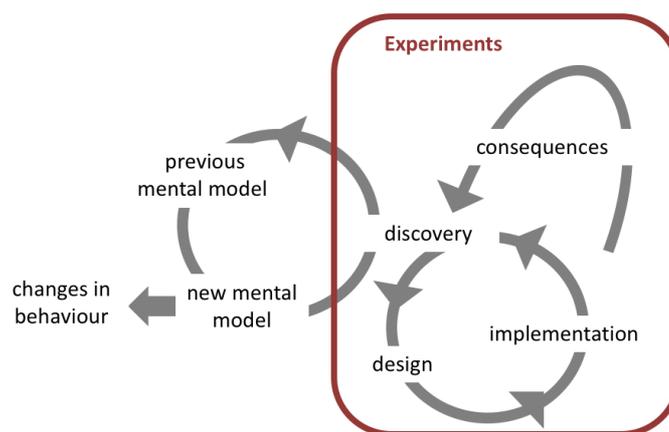


Figure 3 Behavioural changes as the result of Living Lab experimentations

This schema can be naturally mapped onto the PoliVisu policy making model (Figure 3) at two different scales:

- within the policy design process, small scale experiments can be imagined to achieve a deeper understanding of the problem at hand, and/or to set up and fine tune the policy tools under preparation
- within the entire policy cycle - made of design, implementation and evaluation processes – a large scale experiment can be conceived of as a learning cycle, creating further opportunities for discovery and learning.

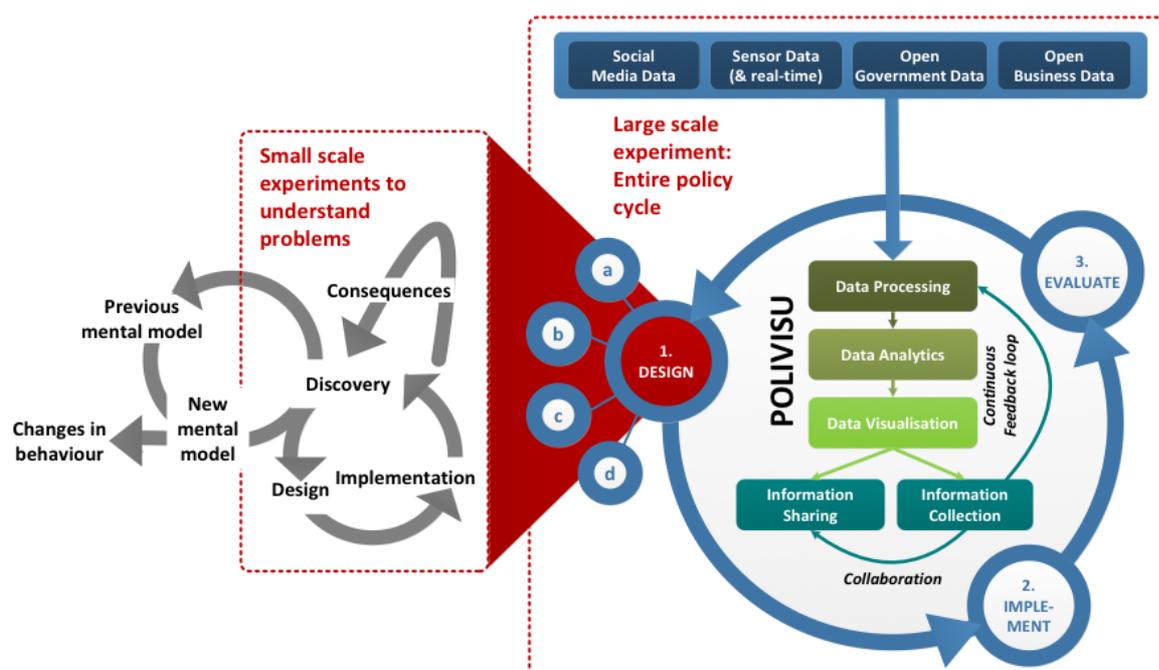


Figure 4 Applying the Living Lab experimental dimension to PoliVisu's policy making cycle

Essential for the above to happen is that any policy action be thought of as an experiment to be assessed (thus leading to **single-loop learning**) eventually implying the revision of the policy (**double-loop learning**) or the making of an entirely different policy (**triple-loop learning**). In sum, single-, double-, and triple-loop learning theories imply that the processes of reflection and questioning, rather than only the information used or provided as part of each process, lie at the heart of change and can represent for policy making an effective exploitation of its (connatural) experimental dimension.

Triple-loop learning is the most elusive of the three levels and is rarely attained, as it involves a fundamental questioning of the meanings and assumptions attached to the world, ultimately leading policy actors, their communities and the organisations they belong to) to question the basis of all knowledge. For instance, triple-loop learning is said to occur when one starts to reconsider underlying values and beliefs, world views, if assumptions within a world view do not hold any more.

In the PoliVisu model, triple loop learning can be achieved through the combination of the two previous scales of the single-loop learning, i.e. whenever the experimental dimension is considered both at the scale of policy design in terms of small experiments, and at the scale of the entire policy making cycle.

Accordingly, triple-loop learning is related to transformational shifts from small and large scale experiments (experimental practices) up to policies (and policy making), via interrelated feedbacks through nested cycles of learning via experimentation, as the following picture shows.

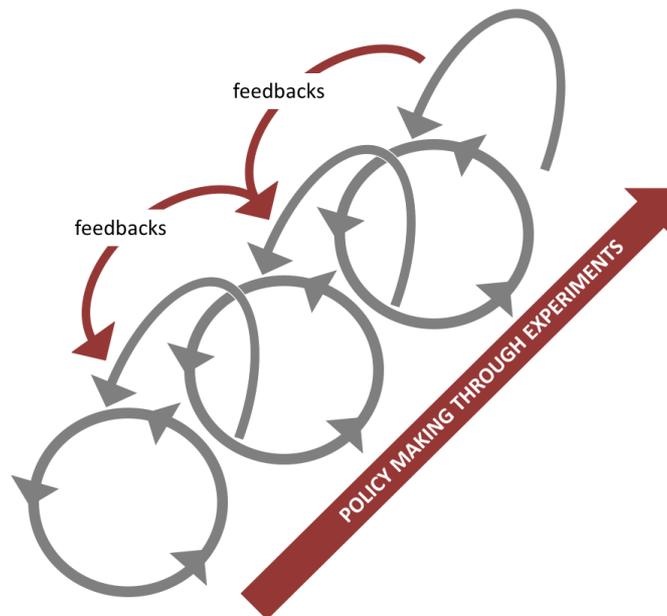


Figure 5 The learning flow across multiple policy experimentations

Relevant to this approach is to create the tools and methods for continuous feedback provision and this can only be also supported through the appropriate use of (big) data - the processing, analysis and visualization of which is the main scope of PoliVisu.

2.4. Use of data tools and methods within the Policy Experimentation Cycle

2.4.1. Policy Design

The experimental dimension that transforms the policy making into a Living Lab process starts at the Policy Design stage: in fact, this stage introduces co-design and co-experience to embed new points of view and values in the context of the policy.

Policy Design includes four essential stages: problem setting, policy formulation, public discussion, and decision making.

Problem setting

The first phase of policy design consists in setting the problem/issue to be faced and legitimate it as collective problem, recognized as such by a community.

This phase is directed towards explain existing policies and their development, providing the evaluation of the antecedent policy making cycle and the way these policies have deal with the problem/issue. The reconstruction of the public debate about the problem/issue and the identification of the stakeholders and actors potentially involved 'put the problem into shape' and represents an important step for its treatment.

At this step, **data tools and methods** can be adopted for:

- **analysing** existing policies and their implementation to investigate how and if they deal with the problem;
- reconstructing the **public debate** about the problem;
- identifying **stakeholders and actors** (potentially) involved;
- activating **consultations** in the most suitable forms, based on the issues faced.

Policy formulation

Policy formulation aims to define and mobilize a set of alternative options in relation to the problem/issue emerged in the previous phase, evaluating among them the option able to address the problem, considering available resources and existing constraints.

This phase is directed towards the construction of scenarios, to support the choice between different alternative options, assuming that the available options are alternative to each other and cannot be pursued at the same time. In this sense, it is possible to explore different alternative scenarios (possible complex future outcomes of different possible decisions) and assess which one is the most desirable one.

At this step, **data tools and methods** can be used for:

- defining a set of **alternative options** with regards to the problem
- **evaluating** the alternative options as possible complex future outcomes of different possible decisions, to address the problem considering available resources and existing constraints through **scenario construction**;
- **consulting** with stakeholders and citizens.

Public discussion

This phase - which permeates the entire process - is finalized to involving citizens and key stakeholders in the issue that a policy faces. This step is relevant because the outcomes of a public policy decision process depend on the interaction of different types of actors with different goals and roles who, within a network that can have different characteristics, exchange resources using different patterns of interaction, to obtain a stake, within a given decisional context. This step is important also to build coordination and coalitions among actors involved in the process; to achieve a shared tuning of some preferred policy tools and to share tests and experiments results, to advance revisions in some policy components, specification of the implementation modes (timing, development sites, management), as well as some further experimental elements to be assessed during the implementation stage.

Therefore, public debates and consultations affect the whole PoliVisu policy cycle and they are crucial for the experimental dimension in policy making.

At this step, **data tools and methods** can be utilised for:

- reconstructing the **patterns of interaction** as the rules through which the actors exchange their resources as a condition to manage the public discussion (i.e. confrontation/conflict; bargaining, that is, exchanges between actors; or collaboration, when actors pool them in order to solve the problem);
- defining the type of **resources mobilised** by the actors involved: political resources as the ability to mobilise citizen consensus; economic/financial resources as the ability to mobilise money; legal resources; knowledge/information resources consisting in the ability to mobilise data, information or models able to extract added value from the data; Social capital resources improving trust and new cooperation for problem solving;
- selecting among possible different **consultation procedures** the most suitable one, to deal with the problems/issues and the actors involved. These are characterized by different degrees of institutionalization and equally diversified methods of community involvement and participation, as well as a different capacity to influence the decision-making process. Such approaches can usefully draw also on big data: according to the chosen decision making device, different ways for selecting participants are available (for example, with a random selection from the general population), as well as for building the interaction with them. Some alternative approaches to collective decision making are shown in the following table.

	Devices	Selection	Outcomes
Consultation	Débat public (France)	Self selection	Report evaluating positions and themes which emerged during the process.
Integrative negotiation	Consensus building	Stakeholders	Agreement
Deliberative approach	Mini-publics	Selecting participants randomly from the general population	Recommendations/advices

Table 1 Alternative approaches to collective decision making
(Source: Bobbio, 2012)

Decision making

The phase defines what is the intent that a policy instrument aims to achieve and identifies what procedure should be followed. Depending on how a problem is defined, different ends to be achieved and means to be used can be identified. This phase, strictly related to policy formulation phase, which should be already directed towards the formulation of new proposals, is directed towards the design of a policy instrument and contributes to the process of problem solving.

At this step, **data tools and methods** can be relevant for:

- defining the **final choice** that came up as well as the sequence of **elementary actions and decisions that** determined its content;
- identifying **the best procedure to support the choice** between different ways of addressing a specific problem;
- defining the **tools/means** to be used to implement the choice;
- defining the **actors involved and their roles**.

2.4.2. Policy implementation

Based on the experimental dimension proposed in PoliVisu, implementation is not merely an administrative process. In the stage of implementation, the policy defined in the previous stages is given form and effect, being put into practice and delivered to the public, but thanks data and information concerning the response of the setting to the policy it will possibly provide eventual elements for refining the policy defined in the previous steps and improve policy implementation management. Policy in fact must take into account external conditions and adapt to their eventual change; it needs thus to be designed, in a process that takes time, provides occasions for learning and requires eventually to revisit the previous steps. Policy implementation process includes:

- communication of the decided policy as a result of the policy design process. The **PoliVisu model** explores the policy using relevant data to provide insights by using advanced visualisation techniques, including interactive map tools and graphs;
- publication of the policy, using a combination of own media and external publication channels such as press are used to explain the policy. The **PoliVisu visualisations** will be an essential part of the publication besides the use of social media to interact with the public;
- reaction monitoring using social media and analysis of changing behaviour; new techniques will be used to monitor the opinions published in newspapers and on the internet. Part of the monitoring is also the ability to measure source reliability. With the information gathered, the Impact of the announcement can be assessed by measuring the number of reactions, the location, the mood etc. to

verify public acceptance. The impact data will be collected and managed via several specific components that will be used, adapted or developed during the project by integrating advanced visualisation tools dealing with live and big data, social media tools to collect reactions and web publication interfaces to publish information. The collected input will be managed and analysed – using the advanced **PoliVisu tools** or the own city management dashboards for policies;

- supporting both operational decisions and policy decisions dependent on elements as impact, importance, time to implement. The results will also be used to influence policy communication itself, achieved via publication via the cities own communication channels (for ex. website) and or via external channels like newspapers and social media.

At this step, **data tools and methods** can be appropriate for:

- implementing and communicating the policy change and creating real-time visualizations of its effects;
- reaction monitoring using social media and analysis of changing behaviours;
- operational decision making, based on a new “as is” visualization;
- progress monitoring and early assessment using real time data.

2.4.3. Policy evaluation

During the evaluation phase, the results achieved with the implementation of a policy – be them desired or undesired - are considered. Facing the results achieved with the implementation process, evaluation may examine how the policy contributed to address the initial problem, limiting damages or providing benefits; and it may consider how a policy may likely perform in the future. Such phase also needs to consider that the effects of policies are often indirect, diffuse, or take time to appear.

Based on the experimental dimension proposed in PoliVisu, evaluation should not be a stand-alone activity, performed in solitude by the decision makers responsible for the specific policy. Quite the contrary, it becomes part – and a decisive part – of the learning process, which is supposed to be as inclusive as transparent as possible, in order to achieve the stated goals of actor mobilisation and behavioural change.

At this step, **data tools and methods** can be useful for:

- multidimensional qualitative and quantitative impact assessments;
- observation of direct and/or indirect effects – for instance at urban level
- participatory evaluation – i.e. shared with, and possibly affected by, the very same stakeholders involved in the policy implementation process.

3. Mapping the PoliVisu pilots on the policy making model: the pilots’ guidance workshop

3.1. Goals and preparation

Held in Milan on 20-21 December 2017, the workshop was aimed to provide insights and share the understanding of what a policy is about, as well as to contribute to Pilot Scenarios, defined in the same period in the framework of deliverable D6.1.

In order to prepare the pilots to this workshop, the Polimi team created a template (reproduced as Annex 1 to this deliverable) to help them describe the current policy context by the identification of current and past experiences (notably the main mobility policies put in place locally over the last 5-6 years) and evaluation facts. The resulting descriptions of the current situation in the three project pilots (Ghent, Issy-les-Moulineaux and Plzen) are presented in an Annex to the “parallel” Deliverable D6.1.

To complete this task, each Pilot could add interviews to local managers or administrators and reconstruct the positions emerged on the various policy problems in the public debate (as witnessed by e.g. press reviews etc.).

The workshop agenda was planned in detail as follows:

PoliVisu Milano meeting (20-21 Dec 2017)

The seminar is intended to provide an insight on what a policy is, and will also contribute to the completion of the deliverable D6.1. The meeting will take place in the meeting room of the historical Edificio Carta (Building 29) of Politecnico di Milano, in Piazza Leonardo da Vinci 26.

Agenda

Wednesday 20 Dec

14.00-14.30 WELCOMING

14.30-15.30 INTRODUCTION

- 14:30 What is a policy? (Paola Pucci)
- 15:00 Exploring the Milano Experience in mobility policy (Giovanni Vecchio)
- 15:30 Workshop program (Grazia Concilio, Francesco Molinari)

15:30 Coffee break

15:45-18:45 PILOTS WS: Step 1

Understanding the policies in the 3 pilot cases - check with current document D6.1.

- 16:00 Exploring past mobility policies
- 17:15 Reporting

17:45 – 18,15 Wrap-up and conclusion of the day

19:30 Dinner (TBD)

Thursday 21 Dec

9:00-10:30 PILOTS WS: Step 2

Problems the pilots want to tackle? New problems with a policy needs. Reasoning behind the policies (general).

- 9:00 Idea generation
- 10:15 Reporting

10:45 Coffee Break

11,00-12,30 PILOTS WS: Step 3

Scenario development to tackle the problems. Reasoning behind real implementation policies - scenario's/data needs.

- 11:00 Starting scenario development
- 12:00 Reporting

12:30 Final - How the workshop contributes to the development of the deliverables

13:00 Conclusions & lunch

Figure 6 Milano Workshop agenda (December 2017)



Figure 7 Moments of the Milano workshop

3.2. Structure

As a warm up and preparatory stage, the Polimi team presented to the workshop attendees the case of the City of Milano, particularly describing the transition from the mild traffic restrictions of the city centre put in place until 2011 and the congestion charge based policy started in 2012, as reported in subsection 3.3.

Starting from the representations of PoliVisu’s data assisted policy making cycle as per Figures 2 and 4 above, two interactive sessions were foreseen, with the aim of exploring:

- the emergence of new problems to be targeted, which may require changes in existing policies (see Table 2)
- the ideation of small scale experiments in support of the envisaged solutions and the corresponding data uses (see Table 3).

EXISTING POLICIES	NEW PROBLEMS TO BE TARGETED
<ul style="list-style-type: none"> • What stage? • Do they need new/changed implementations? <ul style="list-style-type: none"> • What do data analyses say? • Do we need additional data and data analysis? • Is there someone who is not satisfied? 	<ul style="list-style-type: none"> • What problem? <ul style="list-style-type: none"> • Whose problem? • What evidences (data, data analysis)?

Table 2 Guidelines of the workshop interactive session #1

CO-DESIGN EXPERIMENTS	NEW ACTIONS
<p>Imagine an experiment for each envisaged solution</p>	<ul style="list-style-type: none"> • Are there envisaged solutions? <ul style="list-style-type: none"> • What? • Who is already involved? • Who may be interested? • What can we do more? <ul style="list-style-type: none"> • How? • Expected impacts • Involved actors
REFERENCE DATA	USE OF DATA
<ul style="list-style-type: none"> • What data? <ul style="list-style-type: none"> • Do they exist? • Who is the owner • How clean/complete they are 	<p>How you think data can be used</p> <ul style="list-style-type: none"> • To do what • Which tools to be used • Expected impacts on policy decisions

Table 3 Guidelines of the workshop interactive session #2

Three groups of participants were formed during each of the two interactive sessions. Each group was composed of the team members of one PoliVisu pilot and complemented by at least one member of the Polimi team.

The results of the two sessions are provided in the “parallel” Deliverable D6.1.

3.3. The Milan case

The Milan experience with urban mobility policy was used during the workshop as an example of how the policy cycle works in a real-world case. Milan in fact provides a complex setting in which it is possible to observe many of the current challenges and opportunities related to urban mobility. The city is located at the centre of a huge metropolitan area, which overcomes existing administrative boundaries and involves other provinces, regions and even countries (such as Switzerland). Furthermore, the city has slightly more than one 1 million inhabitants, but every day hosts more than 5 million trips (more than 2 million are commuters, while almost 3 million involve internal trips). The authority in charge of the main planning and policy decisions for urban mobility is the City of Milan, whose mayor has recently become also the mayor of the surrounding metropolitan area (the former province, now defined Metropolitan City). The City has recently approved its Sustainable Urban Mobility Plan (SUMP), to provide a common framework for the many existing and forecast planning and policy initiatives for urban mobility issues. However, some of the existing measures already allow to observe how Milan has put the policy cycle into practice.

A good example in this sense is provided by the City's evolving traffic charge policies, which will be briefly presented referring to the steps of the policy cycle previously defined. Already in the Nineties, Milan has been experiencing high levels of air pollution as well as critical road congestion; private cars were identified as the main problematic element in this sense, by politicians, technicians and the general public (**problem setting**). Different interventions were gradually put in place to tackle those issues (**policy formulation**): parking tolls were introduced in the city centre, to discourage people from reaching the centremost areas by car; traffic blocks and limitations (based on odd and even plate number alternance) were introduced during winter time to reduce the number of cars circulating every day; financial incentives were provided for the demolition of old cars and their replacement with newer, greener vehicles.

Amongst the discussed options, the creation of a limited traffic zone in the city centre was also considered. That was finally introduced in the year 2008, in the form of a pollution charge going under the name of Ecopass (**policy design**): the charge was in action from Monday to Friday, from 7.30 to 19.30, and involved the inner core of the city; the initial proposal of a wider boundary reaching the outer inner ring road was dismissed due to political opposition within the same centre-right majority that was in power at the time, so that the Ecopass ultimately involved an area of approximately 8 km². Being a pollution charge, vehicles paid proportionately to their pollution level: some categories 5€, others 2€, many other categories instead were free to enter the central area of Milan without paying. The pollution charge was put in action with a system of controlling cameras and its net earnings were invested in sustainable mobility and pollution reduction measures (**policy implementation**); in particular, financed interventions involved redevelopment, creation and enhancement of public transport infrastructures and services; soft mobility measures (pedestrian areas, traffic calming zones, cycling lanes); and new goods delivery systems.

The Ecopass introduction was characterized by a controversial process with open conflicts, involving intense public debates at the local and regional level. One survey done by a leading newspaper stated that 76% of Milan residents thought that the quality of environment had worsened, but 43% declared that traffic was the primary problem, not pollution. The then-Mayor launched the Ecopass program even with some opposition among her own political allies, so that the original plan had to be scaled down to a smaller area. Some in fact perceived the pollution charge simply as an extra tax, while others on the contrary claimed that wider actions had to be undertaken. However, initial results reported a success already in the first month after the Ecopass implementation, reducing the conflictual debate around the new charge. On the other hand, the results achieved by the Ecopass proved the only partial success of the charge in reducing traffic and pollution (**policy evaluation**): in the year 2009 only 14,2% of the entering vehicles were paying Ecopass, while air contamination was still higher than what is allowed by the European thresholds.

In 2012, a change in the political majority at the Milan Municipality led also to a re-formulation of the traffic charge policy (**policy reformulation**). The pollution charge was replaced by a congestion charge, Area C (**policy design**). The charge is active within the same perimeter as before and with the same time validity, but new

regulations are adopted: access is forbidden to the most pollutant vehicles; a higher entrance toll (from 2€ to 5€) is due for each category of vehicles; residents in the city centre must pay the toll too. Again, net earnings are invested to promote sustainable mobility (**policy implementation**): such funding is devoted to public transport, improvement of the subway network (increase of the frequencies in the city centre), improvement of the cycling network, new bicycle racks, and economic incentives for ecologic vans. In comparison to Ecopass, Area C has shown already in its first year (2012) a lower number of vehicles entering the city centre (**policy evaluation**): moreover, positive results have been achieved in terms of reduced traffic inside Area C (-30,8%), reduced traffic inside the city (-7,6%), increased commercial speed of public transport (+6%) and reduced number of accidents (-28%).

The traffic charge policy of Milan seems to have entered a new cycle of reformulation, after its evolution from Ecopass to Area C. In fact, a possible expansion of Area C has been the object of a local referendum, which approved it already in 2011; however, a Cost Benefit Analysis carried out for the Milan SUMP stated that the expansion would provide no further benefits, in terms of either increased revenues or reduced traffic congestion. Instead, the City is planning to implement soon a Low Emission Zone (LEZ), to be enforced with cameras that would control a perimeter covering almost the entire municipal territory. Such initiative may contribute to specific policies (logistics, touristic buses...) and also support new forms of traffic control and charge within the city.

3.4 Pilots overview

Based on the discussion occurred during the Milano workshop and the more detailed evidence presented in Deliverable D6.1, we can identify the following distinct interests on the way to collect and use data in the three project pilots.

In Ghent, priority goes to setting up a data exploration strategy (almost) from scratch and co-implementing it with other institutions (such as the University) and people (such as the students).

In Plzen we register an attempt at “discussing” the existing mobility plan, not in terms of its long term provisions but through analysing the impacts of alternative options that are all viable in principle.

In Issy-Les-Moulineaux, a combination of short term and longer term actions to respond to the complex / urgent challenges of the underlying traffic situation (which is also the case for Plzen).

Referring to the specificities of the pilots mobility policy domain, the City of Ghent will be using data within the (re)design of specific aspects of their current mobility plan in integration with the policy domain of real estate market; Plzen within the framework of the mobility plan will to show/simulate the consequences of its current provisions; Issy will propose local actions that can influence local management around mobility, with a particular interest for cities being connected with the current implementation of the Grand Paris Express project. In both the Ghent and the Issy cases, the “nested” character of the proposed experimentations is quite evident.

Based on our previous discussion and very synthetically mapping the coming contents of D6.1, we identify what scale of the experimental attempt each pilot can be mapped on (see Figure 5 above) and at what level of the policy cycle they may be considered to correspond to, with the help of the following table.

Policy stage	Design	Implementation	Evaluation and redesign
Experimentation scale:			
Small scale (Single loop)	Ghent		Ghent
Large scale (Double loop)		Plzen/Issy	Ghent
Large scale (Triple loop)		Issy	

Table 4 preliminary outcomes of pilot goal analysis in coherence with the PoliVisu policy cycle

Considering the columns first, and based on the descriptions of the different data management scenarios provided in D6.1, it looks like the Plzen and Issy pilots are rooted in the policy implementation cycle, while the Ghent pilot lies in the problem setting phase associated to a new policy design cycle, after the critical evaluation of an existing policy framework.

Looking at the rows then, one can try to anticipate at what scale policy learning through the proposed experimentations is or will be expected to take place. In that regard, Ghent will be using data collections to achieve new policy design (single-loop learning) including the evaluation and revision of an existing policy framework (double-loop learning). The Issy and Plzen pilots are also aimed at double-loop learning, due to their focus on a holistic (large scale) implementation of the respective current policies. However, it is only in Issy-Les-Moulineaux that the outcomes of planned experimentations may ultimately lead to the making of an entirely different policy, at a higher scale than the Municipality (thus fulfilling the requirements for triple-loop learning).

The above considerations help to highlight some of the distinguishing characteristics of the PoliVisu pilots in the perspective of WP3, and particularly Task 3.4, which will be in charge of coordinating the actual policy experimentation cycles, based on the model provided in this Deliverable and the baseline analysis that has been conducted in each of the pilots within the context of the “parallel” D6.1.

Living lab style demonstrator environments will be set up in the three Cities, and a user driven methodology will support the PoliVisu tools validation workstream for agile and effective testing in realistic conditions. The ultimate goal of the policy making model presented in this Deliverable will be to help involved stakeholders (notably public decision makers) to localize the various tools within each stage of the policy cycle, leveraging their full potential for evidence (data visualisation) based policy (re)design, implementation and evaluation.

4. Way forward

This document is the first of two planned deliverables related to the PoliVisu Policy model in Task 3.3. The main reason for having two versions is related to the important learning that the Polivisu partnership will achieve throughout the pilots' work, which will be mainly oriented to operationalize the link between data handling (processing, analytics and visualization) and the activities to be carried out within the policy making cycle. The future deliverable D3.5 will be mainly devoted to this, i.e. to create the operational links between the activities of Big Data Handling, the behavioural changes induced by the Living Lab experimentations, and the main steps of the Policy Cycle (as detailed in Figure 2 above).

As for now, the draft of the PoliVisu policy making model allows to understand the different roles that big data may have for contributing to collaborative policy experimentations.

The phase of the policy-making process (design, implementation or evaluation) can be different for each of the pilots and even on the level of the pilot scenarios. The provided model (figure 1 and 2) helps the pilot cities to map their ongoing policy-making and use of (big)(open)data. Drawing on the previous sections, for each policy cycle stage four possible contributions of big data are defined:

- *Design:*
 - creation of as-is policy visualization to highlight problems to be solved;
 - experimentation of alternative options using data to show their impact;
 - consultation with wider stakeholders using visualization;
 - policy decisions approved by traditional channels;
- *Implementation:*
 - implementation and communication of policy change;

- reaction monitoring using social media and behaviour analytics;
- operational decisions made upon new as-is visualization;
- progress assessment using real-time data;
- *Evaluation:*
 - multidimensional impact assessment;
 - multidimensional impact conclusions;
 - new policy needed?
 - new implementation actions needed?

The policy making cycle outlined in this document allows each pilot city to map its own ongoing experiences and the possible uses of big data (as detailed in deliverable D6.1). Drawing on this conceptualisation, the city of Ghent appears to be mainly in a phase of policy design, in which significant would be the creation of as-is policy visualization to highlight problems to be solved. The cities of Pilsen and Issy-les-Molineaux instead are mainly dealing with implementation, to which data may contribute mainly through reaction monitoring using social media and behaviour analytics, operational decisions made upon new as-is visualization, progress assessment using real-time data.

The mentioned operationalization will develop instead on the reporting (which will be also supported by the POLIMI team) of pilots experiences and focus on some dimensions that we can already identify and some additional ones that will be discovered and explored throughout the pilots' experiences.

The operational dimensions that we already can imagine to be relevant are:

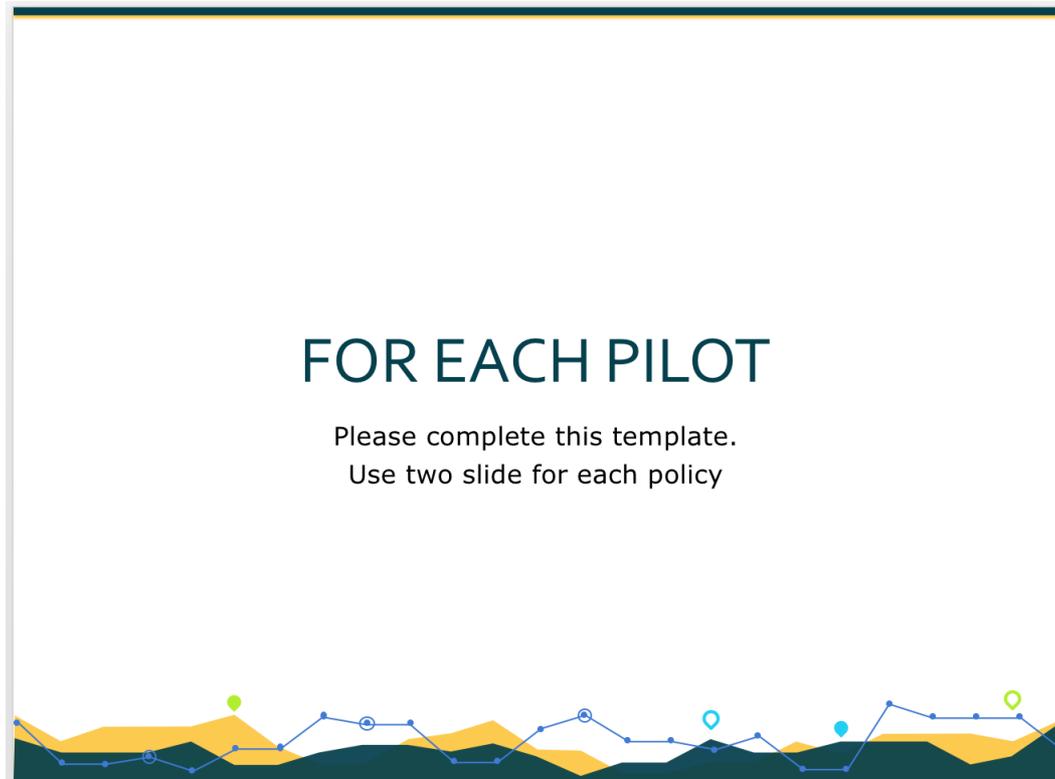
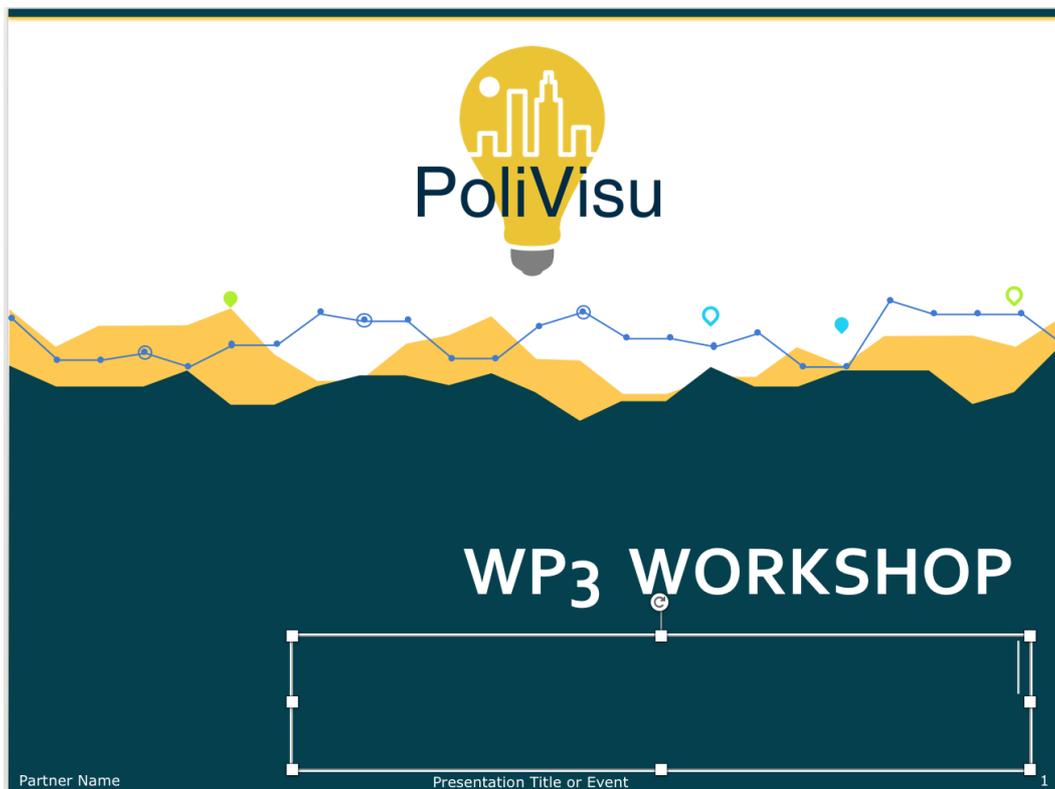
- *Used tools to handle data* referring to processing, analytics and visualization as well as data creation (the Ghent pilot is working in this direction), collection and sharing;
- *key figures/actors of the policy making process* and the relation between their roles and their needs for, requirements about, and ways to use data;
- *pitfalls and criticalities in the management of the experimental dimension* at the different scales of the policy making cycle;
- *the concrete interplays between the learning loops* and the distinct stages of the policy making cycle (as initially outlined in Table 4 above);
- *the interdependence between the different time frames* affecting the development of scenarios and the modes of conceiving evaluation as a tool for implementation management and/or for ex-post assessment.

The identification of the diverse aspects of the operational link between data handling and the policy making cycle will be guaranteed by a strict interaction with the pilots and also by the collaboration of POLIMI with the other PoliVisu partners in the development of templates for the reporting of their activities. These will not only act as sort of "primers" for the operationalisation of data driven decisions within the pilots, but more generally initiate the collection of a set of accompanying documents and tools for the benefit of the broader dissemination and exploitation phases of the project.

5. References

- Bobbio, L. (1996). *La democrazia non abita a Gordio*. Milan: Franco Angeli
- Bobbio, L. (2012). Non proprio politica, non proprio tecnica: la terza via della democrazia deliberativa. Available at <http://www.sisp.it>.
- Dente, B. (2015). *Understanding Policy Decisions*. Berlin: Springer
- Flyvbjerg, B., Cantarelli, C., Molin, E.J.E., van Wee, B. (2010). Cost overruns in large-scale transportation infrastructure projects: explanations and their theoretical embeddedness. *European Journal of Transp. Infrastruct. Res.*, 10 (1), 5–18.
- Gao, H., Tang, J., Hu, X., & Liu, H. (2013). Exploring temporal effects for location recommendation on location-based social networks. In *Proceedings of the 7th ACM conference on Recommender systems* (pp. 93-100). ACM.
- Jann, W., Wegrich, K. (2004). Theories of the policy cycle. In: Fischer, F., Miller, Gerlad, J., Sidney, Mara S. (Eds.), *Handbook of Public Policy Analysis*. London: CRC Press.
- Hill, M. (2009). *The Public Policy Process*. London: Pearson.
- Howlett, M., Ramesh, M., Perl, A. (2009). *Studying Public Policy: Policy Cycles and Policy Subsystems*. Oxford: Oxford University Press.
- Marsden, G., Reardon, L. (2017). Questions of governance: Rethinking the study of transportation policy. *Transportation Research Part A*, 101, 238–251.
- Tennøy, A. (2010). Why we fail to reduce urban road traffic volumes: Does it matter how planners frame the problem? *Transport Policy*, 17(4), 216–223.

6. Annex 1. Template for pilot input collection



GUIDELINES

- This exercise refers to the very first step of a policy making cycle
- Identify mobility policies that your city put in place in the last 5-6 years
- For each of them complete, please, the template of the next two slides
- To complete this task you may need to interview local managers or administrators and reconstruct the positions emerging on the problem/policy in the public debate (i.e. press review)
- Try to start and possibly complete the accomplishment of this task before the meeting in Milan (December 20-21)

If any:	
Name of the Policy	
Year(s) of the policy	
Targeted problem	
Strategies of the policy	
Tools of the policy	

Authority in charge of the policy implementation	
Actors and stakeholders involved and their roles in design, in implementation, evaluation stages	
Evaluation activity <i>- In design phase</i> <small>(evaluate alternative scenarios)</small> <i>- In implementation phase</i> <small>(eventual elements for refining the policy)</small> <i>- on policy impacts</i> <small>(how the targeted problem is examined)</small>	
Collected data <i>- In design phase</i> <i>- In implementation phase</i> <i>- on policy impacts</i> <small>(if available)</small>	
Citizens acceptance or resistance	

