DELIVERABLE

D6.3 Policy implementation and compliance report

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1.0	9/10/2020	Freya Acar Joran Van Daele	Ghent	Final version

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Executive Summary

The goal of this deliverable is to **illustrate how the actors involved in the PoliVisu pilots have learned and grown from the PoliVisu project.** By using the network analysis from D3.9 important actors from the pilots were identified and split into groups. The groups include the central actor, i.e. the actor that executes the PoliVisu pilot, the data providers, technical partners, thematic departments from the city administration, political actors involved in the theme of the pilot and the broader knowledge network in which the central actor operates.

For every actor we describe their status at the beginning of the project, how they matured and which aspects of the projects lead to this, and what they hope for the future. Through this we illustrate how the local policies were implemented, if and how support for these policies was gained, how the decision-making process is organized or might have changed and how the collaboration between the central actor and other actors evolved.

We see that the data maturity of almost all actors increased significantly. Within the public administration, the central actor, thematic departments and even the political actors, have gained experience with working with (big) data and have learned to **appreciate the value of (big) data in the decision making process**. **Therefore the support for data supported policy making has increased as well.** These insights have altered the policy making process, either through allocating funds, thinking about data at the beginning of policy making and by acknowledging the importance of the insights gained by data scientists.

Procedures have been set up in the collaboration with data providers, technical partners, thematic departments and political actors, making collaborations run more smoothly. It is more clear what is expected from each actor, and what every actor can bring to the table.

Finally we note how the knowledge networks in which the actors operate have gained significant knowledge on working with (big) data and data supported policy making, which is beneficial for a multitude of public administrations and companies.

1. Introduction

The goal of the PoliVisu project is to enhance public involvement and support in urban policy making, by equipping decision-makers with the **skills and tools** - from open (geo) data processing to advanced visualisations - **to use big data for collaborative policy experimentation.**

In the DoA it was stated that this deliverable entails *the actual implementation of the selected policies on the city level, including gaining public support, organising the decision-making process, and coordinating the city's departments or subcontractors to implement the new policy in such a way that its impact can also be measured and fed back into the project. The perception of the policy will be measured by employing - among other means - the sentiment analysis tools which have been developed in WP4.* However, the sentiment analysis tools were not available and could not be included in this deliverable. To enrich the content we decided to broaden the scope and investigate the long-lasting positive impact of the PoliVisu project on the pilots and their network. This also includes the public, the decision-making process for the policy makers and the city's departments and external partners.

In this deliverable we will analyse for each pilot how the PoliVisu project impacted the data maturity of every actor that is or was involved in the pilot during the last 3 years. Which new skills and/or tools were obtained to enhance the proper use of big data. What did the partners learn along the way about (big) data? How did it impact the way the city's now handle this new source of (big) data and what was the impact of the project on the decision-making processes of the pilot?

As a starting point for this deliverable, we used deliverable 3.9, **the Policy Network Canvas Report.** In this deliverable we have mapped the most influential actors, the processes and the different relationships between the actors within the different PoliVisu pilot cities. From the different mappings of the pilots' networks, we derived different categories of partners that were involved in the project. Due to the fact that they were involved (directly/indirectly) in the PoliVisu project, we can suspect a certain influence of the PoliVisu project on the way that they handle or think about big data.

We end this deliverable with general conclusions about how the PoliVisu pilot contributed to the network of the pilots. We specifically zoom in on methods that were used to gain public support and illustrate how the policy making process was influenced during the project in the pilot cities.

2. Methodology

As stated in the introduction, we have used deliverable 3.9 as a starting point for giving structure to this deliverable. In this deliverable, each pilot mapped (see figure 1) the actors that were involved in their pilot the last 3 years.

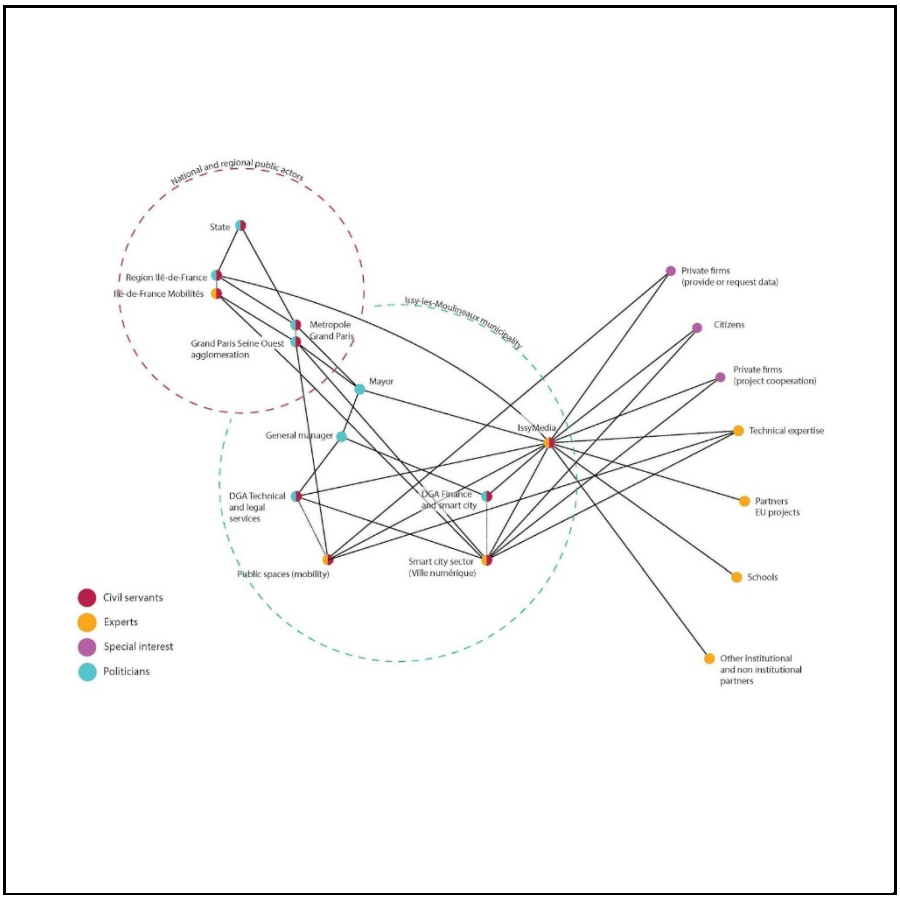

Figure 1 Issy-les-Moulineaux network

In these models, we could clearly distinguish the different categories of actors. These categories were used to divide each pilot-chapter in more feasible parts:

- **Central actor**: the office/administration/unit that is in the lead of the pilot;
- **Data provider**: the partner(s) that was/were responsible for delivering the (raw) data.
- **Technical partner**: the partner(s) that was/were in lead of creating the (big) data visualisations, doing the data cleaning and so on.
- **Thematic departments**: other city administrations that were thematically involved with the project.
- **Political actors**: the political cabinets and bodies that were involved (directly/indirectly) during the project.
- **Knowledge network**: external parties that benefit from the learnings of the PoliVisu project.

For each of these categories, each pilot described what the actor's **data maturity level** was before, during and at the end of the project. Which events, learnings or changes had an impact on how the actor handled or now handles (big) data? The general story for each actor is the following:

- **Starting situation:** how did the specific actor react and worked with big data for policy objectives in the past (at the beginning of the PoliVisu project).
- **What happened along the way** and how did it affect the data maturity and the policy making process?
- **Where are we now:** what is the current data-maturity situation after 3 years of PoliVisu?
- **Dreaming of a better future**. After the end of the PoliVisu project, what are the dream goals to achieve one day concerning big data use for policy making?

For each involved actor, the pilots were asked to analyse the before, during and after situation of the level of data-maturity and the way they handle different (big) data sources.

3. Impact of the PoliVisu project on the data maturity

3.1. Ghent

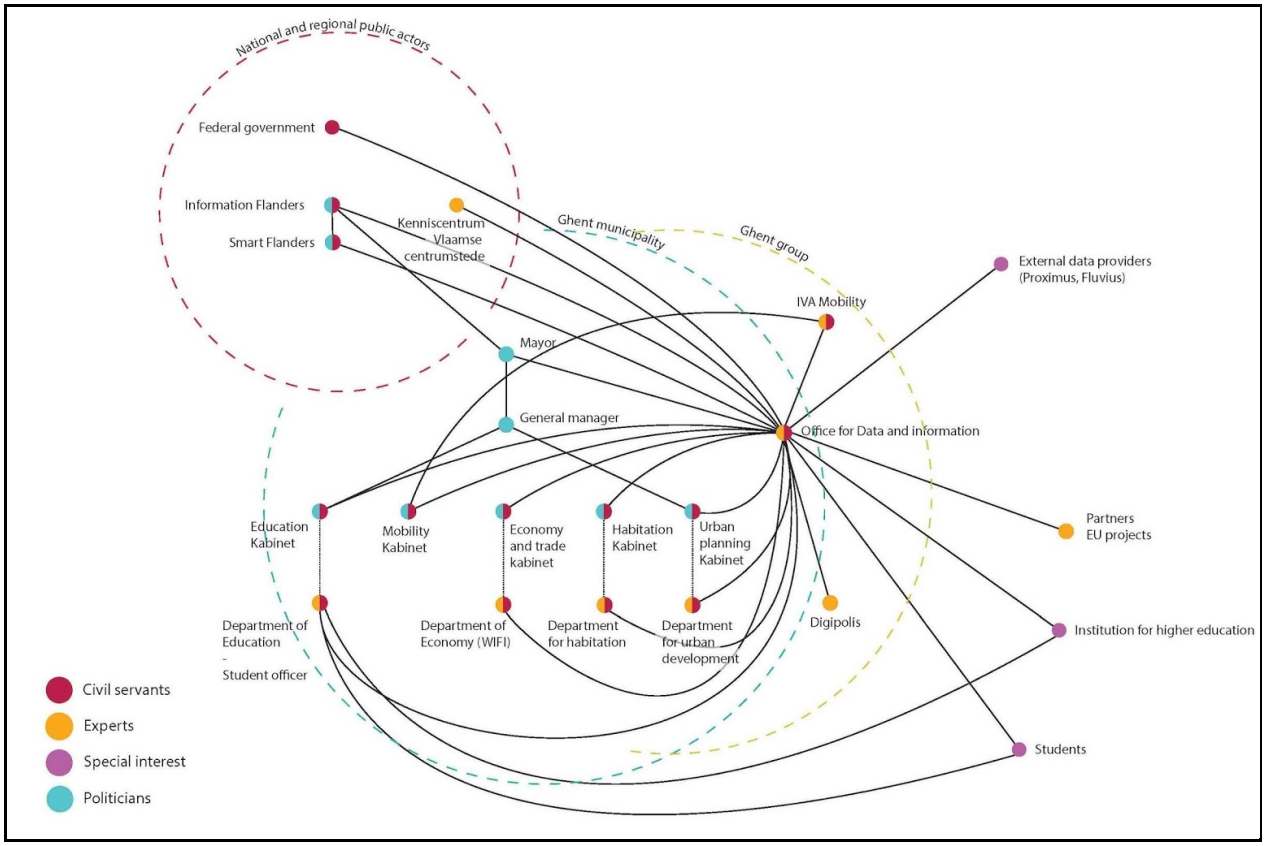

Figure 2: Ghent network

3.1.1 Central actor

The central actor for the Ghent pilot is the office for Data and Information. The office for Data and Information is part of the "supporting" offices that have connections with thematic offices and political offices. The office was recently restructured, bringing together people with various expertise. At the beginning of the project, the team consisted of 14 people. Even though with some thematic offices structural connections were present, most connections remained ad hoc. During the PoliVisu project, 6 new colleagues joined the team, adding new expertise to the group.

Through the PoliVisu project, the people involved from the Office for Data and Information gained experience in several domains and distributed the lessons learned throughout the office and, by extent, to some offices within the city's administration.

The main lesson learned is how to analyze a policy question and extract a data question from the policy question. This requires extensive communication between the parties involved in the policy question and is an iterative process. This however proved one of the most valuable assets for data-supported policy making.

Next experience was gained in **the discovery and collection of (big) data sources**. This includes thinking more broadly about possible data sources, the discovery of data providers and, most importantly, gaining **experience in the collaboration with commercial (big) data companies** and their level of data-maturity.

In the project the city of Ghent had the opportunity to explore different types of datasets, such as administrative data, wifi sniffing data, mobile phone data and social media data. This allowed us to experience their advantages and shortcomings. These experiences were summarized through the construction of a theoretical framework, the **policy-oriented data activity framework**, that shows the road travelled by data in data-supported policy making.

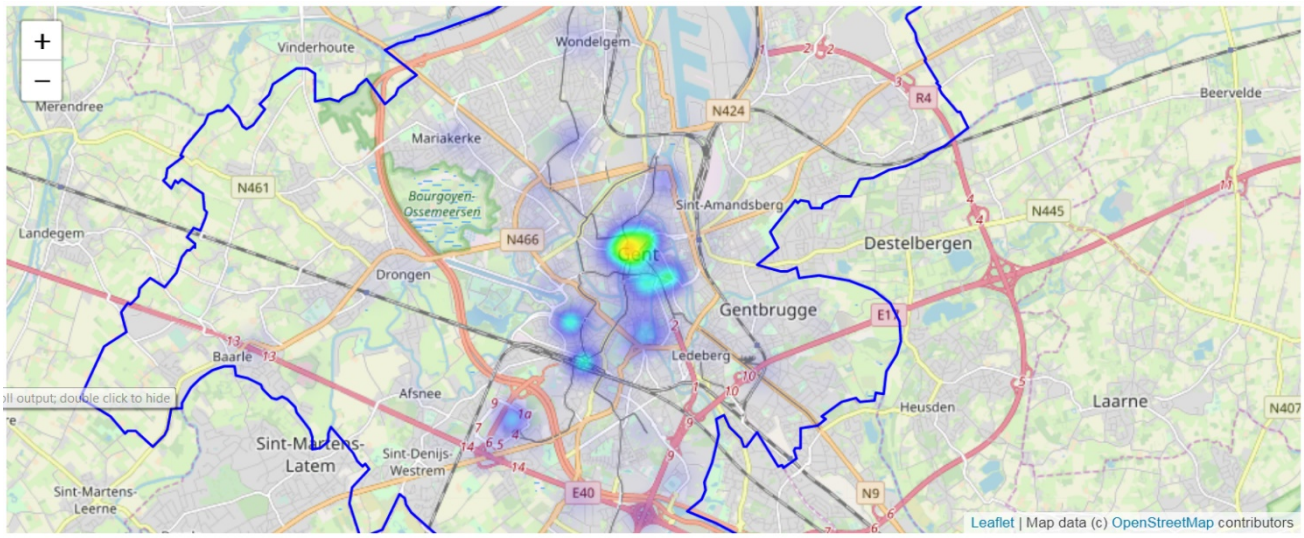

Figure 3: location of geolocated tweets in Ghent

All these experiences combined opened up the possibility to start a datatrack within the city's administration. Through the datatrack the data-maturity of the various offices within the public administration will be improved. Now it has become more common to use big data sources in other domains, such as **crowdedness**, **events** and **tourism**. There is also more political engagement for data-supported policy making. This is for instance included in the policy not about innovation and digitalization.

In the future the datatrack will aid in improving the data-maturity of the public administration, aided by a **more extensive infrastructure and tailormade coaching for all civil servants**. The addition of a team of **data scientists** would also greatly improve the operation of the Office for Data and Information. Finally we aim for more **political conviction** of the added value of data supported policy making and embed data supported policy making more strongly in every level of the public administration.

3.1.2 Data provider

The data provider for the city of Ghent is the mobile phone company Proximus. Recently the company commercialized mobile phone data, and the city of Ghent bought data with regards to the PoliVisu project. Before the PoliVisu project Proximus had little affinity with cities. There were a few small projects, but mostly

scattered. There was no conversation about the data and a city had to pay extra to view the data in a dashboard provided by Proximus.

The collaboration between the city and Proximus posed several advantages for the data provider. During the PoliVisu project, a conversation was started between the city and the data provider, making it more clear what public administrations require from the data. Furthermore, the specific data requirements allowed the data provider to see new and innovative uses for the data they own. By defining profiles, such as dorm students, the company can provide data that is richer and of higher quality. Finally, this allows Proximus to refine this procedure and take it to other interested cities and regions.

3.1.3 Technical partner

No technical partner was involved for the Ghent pilot during the PoliVisu project.

3.1.4 Thematic departments

Within the city administration multiple actors are involved with building information. The main stakeholders are the civil services on habitation, housing quality, civil registration and taxes. The data exploration and quality analysis of existing administrative data sources at the start of the PoliVisu project, have served as the foundation of further action plans and optimisation of the data quality and data collection. The elaborated strategies for data collection and data management have been integrated into policy implementation plans. In the last year of the PoliVisu project a new study on the effect of students on the housing market has started on behalf of the civil service on habitation, in which data collection strategies will further be explored, starting from the PoliVisu findings.
Apart from information on student housing, the Proximus data has also been explored in relation to crowdedness in the city. The PoliVisu data visualisations have been used by a thematic data group in which civil services of tourism, events, economy are represented.
Thanks to the PoliVisu project the thematic departments have gained more affinity with (big) data sources and have learned who to contact with questions about obtaining data, data management and data analysis.

3.1.5 Political actors

There are two main political actors concerned with the PoliVisu project. The first one is the Mayor, who is tasked with everything concerning “data”, and the alderman who is responsible for “digitalization and innovation”. During the PoliVisu project local elections took place in Ghent. After the local elections the importance of data supported policy making was stated more clearly. The city of Ghent for instance has the ambition to become Europe’s digital city.

In October 2019, during a general assembly meeting of the project in Ghent, members of the above-mentioned cabinets were invited to attend the consortium meeting. During this meeting they were presented the first learnings and conclusions of the different pilots. After the general introduction, a discussion between Polimi, the pilot leads and the politicians about the use of (big) data for policy making took place. This resulted in a higher awareness of the PoliVisu project within the political actors, as well as a better notion of the use of (big) data for policy goals.

Figure 4: cabinet secretaries discussion during Ghent general assembly meeting in October 2019.

The first step towards data supported policy making has been taken, there is general awareness among the political actors. In the next step infrastructures and procedures need to be installed, and the principles of data supported policy making need to be implemented. To achieve this the datatrack has been started within the public administration, with the goal to improve the data-maturity throughout the city's administration.

3.1.6 Knowledge network

The city of Ghent has a connection to Smart Flanders, which is a wider knowledge network. Smart Flanders brings together the bigger cities from Flanders and their knowledge about a variety of topics, such as mobile phone data. Many cities are looking for data that allow for the visualization of crowds in the city. Most of them are looking for the same type of data. It would only make sense if they approach the data providers in the same way as well.

The network learned from Ghent's experiences with Proximus as a data provider, increasing knowledge and confidence of the other cities. Cities communicate with each other before buying data, which makes their market position stronger. Furthermore, definitions of concepts are agreed on within this network, allowing the cities to draw conclusions in the future that are generally applicable, across all cities.

3.1.7 Conclusion

The largest gain in data maturity for the city of Ghent is related to the discovery of relevant (big) datasets and the collaboration with external data providers. The impact of the PoliVisu project is significant, since the gain in experience can be observed across actors (the pilot coordinator, data providers, thematic departments and political actors) and the experience is communicated broadly within the network of the city of Ghent.

3.2 Pilsen

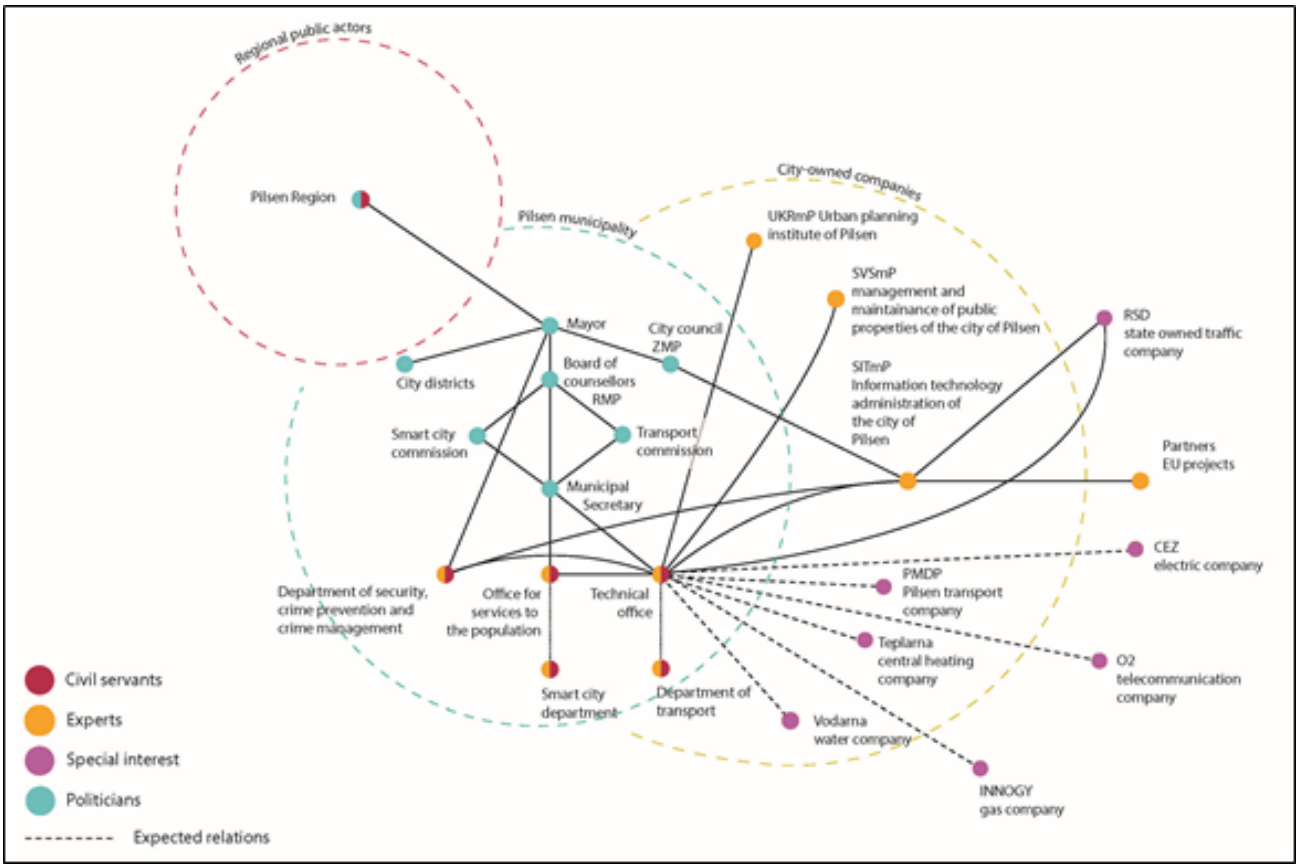

Figure 5: Pilsen network

3.2.1 Central actor

Central actor for pilot Pilsen is SITMP (Správa informačních technologií města Plzně, Information Technology Administration of the City of Pilsen). SITMP is a contributory organization established by the city, which provides complete ICT services for the city. Working on the PoliVisu project was entrusted to the GIS (Geographic Information System) department.

It was the first time for the GIS department to process data of this type and scope (traffic sensor data, police records and accidents), even though various big data datasets had already been processed and visualized for the needs of the city and GIS before. Previously most cases were handled by suppliers who had visualizations ready. The disadvantage of this way of working was that the supplied interfaces allowed selections of the predefined parts of the data only, not the data as a whole. Access to the data was then restricted to the authorized persons with the installation of the relevant application. Even more, some data was not available at all.

A key issue that needed to be solved was access to complete original source data – data from detectors from the traffic control panel of data from the Municipal Police or Police of the Czech Republic. It was only confirmed that in order to accomplish this task, intensive presentations of our activities and goals to the key

users are needed. Presentations to the decision makers helped us to gain political support for participating in the PoliVisu project.

From the technical point of view, databases were made available and interconnected. Then the importance of basic data quality analysis was confirmed in order to prepare meaningful data usable for applications and API creation. Working with technical partners, we learned how to transform the traffic sensor data into a usable form with the help of interpolation and aggregation functions. In the final, complete data sources were made available until the stage of their presentation on the Open Data portal of the city.
As part of the project, an interface for entering road works and closures was also developed, where SITMP currently also fulfills the role of editor with the expected handover to the responsible department.

Now, with the end of the project approaching, tools (visualization, modeling) are being developed, which were created with user requirements in mind. The visualizations are available to the public at https://tuta.plzen.eu/doprava/. The city has acquired a new, better traffic model. The necessary data flows were ensured and adjustments in the workflow were proposed. Awareness of these activities has expanded in the city environment (in the form of various presentations) and there is already a set of potential users.

SITMP continues to play the role of the city's service organization which provides support and operation of applications and their testing. The goal is to deploy these tools as an integral part of decision-making processes, where SITMP will also play the role of a trainer. SITMP will continue to be interested in further developing applications and improving their functionality. The behavior of the traffic model should be further improved (by including other parameters such as occupancy, permeability of crossroads, involvement of new data from ANPR cameras in Pilsen, etc.) to be as realistic as possible.

3.2.2 Data provider

The main data provider for the PoliVisu project was SVS (Správa veřejného statku, Organization for the management and maintenance of the public property of the city), which is also a contributory organization of the city dealing with the administration and maintenance of the city property. It is also responsible for the operation of traffic lights, including the traffic control panel, which records the passage of vehicles at crossroads, especially using detector loops in the roads.

The traffic control panel is a solution supplied by an external company (SIEMENS), which before PoliVisu only enabled access to defined data samples (not to complete data) in the form of a simple and secure interface. Based on the negotiations, an agreement was reached during PoliVisu on making this data available in the form of complete access to the raw dataset and at the same time via the online DATEX II format. The essential lesson in this case is to ensure the continuity of stored data and its accuracy also with regard to changes on crossroads (renaming detectors, roadworks at crossroads etc.).

SVS is also an organization that deals with traffic modeling and uses a traffic model for this purpose. Originally used model was during the PoliVisu project replaced by a new, more accurate, both-directional oriented and spatially aligned traffic model calibrated according to data from detectors. SVS now uses the CUBE software for the traffic modeling, from which it then prepares outputs for decision makers. It is planned that in the future, this application could be replaced by the Traffic Modeller application developed in the PoliVisu project.

Information on road works and closures is another important dataset. It is provided by the national JSDI (Jednotný systém dopravních informací, National traffic information system) system and then by the Pilsen working group called SUPERDIO. The data on upcoming roadworks is currently inserted into the Traffic Modeller application by SITMP, but the goal is to hand over the data filling responsibility directly to the SUPERDIO team.

Other data providers are the Municipal Police and the Police of the Czech Republic. Using the method of heat maps, PoliVisu created an analytical map of traffic offenses and accidents named Pilsen Safe Roads (https://bezpecnostdopravy.plzen.eu/). As SITMP is also a service organization for the Municipal Police (MP), data on the events registered by the MP have started to be provided for the above-mentioned app in the form of automated database dumps. Data on accidents from the Police of the Czech Republic are automatically collected from the statistics published on the Police website.
The creation and presentation of a tool that displays data from both of these sources at the same time has raised interest in both Police organizations in using it. The negotiations before the final release of the app include a decision on which types of events to make available in the final version and how (if) the app will be restricted for certain users only.

3.2.3 Technical partner

The city of Pilsen cooperates with several technical partners, whose task is to deliver the final solution of the solved problem. Such an example could be the creation of a traffic control panel operated by the SVS, or the creation of a map browser for spatial data for the GIS department of SITMP.

During the PoliVisu project, a close cooperation was established with the technical partners of the project: Plan4All, EDIP and InnoConnect. On the basis of joint meetings, assignments were set for individual partners. EDIP refined the traffic model, InnoConnect worked on the map applications based on the WebGLayer library and Plan4All developed Traffic Modeller for the city of Pilsen.

The requirements for the traffic model, data-related processes and user-facing applications were specified during the project. SITMP had test versions of the applications at its disposal, and based on comments and joint discussions, new versions were improved before they were published. It is planned to release another improved version of the Traffic Modeler and Pilsen Safe Roads map by the end of the project.

The issue of traffic modeling is very complex. Due to this, it can be assumed that the cooperation with technical partners will continue. Even with regard to joint participation in other research projects (DUET in H2020 and the national project TRAFO). We assume that even after the end of the project, the tools will be further developed and improved. In the future, these tools should become an integral part of decision-making processes.

3.2.4 Thematic departments

During the PoliVisu project, Pilsen primarily focused on the area of a transport, in which an interest of several entities overlaps:

- SVS deals with the operation of the traffic control panel and traffic modeling in the existing CUBE software and the creation of outputs.
- The Department of transport (The municipality of Pilsen) has an important role in approving closures and traffic restrictions.
- The Urban Planning and Development Institute of the City of Pilsen participates in traffic infrastructure planning (SUMP).
- Other departments that are interested in the PoliVisu project include Pilsen City Transport Company, Pilsen Public transport organizer, Department of investments, The municipality of Pilsen, Municipal Police of Pilsen, Police of the Czech Republic.

Representatives of these departments participated in internal meetings during the first iterations to formulate their requirements for the tools being developed. The results of the work of technical partners were then presented to them not only at the end of the project, but also regularly during it. Comments were incorporated and the resulting map visualizations and functionality of the applications were modified according to more precise requirements.

An example of cooperation between departments is the integration of the SUPERDIO application into the Traffic Modeler, or the processing of the municipal and state police data and their appropriate visualization in the WebGLayer environment. On the other hand, it should be noted that cooperation is not easy and is often very slow. To achieve success, the support of the management of individual departments is necessary.

The results of the PoliVisu project are useful for specific city managers of the thematic departments. For the sustainability of the project, it is necessary to get these workers to use the tools created for their work and pass on the results of their work.

3.2.5 Political actors

For such a large-scale project as PoliVisu, the support of the leadership of the city's political representative is needed. It was necessary to secure funds for the modernization of the traffic control panel for obtaining big data from traffic detectors, allocating funds for the construction of new transport infrastructure (BUS terminal, new tram line to University Campus), the creation of the Metropolitan Dispatching Center and the expansion of the ANPR camera system. To better coordinate the city's projects, the Smart city concept was created with a group of experts, and the outputs from the PoliVisu project fall into the area of Mobility (part of Smart city concept). For example, the system that is able to model real-time impacts of major traffic events (closures, restrictions) in real-time was created.

The approval of SUMP - Pilsen's Sustainable Urban Mobility Plan (approved by the Pilsen City Council in 2019) is another important decision of the city's political representation relevant to PoliVisu. Most of the 83 measures suggested in the SUMP are of an investment type. Not all measures are funded by the City, important partners in implementing the strategy SUMP are: Road and Motorway Directorate of the Czech Republic (ŘSD), Railway Infrastructure Administration (SŽDC), The Pilsen Urban transport company (PMDP), the Pilsen Region (KP), Operational Program Transport (OPD) and Integrated Regional Operational Program (IROP). The capital expense of the city for the implementation of the SUMP in its period of validity (i.e. 2018-2025) are expected to 3,4 billion Kč (€ 132 mil.).

In the middle of the project (May 2019) a meeting was held with important representatives of the city (leaders and directors of the key departments, representatives of politicians including the Pilsen's Deputy Mayor for Transportation). The visions and results of the PoliVisu project were presented. Here, full support for our activities was expressed, and the political representatives confirmed that the PoliVisu activities are fully in line with the Program statement of the new coalition of the city's (after the last 2018 elections). Status and running of the PoliVisu project were strengthened when the compliance with the new Program Statement of the post-election coalition was found.

Figure 6: Mr. Vozobule, the Pilsen Deputy Mayor responsible for the transportation, presents the Pilsen's coalition programme to the PoliVisu team.

3.2.6 Knowledge network

As one of the cornerstones of the Pilsen Smart City, the City of Pilsen has long been trying to attract various IT companies, support technology-oriented projects and start-ups. That is why Pislen cooperates with the University of West Bohemia and other European innovation projects, such as the DUET, the Digital twin (H2020) and TRAFO, a nationally-funded research project.

In the area of traffic, the city's experts cooperate on the preparation of the Metropolitan Traffic Management Center solution, together with the PMDP (city public transport organisation) and with the Pilsen Region as the coordinator of public transport.

From a technical point of view, the experience with working with big data is crucial for us – their analysis, storage, accessibility and connectivity with city GIS. The availability of a list of all planned closures has become a key issue in traffic modeling. For entering data into the Traffic Modeler, information from the national traffic system JSDI (Unified traffic information system) is used. As part of the Map of Traffic application, we validated the WebGLayer analytical maps technology, which was successfully deployed also in Flanders.

For the Safety Map application, it was possible to connect data on traffic offenses from the three systems of the city with the state police accident data and with the data from the city GIS (parking zones, resident parkings). The data processing and visualisation experience gained by InnoConnect in PoliVisu from the Flanders accidents map was reused here.

3.2.7 Conclusion

From a technical point of view the Pilsen pilot was a complex but valuable project. Securing the data flow and connecting datasets was a challenge, but the pilot and the actors within the pilot's network learned valuable lessons during the process. Furthermore, SITMP gained experience in collaboration with technical partners and communication with a broad community, including citizens and policy makers.

3.3 Issy-les-Moulineaux

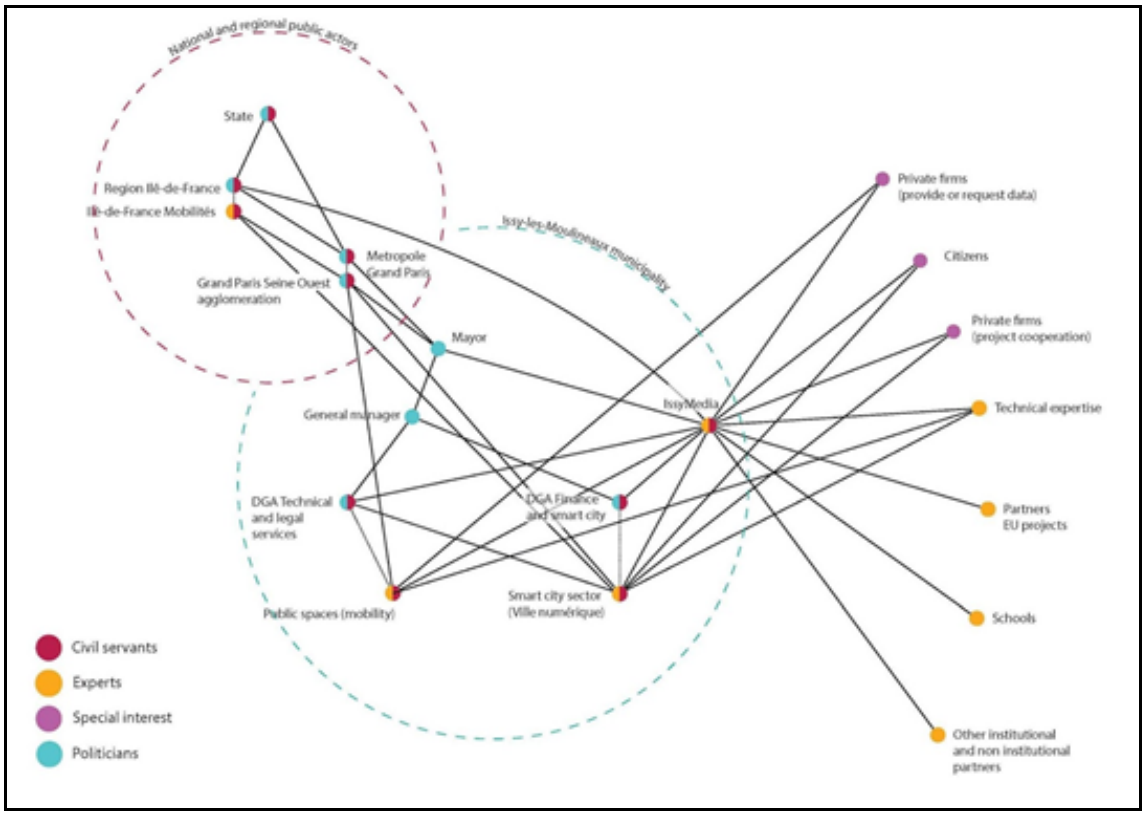

Figure 7: Issy-Les-Moulineaux network

3.3.1 Central actor

In Issy-les-Moulineaux, the main actor of the project was Issy Media, who is in charge of the communication and the development of new technologies in the city of Issy-les- Moulineaux. This Local Public Company is strongly oriented to create a collaborative environment bringing together the public, the private and the research sector in order to build a local Information Society which is innovative and open to all. Issy Média is therefore, following the developments of new technologies benefiting the population, and experimenting new applications and services on its territory. In this framework, it has always been the engine of the whole data strategy of the City. Issy Média is also largely experienced as a communication agency: it accompanies the day-to-day municipal services and manages the entire external communication of the city, data represents one of the tools which is considered central in the new communication towards citizens and stakeholders.

Through the PoliVisu project the people of Issy Média became more and more efficient and aware of the steps necessary to launch (big) data projects to improve the internal and external communication.
The main lesson learned of Issy has been the improvement in the construction and definition of data projects and the related editorialization and visualization.

Actually, Issy has been through the whole process and it has learnt how the data, if well editorialized and visualized, is a tremendous way to improve the policy making processes, creating links between policy makers and the various departments, and to facilitate the comprehension of the policy making results (i.e. policies and measures adopted) for citizens and stakeholders.

At the early beginning of the project, Issy was strongly oriented to use of data and the vision was already there, as shown by the inclusion on its open data portal of real time availability of off-street parking, but the City used to work with quite simple datasets (mainly points of interest) and with visualization and editorialization techniques that were still basic, if compared with today.

During the project, Issy could learn how to get data from local stakeholders, how to improve the usability of the data in internal and external communication and to make it really useful. Actually, Issy understood that a lot of useful data is managed by other local stakeholders of the public (urban agglomeration, department, region…) and private sector, often this data is not really used, or at least not for the common good, consequently Issy learnt to create focus and working groups around data to obtain data to create win-win situations with those stakeholders.

This happened also internally, training many people of the various departments and involving them in real projects, making them aware of the usefulness of this data in their daily activity. Consequently, PoliVisu allowed Issy to have more resilient and skilled human resources with a positive impact also on future activities.

Actually, Issy could improve its open data portal with a visualization highlight on the home page and with a dedicated section. At the same time, it would launch various projects running in parallel to PoliVisu on its track, being those inspired by it and the lessons learnt thanks to it.

This has made possible to create two applications with a local SME, called Wedodata, about waste management and outdoor activities, but the improvement of Issy skills and knowledge was particularly real during the lockdown period in the spring 2020.

In this situationIssy-les-Moulineaux used data and created a co-creation process to make it possible to support citizens to find open stores and delivery services. This was considered also fundamental to support local stores, often struggling due to the situation.

To this end, the City updated its open datasets about commercial services, created a dataset about delivery services and one about the usual sellers of weekly markets available to deliver directly home.

In parallel, the City created a facebook group to allow the various stores and sellers to show themselves for delivery services, making possible also to feed the various datasets that were updated according to the information provided by users.

Issy is now further improving its strategy as it is creating a dashboard with KPIs to connect the departments with policy makers and, at the same time, providing a simplified version for citizens to use data to improve accessibility.

This is the first step of the future of data in Issy, as the City is willing to create, also inspired by Oslo's Climate Budget, a dashboard with KPIs to implement ambitious objectives in order to slow down the carbon impact in

every parts of the public services and policies: urbanism, local government, public services, building insulation, mobility etc.

3.3.2 Data provider

Issy has been working mainly with two data providers: BeMobile (formerly Mediamobile) and MyAnatol.

The collaboration with BeMobile was set on the basis of the provision of data, which could not be obtained by other companies, later followed by a new collaboration in which Issy became a tester of some of their tools. This represents an advantage for Issy, making it possible to access data and to test tools, but also for the data provider that can have valuable feedback and a “showroom” in living lab mode.

Moreover, the collaboration with MyAnatol made it possible to access some data, also refined in a dashboard created, for free, by the local startup. This was again a good exercise for both parties, allowing the City to provide data about traffic and bikes, making possible also to use it for its bike plan which is being defined. At the same time, MyAnatol could test a collaboration with a city and to better define the needs of their potential customers.

3.3.3 Technical partner

Issy has been working, next to the mentioned companies, with Geosparc, SENX and ATC which made possible to create the traffic dashboard done with data provided by Be Mobile, which was particularly useful to make Issy much more aware of the usefulness of such dashboards.

3.3.4 Thematic departments

In the City administration, various departments have worked closely with Issy Média. In particular, the Smart City department, in charge of the open data portal, the finances department, leading the City dashboard and urbanism, being the most involved in traffic and mobility.

3.3.5 Political actors

In Issy, there is a main political actor, namely the Mayor André Santini, which has been in charge of the digital transformation since the launch of the digital agenda in the early 90’s. The team of its deputies complete his representation. At the same time, there are the directors of the various departments which represent his counterpart in the administration.

In January 2020, during a general assembly meeting in Issy-les-Moulineaux, 3 deputy Mayors, Olivier Rigoni, Joëlle Sueur and Claire Szabo, were invited to attend the consortium meeting with the Directors of Smart City and Urbanism departments and the Director of GIS for the City and Urban Agglomeration Grand Paris Seine Ouest.

During the meeting, they could have a presentation of the whole project with the results in Issy.

This step created a final connection between the political decision makers and the directors more involved with data and mobility in Issy-les-Moulineaux. This meeting unclogged some resistances around data, making possible to speed the various projects mentioned here up.

Figure 8: Meeting with politicians in Issy-Les-Moulineaux network

3.3.6 Knowledge network

The city of Issy-les-Moulineaux is related to various other Cities of the Paris Region and Paris urban agglomeration, as those Cities and public authorities share problems and daily stakes. The knowledge earned by Issy in this project is often shared with other local authorities to allow them to earn insights from this experience.

Issy shares its results with them both from the data approach and the co-creation one. As an example, the applications made for the waste management and the outdoor activities were done with the collaboration of the urban agglomeration Grand Paris Seine Ouest, which produces the most of the used data.

3.3.7 Conclusion

In Issy-les-Moulineaux during the project the importance of (big) data sources for policy making became ever more clear to all the actors within the network. Thematic departments and political actors could see the advantages of data for the policy making process, and see how data can be embedded in this process. The pilot of Issy-les-Moulineaux constructed and refined dashboards that easily communicate data insights to policy makers.

3.4 Mechelen

PoliVisu realised two pilots in Mechelen. One is the traffic modeller/spotbooking pilot, which is more a showcase of process and technology integration and the other one is the schoolstraten pilot. This report concentrates mainly on the schoolstraten case. The two Mechelen cases are additional pilots in PoliVisu.

Mechelen was interested in working with ANPR camera data coming from the local police ANPR network. Legal issues made it, despite the effort, impossible to use the data to refine the mobility model.

Instead of realising a local model, the provincial traffic model (built by the Flemish road administration) was used to test a simulation of the impact of local road works. Integration with an existing application called spotbooking, a tool to manage the process of occupation of public space, was integrated to elaborate the effect of road occupation related to the expected traffic situation caused by other public works. A second case that was implemented was the realisation of a schoolstreet. The new legislation of 2018 allows cities to block the entrance road to school when children arrive at or leave school. Together with PoliVisu, the city, the school and parents, an available public dashboard has been set up to measure the impact of implementing a schoolstreet at the school entrance and in the surrounding neighbourhood.

The traffic modeller/spotbooking demo was successful and showed that the integrated process works. At this moment, more detailed traffic models (on a city level) are needed to further proof the added value in local streets. Talks are going on with cities who have a local traffic model for integrating the model in traffic modeller and spotbooking. The schoolstreet dashboard gained interest from the Leidal city network and the department of education of the Flemish government. Negotiations are started to hand over the dashboard to partners who will take care of rolling out the concept in Flanders.

Realizing the traffic modeller spot-booking in a city with an own traffic model, and making it a commercial interesting integrated end-to-end process tool.
Realizing the schoolstreet dashboard as a tool rolled-out in many schools, supporting safer school environments and creating awareness amongst politicians, policymakers, schools, parents and citizens.

3.4.1 Central actor

The central actor in Mechelen is the mobility department supported by the smart city data officer. Both were involved in both pilot cases. Both are cooperating on Smart City/mobility-related projects. Through the PoliVisu projects cooperation was set up and regular meetings were organized. A first cooperation has been set up to get access to anonymized and pseudonymized ANPR data together with the local policy of Mechelen-Willebroek, without success. The idea was to use the data to refine a traffic model. The cooperation resulted in the traffic modeller/spotbooking pilot and the schoolstreet project.

3.4.2 Data provider

The data provider for both cases are:
Mechelen traffic modeller/spotbooking case:

- The Flemish government department of public works (traffic model): An existing traffic model was used as the primary dataset. For Mechelen, only the main road network was simulated. This made the dataset only suitable to simulate effects on the main road network.
- Information Flanders (public works database - Gipod): The public works database original setup was to streamline public works between the organisations active on the public domain, to avoid situations where a street is broken up without coordination. The use of Gipod to simulate the impact of public works on traffic was new and has led already to changes in the data model.

School street case:

- Telraam citizen science (Traffic count data): The www.telraam.net project allows citizens to measure the traffic in their street. The use of Telraam devices in a particular area, integrated into an open dashboard, is a new approach for public involvement. The Telraam project is interested in exploring further and rolling-out the concept.
- City of Mechelen (School exits): The city of Mechelen has selected the school environments and helped to pinpoint the school-exits. The city is not only a data provider but also a user of the outcomes and the lessons learned.
- Private provider (Weather information): No specific role

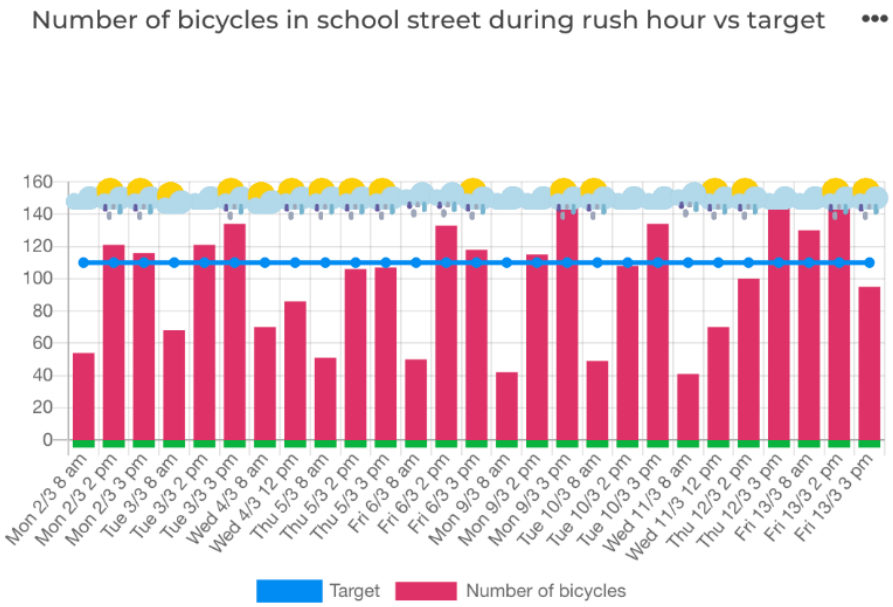

Figure 9: Schoolstreets dashboard detail - bicycle numbers and weather vs time

3.4.3 Technical partner

The following technical partners were involved:
Mechelen traffic modeller/spotbooking case:

- P4All (University of West Bohemia) (CZ) - Traffic modeller software provider and developer
- EDIP (CZ) - Traffic modelling specialists
- Geosparc (BE) - Spotbooking application provider and application integrator

Schoolstreet case

- ATC (GR) - Developer of the dashboard

- Telraam (BE) - Developer of the Telraam counting device, developer of the Telraam API providing the live data stream

3.4.4 Thematic departments

Mechelen traffic modeller/spotbooking case:
Both the city of Mechelen mobility department and the city of Mechelen Smart City data officer were involved. Information Flanders was involved as the coordinator of the pilot application.

Schoolstreet case:
The city of Mechelen mobility department and the city of Mechelen Smart City data officer were both involved together with the selected school (GO Gemeenschapsonderwijs network). Information Flanders and Telraam (TML Leuven and Mobiel 21) were involved.

3.4.5 Political actors

The Mobility Department and the deputy mayor for mobility of the city of Mechelen were both involved. The deputy mayor was involved in the communication and roll-out of the first schoolstreet/telraam implementation in the “Basisschool/Lyceum”. The (local) media well recognized the initiative.

3.4.6 Knowledge network

None

3.4.7 Conclusion

The pilot of Mechelen could integrate input from citizens (data collection via self-installed sensors and co-creating the local schoolstreet concept) in the decision making process. The valuable lessons regarding citizen involvement were shared with the other pilots in the PoliVisu project.

3.5 Flanders

The Flanders case is focussing on traffic safety by providing an accident map also containing traffic safety features. The Flanders case is an additional pilot in PoliVisu.

Flanders is a region that isn't among the regions with the best road-safety record. Traffic safety is monitored for years by statistical reports that are publicly available but didn't provide any insights into the location where accidents happen in our streets. The idea was to build an interactive map with the accident location together with other relevant information regarding traffic safety to move from an accident map towards a traffic safety map.

The WebGLayer solution was used to visualise anonymised accident data. Together with the Federal policy and the house of traffic safety (Flemish government), effort was invested in improving the methodology to provide geospatial coordinates to the accident locations. This resulted in an accident map, providing a better view of the accident locations together with other relevant data sources as administrative boundaries, school location, average speed control zones. The map also allows advanced selections to select accidents when kids go to school (by bike or foot) or to select car accidents during weekend nights.

The map is publicly available and regularly updated.

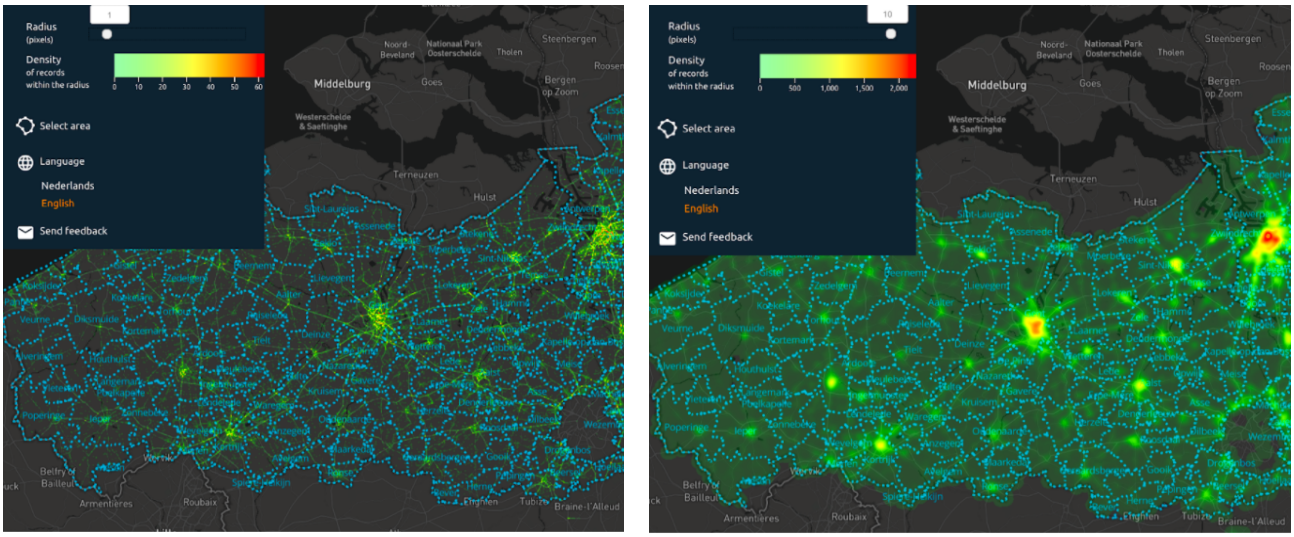

Figure 10: Traffic accident map - heatmap intensity

Further use of the map as a tool for evidence-based decision making and a tool for awareness-raising. Further extension of the map as a traffic safety tool. Better accident registration procedure visualising more accident and traffic safety information.

3.5.1 Central actor

Information Flanders played a leading role in the visualisation process of accident data. This dataset is considered as one of the essential datasets in a smart-city/mobility context. The dataset itself was offered by the policy, together with a right to publish the data.

3.5.2 Data provider

Federal policy (anonymized accident data): The Federal Police (DRI) is the actor that centralizes the accident data from the Belgian local police zones. DRI delivers the data every three months to the Flemish government as an anonymized dataset.
Flemish road administration (ANPR average speed control zones): The Flemish road administration delivers a dataset with the average speed control zones. The zones are approximately correct, to be in line with the policy regulation.

3.5.3 Technical partner

The two technical partners involved in this are Innoconnect (CZ) and Geosparc (BE). Innoconnect is responsible for the interactive map allowing analysis of traffic accidents in Flanders. Geosparc took up the work of preparing the data. The data needed to be filtered, mapped to the application format of the visualisation. After initial analysis they also improved the completeness of the geolocalisation

3.5.4 Thematic departments

The accident and traffic safety map was discussed with the organisations and institutes active in Flanders/Belgium:

- House of traffic safety (Flemish government)
- Traffic safety organisations (VSV and VIAS)

3.5.5 Political actors

- None

3.5.6 Knowledge network

The accident map was presented and discussed (including pinpointing priorities) together with the knowledge network of the VSV (co-creation sessions).

3.5.7 Conclusion

The Flanders pilot gained experience in preparing and visualizing societal sensitive information, i.e. the location of traffic accidents, careful selecting additional data about the accidents, protecting privacy and communication about sensitive subjects with the general public.

3.6 Police Zone Voorkempen

The Police Zone Voorkempen case is focussing on realizing a dashboard to follow up the traffic behaviour of drivers in the average speed control zones. The Voorkempen case is an additional pilot in PoliVisu.

The police zone Voorkempen is one of the front-runners in Flanders regarding the use of ANPR cameras for average speed control. In three of the four local communities, more than 30 average speed control zones are installed and active today. The first ones were implemented already more than 3 years ago. The Police zone Voorkempen had until recently no exact idea about the traffic (speed) behaviour of drivers after the implementation. There was also no data available about the effect of an average speed zone implementation on traffic behaviour from other trajectory control zones at other locations.

The police zone and PoliVisu partner Macq who is managing the ANPR network at Voorkempen started analysing the ANPR average speed control based on pseudonymised data. The results were presented to the police and the mayors of the four local communities. The data provided new and interesting insights strengthening the gut feeling about the overall also long-term effect of average speed-control zones. After interactive sessions with other police zones (including the important police zone of Antwerp), it was clear that there is a general interest in this kind of statistical insights. Macq and Innoconnect started building a solution to visualise the results in an automated way, including a geographical representation of the average speed control locations and traffic accidents.

Macq and Innoconnect are working together at a solution for the police zones. The police zone Voorkempen is the testing ground, but other policy zones showed clear interest and are involved in co-creative sessions. The goal is to have the product available on the market at the end of 2020 or 2021.

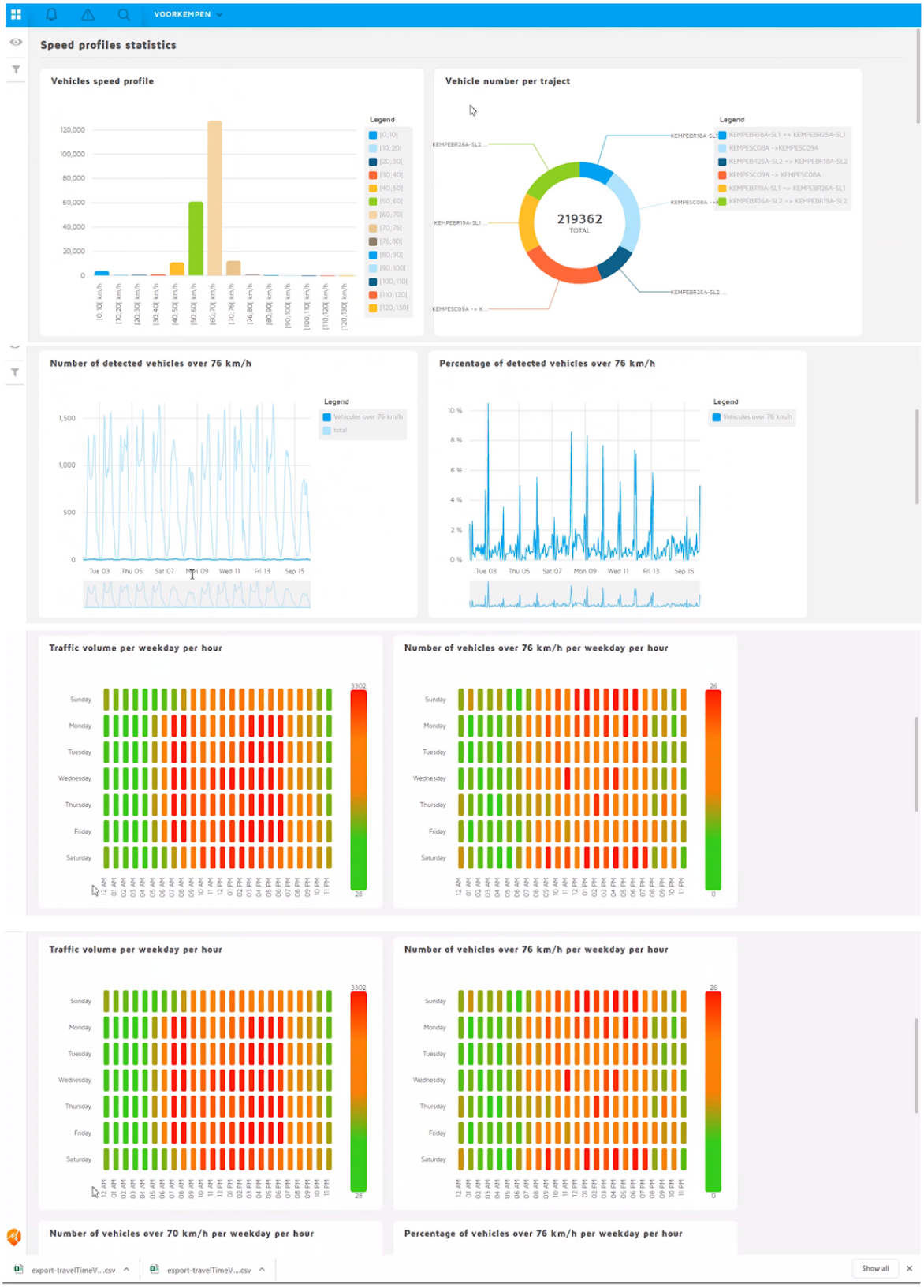

Figure 11: Police zone Voorkempen, Average speed control dashboard

Rolling out the dashboard application to the police zones. The integration of the outcomes on a publicly available dashboard that provide insights to local communities and citizens. The use of the statistical data about speed behaviour as a data source into smart city solutions like a Digital Twin. Having the statistical data available as open data.

3.6.1 Central actor

The police zone Voorkempen is the PoliVisu customer of the average speed control dashboard. The head of the police immediately saw the importance of implementing average speed control zones on the major road network where possible. The effect of the implemented speed control zones wasn't measured into detail before.

3.6.2 Data provider

The Police zone Voorkempen and the PoliVisu partner Macq SA, who exploit the ANPR network commissioned by the Police Zone Voorkempen, were involved in the data preparation process. Macq is responsible for pseudonymization of the dataset and created a geo-time series with three years of relevant average speed data based on a hashed license plate, camera link and time.

3.6.3 Technical partner

Two technical partners are involved:

- Macq SA (BE): M3 dashboard setup, data management
- Innoconnect (CZ): Accident map integration, advanced visualisations

3.6.4 Thematic departments

The Police zone Voorkempen: Head of the policy and the traffic department are involved.

3.6.5 Political actors

The head of the police and PoliVisu has presented the results of the first analysis on the Police board in the presence of the mayors of Brecht, Zoersel, Schilde, Malle.

3.6.6 Knowledge network

Presentation and information exchange with other police zones to improve the dashboard (co-creation sessions).

3.6.7 Conclusion

Like the Flanders pilot, the Police Zone Voorkempen pilot gained experience in working with GDPR sensitive numberplate recognition data re-used as a pseudonymized source of interesting smart-city and traffic safety-related.

4. Conclusion

All actors involved in the PoliVisu pilots have gained knowledge and expertise during this experience. For every type of actor this varied because of their specific background and needs. In the conclusion section, we will summarize how every type of actor gained from their experience with the PoliVisu project.

The central actor comprises the group of people responsible for the pilot. The central actor was never a political actor, but an office or group from the administrative side of the local government. Therefore the most important learning for the central actor was how to transform a policy question to a data question adequately. They have learned this by better understanding the needs of policy makers and seeing how data can fit in these needs. Then, once the data question(s) has/have been identified, the central actor learned how to discover and collect (big) data sources. This includes conventional and unconventional data sources. Through the identification of unconventional data sources the central actor learned how to collaborate with commercial (big) data companies. Finally, the central actor has once more learned the importance of visualizations, both for analyzing and understanding the data, but also for communication towards stakeholders, such as the political actors.

Data providers involved in the PoliVisu project learned how to interact with public administrations, how to make their data ready to be used by public administrations and what is important for public administrations. This allows them to refine their product, and make it more attractive for other public administrations.

The technical partners, like the data providers, learned the specific needs and demands that public administrations have. These needs differ to some extent, from the needs of private partners. Getting to know the specific processes of policy making allows the technical partners to take this expertise to other public administrations and broaden their range of possible project partners.

Many different thematic departments were present among the stakeholders of the PoliVisu project. For most thematic departments, the most valuable learning was the added value of data in the policy making process. Furthermore, the thematic departments learned the process of employing data for data-supported policy making and now better understand its pitfalls which increases their data maturity.

The same can be said for the political actors, who have learned how data can be of importance during the policy making process. They have learned what data can do, but also, and maybe more importantly, what it cannot do. This allows them to define the relative importance of data and vision.

The more general knowledge network that surrounds the PoliVisu pilots have profited from user stories that were shared, and gained knowledge about data supported policy making by dissemination of the pilots.

Gaining public support was approached differently for the central actors in the PoliVisu pilots. The Ghent pilot consisted more of exploration on how to work with data for policy making, and which data sources are valuable, and therefore required less public support. Issy-les-Moulineaux, Pilsen, Flanders and Police Zone Voorkempen dealt with more hands-on, traffic-related issues. Traffic is a hot topic for the public. Through communication and dissemination online and on television the scope and importance of the respective PoliVisu pilots was explained in order to gain public support. Finally, in the case of Mechelen, the pilot partially started from the public, and the public was involved in the data collection process.

One of the main goals of the PoliVisu project is to influence the policy making process by making the use of (big) data and visualizations more common for public administrations. The pilots engaged the relevant stakeholders for data-supported policy making, such as the political actors and the thematic departments, throughout the different stages of the project, thereby gaining their support. The process of data supported policy making was explained, the resulting advantages and pitfalls were indicated, and all of this was illustrated by comprehensible user stories, namely the pilots themselves. By doing this the decision making process was not only changed for the specific case of the pilots, but a more general change in the way data supported policy making is perceived was observed.

In conclusion, the PoliVisu project has aided the different actors individually and as a whole in implementing data supported policy making. Through individual pilots and user cases, more general structures and processes were set up.