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Cloud for Data-Driven Policy Management

CLOUD FOR DATA-DRIVEN POLICY MANAGEMENT

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Abstract: This document provides the details of the End-to-End scenarios that will be used in the implementation and experimentation of the PolicyCLOUD platform. The scenarios focus specifically on the user's requirements and include configuration parameters, analytical tools and KPIs needed for the validation of each scenario which will create the overall E2E story. Moreover,



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the details about the co-creation workshops are provided, including the agenda, list of participants, and a short summary of the general impressions and feedback.

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Abbreviations and Acronyms

Abbreviation/Acronym	Definition
DT	Design Thinking
EC	European Commission
E2E	End to End
GDT	Global Terrorism Database
KPI	Key Performance Indicator
PDT	Policy Development Toolkit
PME	Policy Modelling Editor
RDWTI	RAND Database of Worldwide Terrorism Incidents

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Executive Summary

This document is an incremental update of deliverable D6.4 [1] and provides a description of the end-to-end (E2E) scenarios that will explore how policy makers will effectively use PolicyCLOUD platform as a part of the experimentation process. The given scenarios will include the different steps required in order to perform the modelling, implementation and validation of the policies and include details of the necessary configurations settings needed in order to determine the output for the visualisation.

The E2E stories will be used to experiment the adaptability of the PolicyCLOUD platform in conjunction with several use case-based scenarios. This document will include at least one additional scenario from each pilot, currently under development and integration, and further details on additional scenarios that will be included in the upcoming deliverable D6.13 Use Cases Implementation & Experimentation M36 due in December 2022.

The experimentation process for software usually consists of four phases definition, planning, operation and interpretation. Therefore, this approach was adopted for the design, implementation and experimentation of the E2E stories. Taking the four factors into consideration the E2E story descriptions have been used to achieve the definition and planning stages. The E2E helps explore how well the PolicyCLOUD platform can be adapted for various situations.

Finally, this deliverable describes the experimentation methodology adopted and how it has been implemented by each use case. In particular, the details about the co-creation workshops are provided, including the agenda, list of participants, and a short summary of the general impressions and feedback.

1 Introduction

1.1 Purpose and Scope

The purpose of this document is to provide an overview of the implementation and experimentation methodology used for the PolicyCLOUD platform. The deliverable will describe the E2E user scenarios including the necessary configuration settings and will be used as a basis for the upcoming deliverable D6.14 Use Cases Adaptation & Recommendations M24. This includes, how the modelling of the policies will be performed through the Policy Model Editor (PME), what needs to be configured in the Policy Development Toolkit (PDT) (which datasets, analytical tools and KPIs will be used), that at the end will provide the desired output in the visualisation module.

In the next and final iteration of this report, D6.13 Use Cases Implementation & Experimentation M36 due in December 2022, full descriptions of the implementations and experimentations of the use cases on the PolicyCLOUD platform will be provided based on the descriptions provided in the E2E scenarios.

1.2 Summary of changes

The main changes included in this second version of deliverable D6.4 Use Case Implementation and Experimentation (March 2021) [1] are summarised below:

- Revision/update of the E2E scenarios already described in D6.4
- Description of additional E2E scenarios (at least one more per each use case)
- Description of the co-creation methodology adopted (section 6.1)
- Description of the co-creation workshops organised in the four pilots (section 6.2)

1.3 Structure of the document

The document includes one chapter for each use case, with the following structure: a short introduction of the E2E story, overview of the relevant use case scenario, description of the scenario, and the configuration settings for the PME and PDT.

Section 6 will describe the experimentation methodology adopted and how it has been implemented by each use case. In particular, the details about the co-creation meetings are provided, including the agenda, list of participants, and a short summary of the general impressions and feedback.

Finally, section 7 concludes the document.

2 MAGGIOLI - Use Case 1

The overall goal of Use Case 1 (**UC1 - Participatory policies against Radicalization**) is to develop a collaborative data-driven analysis for policies against radicalization based on a participatory review of data coming from social media and other datasets (public or private). In addition, it will provide useful insights and valuable information to policy makers at any level (local, regional, national, and international) to validate existing policies and revise them (when necessary) or create new ones, while at the same time allow them to interact with other relevant stakeholders during the design and modelling phase, ranging from early detection methodologies to measures for the monitoring and management of domestic radicalization.

Maggioli Use Case has four scenarios defined: A, B, C and D. As of December 2021, scenario A has been fully implemented and showcased during the co-creation workshop. Scenarios B and C are currently being developed, and the work on scenario D is about to start in April 2022.

The following sections describe the End to End (E2E) scenarios from the point of view of a policy maker.

2.1 Scenario A. Radicalisation incidents

2.1.1 Overview

By using the PolicyCLOUD platform, this scenario explores the occurrence of radicalization incidents in the geographic proximity of a city/region. The purpose is to produce useful insights that will help policy makers to understand the impact of radicalization in the territory and evaluate whether there is a need to create new policies and/or update the existing ones.

2.1.2 Description of Scenario

The main objective of this scenario is to validate existing policies to counter radicalization and violent extremisms and to investigate if there is a need to update them or create new ones based on the information extracted from open data. Specifically, two datasets will be used for this purpose: the Global Terrorism Database (GTD) and the RAND Database for Worldwide Terrorism Incidents (RDWTI).

The results will be presented to the policy maker using a heatmap that illustrates the occurrence of radicalization incidents in a given area. The policy maker will have the possibility to filter the extrapolated data based on time and location.

2.1.3 Policy Modelling Editor

For this scenario, the following parameters will be used:

- 1) Relevant **KPIs** (as specified in D6.10 [2]):
 - **MAG-KPI9**: Number of identified occurrences of radicalization incidents in a given area.

2) Name the selected **Analytical tool**:

- Data Visualisation
 - Type: Heatmap

3) **Additional parameters** to be specified:

- “iyear”, the year when the incident occurred. The policy maker can select a unique value (type:EQUAL): 2017, or a set of values (type:GREATER_OR_EQUAL): 2017 [2017, 2018, 2019, 2020]
- “region”, the geographic area where the incident occurred. It can have a unique value (type:EQUAL): Lombardy, or a set of values (type:IN): [Milan, Bergamo, Brescia]

Once the policy maker has reviewed and submitted the Policy Model, he/she will be redirected to the PDT in order to evaluate the submitted Policy Model.

2.1.4 Policy Development Toolkit

For scenario A, the policy maker will need to select the Policy Model defined previously and specify the relevant KPIs for its evaluation, which again will be MAG-KPI9.

In the properties of the KPI, the policy maker needs to specify the data source that he/she would like to use: GTD or RDTWI. Depending on the dataset selected, the user will be presented with the following visualizations:

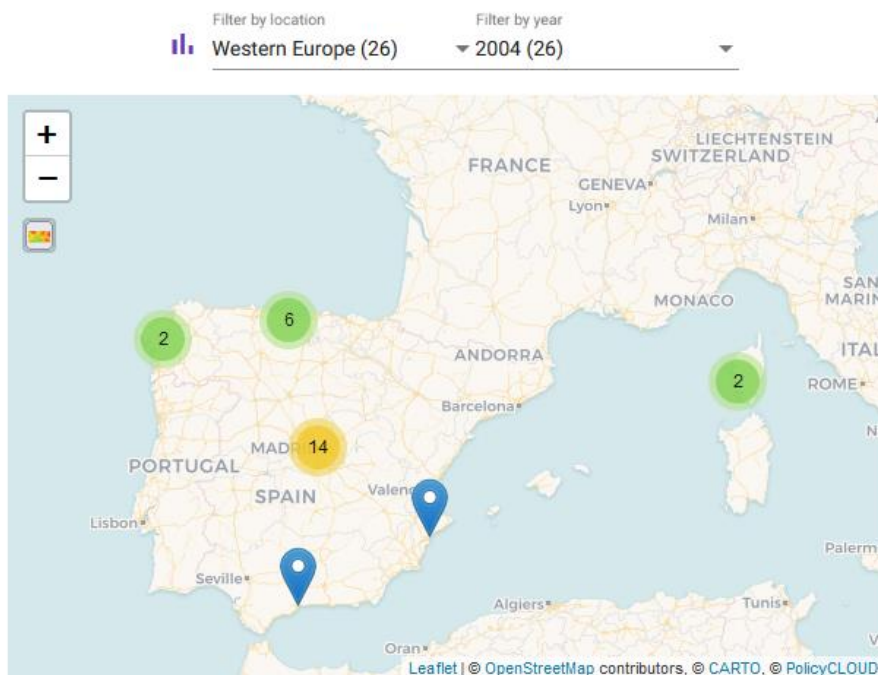


FIGURE 1 - HEATMAP WITH DATA FROM GTD

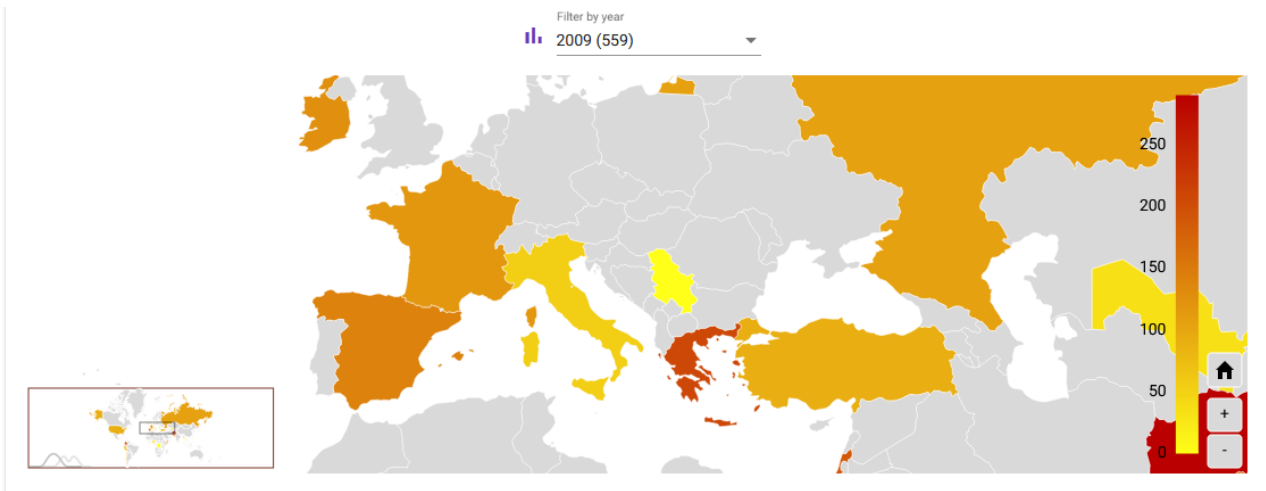


FIGURE 2 - HEATMAP WITH DATA FROM RDWTI

2.2 Scenario B. Radicalised groups and individuals

2.2.1 Overview

This scenario will be using the PolicyCLOUD capabilities to identify the main actors (individuals or groups) involved in radicalisation incidents or propaganda spreading through online and offline activities. The purpose is to produce an exhaustive list of individuals or groups that includes detailed information about their possible location, violent incidents and activities they have been involved, possible targets - specific individuals (e.g. politicians), communities (e.g. religious communities and places, political parties, NGOs), public entities (e.g. governmental buildings) - in order to gain useful insights that will help policy makers to understand the impact of the radicalization in the territory and evaluate whether there is a need to create new policies and/or update the existing ones.

2.2.2 Description of Scenario

The main objective of this scenario is to validate existing policies to counter radicalization and violent extremisms and to investigate if there is a need to update them or create new ones based on the information extracted. Specifically, two datasets will be used for this purpose: the Global Terrorism Database (GTD) and the RAND Database for Worldwide Terrorism Incidents (RDWTI).

The results will be presented to the policy maker using bar charts that illustrate the individuals and groups identified in a given territory, classified based on ideological group, age groups, and gender. The policy maker will have the possibility to filter the extrapolated data based on location.

2.2.3 Policy Modelling Editor

For this scenario, the following parameters will be used:

1) Relevant **KPIs** (as specified in D6.10 [2]):

- **MAG-KPI10**: Number of identified groups/individuals in a given area.

2) Name the selected **Analytical tool**:

- Data Visualisation
 - Type: Bar chart

3) **Additional parameters** to be specified:

- “year”, the year when the incident occurred
- “region”, the geographic area where the incident occurred
- “ideological group”, the ideological group they belong
- “age”, the age of the identified individuals/groups
- “gender”, the gender of the identified individuals/groups

Once the policy maker has reviewed and submitted the Policy Model, he/she will be redirected to the PDT in order to evaluate the submitted Policy Model.

2.2.4 Policy Development Toolkit

For scenario B, the policy maker will need to select the Policy Model defined previously and specify the relevant KPIs for its evaluation, which again will be MAG-KPI10.

In the properties of the KPI, the policy maker needs to specify the data source that he/she would like to use: GTD or RDTWI. The user will then be presented with the following visualizations:

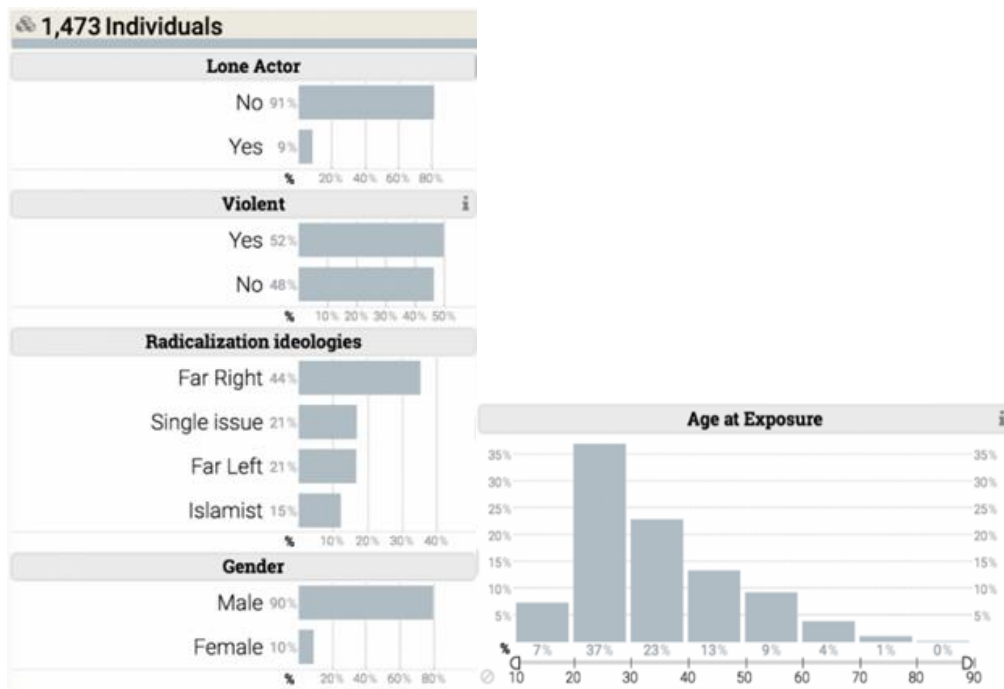


FIGURE 3 - MOCKUP BAR CHARTS FOR RADICALISED INDIVIDUALS OR GROUPS

2.3 Scenario C. Trend analysis

2.3.1 Overview

The scenario will allow policy makers to understand current and future trends of radicalisation actions not only by using social networks (e.g., Twitter, Reddit), but also through specialized websites and blogs in order to identify the main topics and terms and compare them over the time.

2.3.2 Description of Scenario

The main objective of this scenario is to identify the most relevant trends that will allow to identify emerging threats and issues and policy makers will be able to provide support by adjusting their policies or creating new ones considering all possible parameters.

2.3.3 Policy Modelling Editor

For this scenario, the following parameters will be used:

1) Relevant **KPIs** (as specified in D6.10 [2]):

- **MAG-KPI11**: Number of new terms/keywords identified from the policy maker

2) Name the selected **Analytical tool**:

- Opinion mining
 - Functionalities: keywords detection, new entity recognition, new terms identification

- Data Visualisation
 - Type: Tag concepts, with the most used keywords

3) **Additional parameters** to be specified:

- Set of initial keywords to perform the analysis

Once the policy maker has reviewed and submitted the Policy Model, he/she will be redirected to the PDT in order to evaluate the submitted Policy Model.

2.3.4 Policy Development Toolkit

For scenario C, the policy maker will need to select the Policy Model defined previously and specify the relevant KPIs for its evaluation, which again will be MAG-KPI11.

In the properties of the KPI, the policy maker needs to specify the data source that he/she would like to use: Twitter, Reddit or RSS feeds. The user will then be presented with the following visualizations:

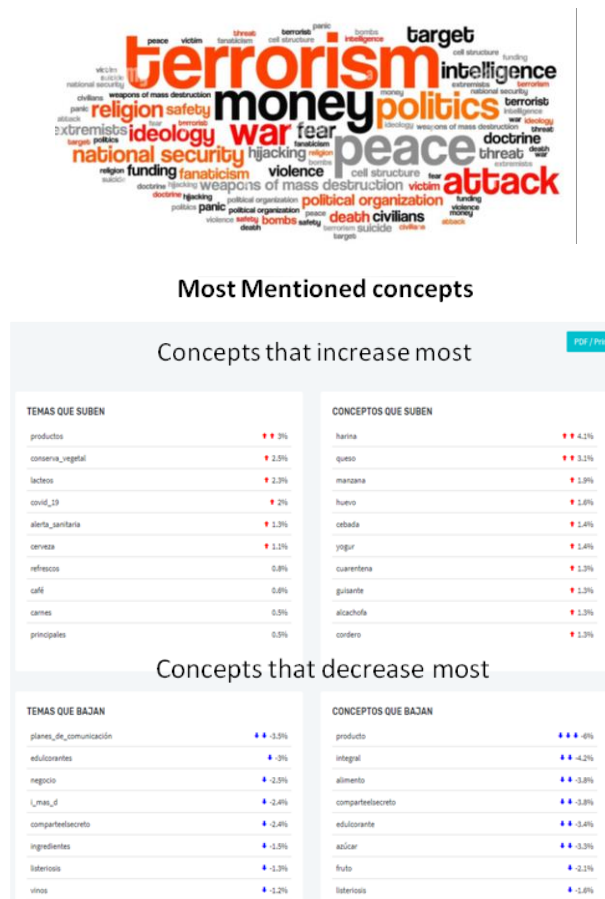


FIGURE 4 - MOCKUP TAG CONCEPTS FOR TREND ANALYSIS

2.4 Scenario D. Assessment of online propaganda

2.4.1 Overview

The scenario will allow policy makers to understand online activities and events linked to radicalisation by using social networks (e.g., Twitter, Reddit), as well as specialized websites and blogs over time.

2.4.2 Description of Scenario

The main objective of this scenario is to understand the sentiment of online activities which could support the identification of emerging threats and issues linked to radicalization, thus allowing policy makers to optimise their policies or create new ones.

2.4.3 Policy Modelling Editor

For this scenario, the following parameters will be used:

1) Relevant **KPIs** (as specified in D6.10 [2]):

- **MAG-KPI12:** Number of negative opinions on social networks from the different groups / individuals

2) Name the selected **Analytical tool**:

- Sentiment analysis
- Opinion mining
- Data Visualisation
 - Type: Scatter chart for the online activities' evaluation
 - Type: Gauge and Line chart for the sentiment analysis

3) **Additional parameters** to be specified:

- Set of initial keywords to perform the analysis

Once the policy maker has reviewed and submitted the Policy Model, he/she will be redirected to the PDT in order to evaluate the submitted Policy Model.

2.4.4 Policy Development Toolkit

For scenario D, the policy maker will need to select the Policy Model defined previously and specify the relevant KPIs for its evaluation, which again will be MAG-KPI12.

In the properties of the KPI, the policy maker needs to specify the data source that he/she would like to use: Twitter, Reddit or RSS feeds. The user will then be presented with the following visualizations:

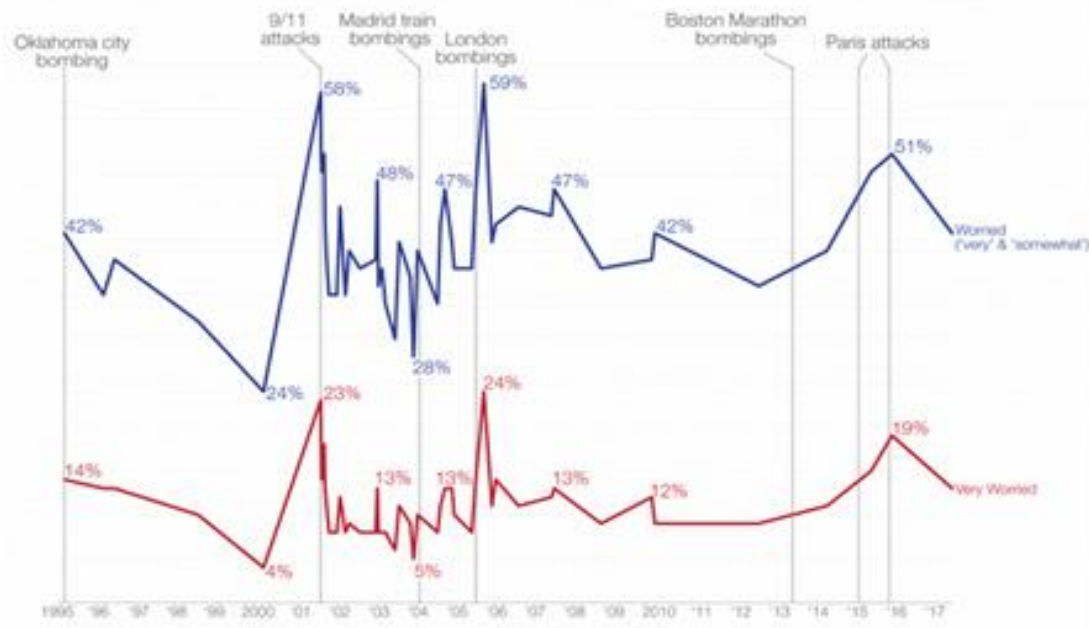


FIGURE 5 - MOCKUP SCATTER CHART FOR ONLINE ACTIVITIES LINKED TO MAJOR EVENTS

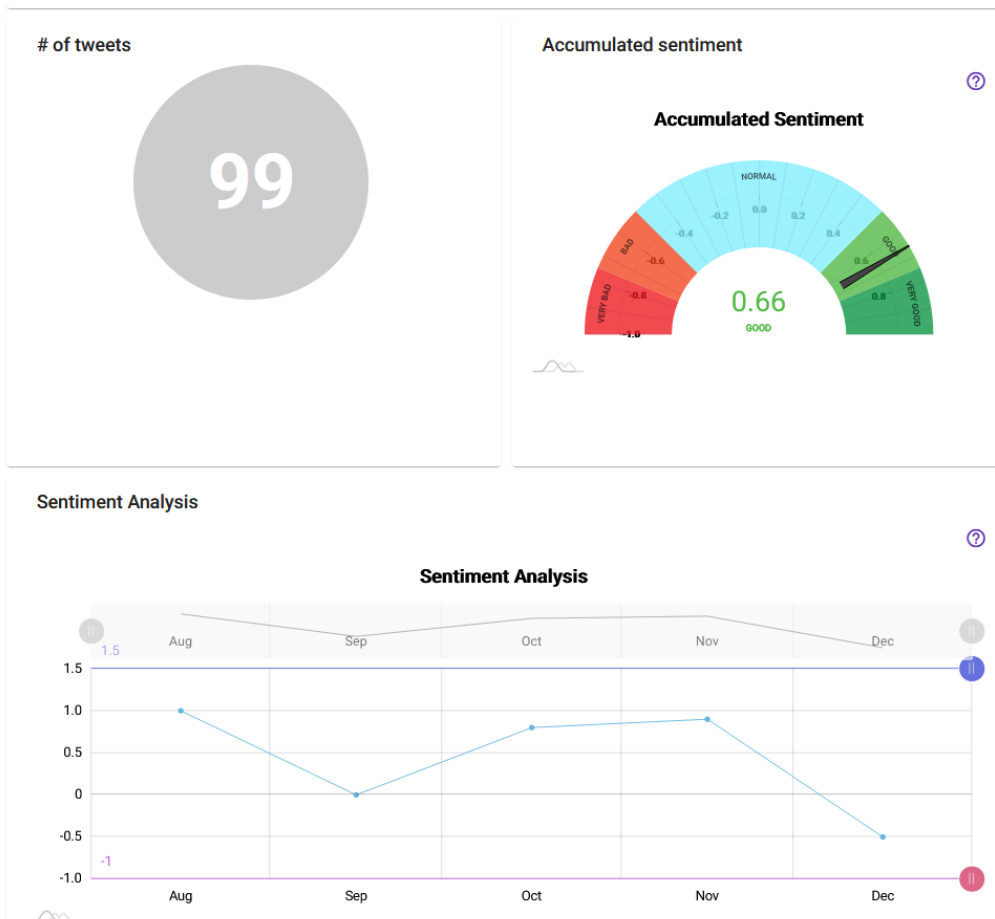


FIGURE 6 - MOCKUP GAUGE AND LINE CHART FOR SENTIMENT ANALYSIS

3 SARGA - Use Case 2

The overall goal of the Use Case 2 (**UC2 - Intelligent policies for the development of agrifood industry**) is to support the wine sector of Aragón through a series of scenarios which could contribute to the definition of what is the impact of the wines and Denomination of Origins, what trends are present in the world of wine, how to direct marketing efforts and campaigns in different countries, and how to control the distribution channel so that prices are within established limits.

The objective is to provide both policy makers and private actors with effective data-driven tools to understand consumer demands, for example, by analysing emerging markets with specific demand for Aragonese products, identifying trends in the world of wine, assessing the perception of Aragonese wineries and Designations of Origin, consumer opinions on products, and so on.

The idea of this use case is to use the tools provided in the project to be able to carry out advertising campaigns, investments and food promotion policies (based on data & evidence) in order to promote the regional wine sector by providing support and aid for investment in wineries and by promoting wines in third countries.

Aragón Use Case has three scenarios defined, A, B and C. By December 2021, the visualizations of Scenario B have been implemented and showcased during the co-creation workshop. Scenario A and C are currently being developed, and the work is about to finish in the beginning of 2022.

The following sections describe the E2E scenario from the point of view of a policy maker.

3.1 Scenario A. Price monitoring

3.1.1 Overview

This scenario intends to monitor the sale prices of different wine references on specialized websites to generate alarms if there are significant changes on wine prices. The main objective is to avoid penalties in contracts with large distribution groups if wine prices fall below a minimum price.

3.1.2 Description of Scenario

Visualize the sale price of wine on the different specialized websites, with automatic warning systems that avoid penalties for contracts with large distributors. The main goal is the control of distribution prices of both its own products and those of the competition, allowing to improve commercial policy.

3.1.3 Policy Modelling Editor

This scenario monitors the sale prices:

1. Monitoring the sales price of different wine references on specialized websites to generate alarm systems if prices fall below a minimum price

2. Benefit: avoid penalties in contracts with large distribution groups

For this scenario, the following parameters will be used:

1) Relevant **KPIs** (as specified in D6.10 [2]):

- **SAR-KPI12**: increment price in the last month

2) **Analytical tools**:

- Data visualisation
 - Type: Time evolution chart for the visualization of the price (see Figure 7)

3) **Additional parameters to be specified**:

- We must take into account the temporal sequences for the correct analysis of the scenario.
- Definition of geographic areas according to Market to be determined.
- Analysis by policy makers of the different strategies to adopt.
- Select type of wine (e.g., red, white, rose) from the brand.

3.1.4 Policy Development Toolkit

For this scenario, the policy maker will need to select the Policy Model defined previously and specify the relevant KPI for its evaluation and the terms and concepts to be monitored.

In the properties of the KPI, the policy maker needs to specify the data source, web, so the toolkit will perform the analysis and it will show the visualization results of the concepts for a specific time.

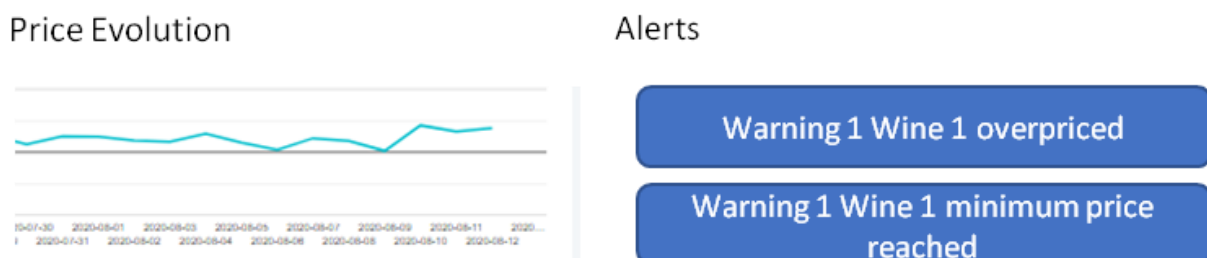


FIGURE 7 - MOCKUP OF THE SCENARIO VISUALIZATION

3.2 Scenario B. Opinions on social media

3.2.1 Overview

To understand this scenario, it is important to realize that wineries devote a lot of effort to analysing and understanding the key factors influencing consumers purchasing decision. One of these factors is the influence of the opinion or recommendations that are made about wine brands and this fact is especially significant since the boom experienced by social networks.

3.2.1 Description of Scenario

Due to the rise of social networks, consumers interact with brands and give their opinions on different types of wines and can have a great level of influence on potential consumers.

For these reasons, it is important in this context to know the perception of the wines produced in Aragón, and having a tool that monitors opinions about the wines in Aragon region could be very useful. And not only to know how Aragonese wineries are perceived and therefore be able to devise marketing campaigns to deepen or modify this perception, but also to monitor and mitigate the effects of negative opinions about the brands.

To face this scenario, it is necessary to have a hierarchy that allows incorporating the Denomination of Origin and expanding it through the wineries, different brands and wines to be able to cover from a more sector-wide vision to a more specific one.

To analyse the wine sector, information about their designation of origin for the different wineries and wine brands is needed, in order to build an ontology which allows to gather information from different non-structured and structured data sources, classify gathered information, and filter and display on decision support systems.

The focus of the ontology has been the wine sector which comprises of:

- 4 names of designation of origin (the names of the area where the wine is produced)
- More than 70 wineries and 750 brands of wines

To collect this information, datasets fed by the various social networks, for example: Twitter, will be generated to store, in this case, the corresponding tweets labelling and tagging Denomination of Origins, wineries, brands, etc.

Once the process of data capture has been explained, details are provided how to use the policy modelling editor and the development toolkit for this scenario.

3.2.2 Policy Modelling Editor

The first scenario tries to identify negative and positive opinions that the customers and competitors have about different products (D.O, wineries, brands) gathered in social networks.

All this information allows to:

- Determine the impact of a campaign on consumers
- Identify the profile of consumers based on demographic and social factors
- Evaluate competitor’s strategies

For this scenario, the following parameters will be used:

1) Relevant **KPIs** (as specified in D6.10 [2]):

- **SAR-KPI10**: percentage of positive opinions versus negative ones in a time interval for one specific wine, brand, Denomination of origin

2) **Analytical tools**:

- Sentiment analysis
- Data Visualisation
 - Gauge Chart and heatmap for the evolution opinion for the selected concept: Denomination of Origin, specific winery, specific brand, etc.

3) **Additional parameters to be specified**:

- “date”, period to be evaluated
- “region”, the geographic area of interest
- “wine”, brand or Origin Denomination

Once the policy maker has reviewed and submitted the Policy Model, he/she will be redirected to the PDT in order to evaluate the submitted Policy Model.

3.2.3 Policy Development Toolkit

For this scenario, the policy maker will need to select the Policy Model defined previously and specify the relevant KPI for its evaluation and the terms and concepts to be monitored.

In the properties of the KPI, the policy maker needs to specify the data source, Twitter, so the toolkit will perform the analysis and it will show the visualization results for the specific Denomination of Origin, winery or brand and analyse how the opinion varies over time as well as to evaluate it the present time, as it is shown in the following picture.

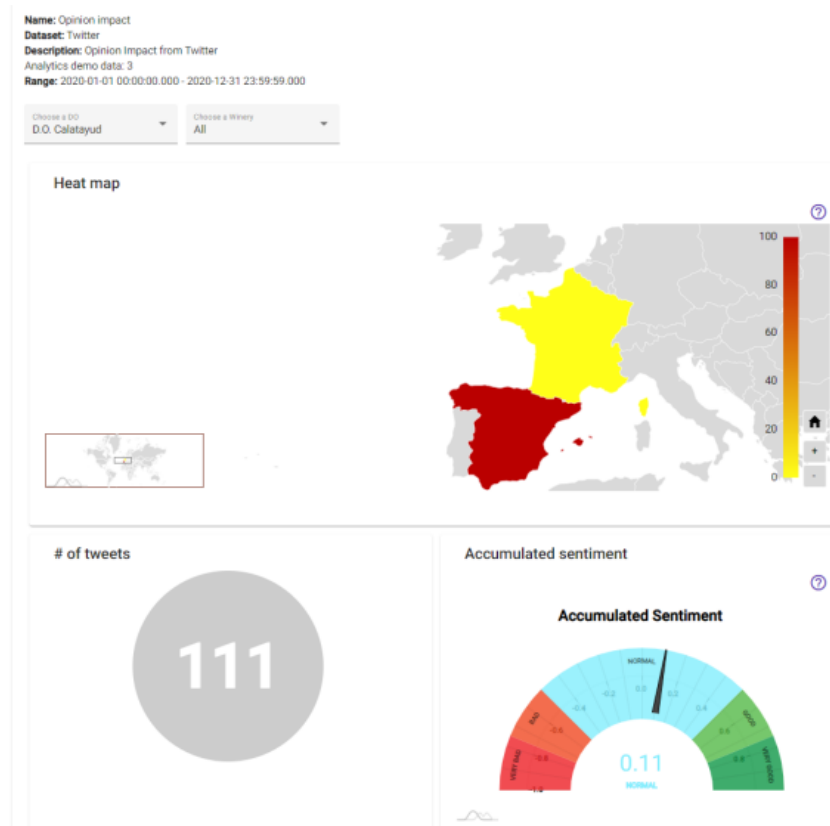


FIGURE 8 - VISUALIZATION OF OPINION ANALYSIS

3.3 Scenario C. Trend analysis

3.3.1 Overview

The third scenario allows to analyse not only social networks but specialized websites around the wine sector to identify which are the main topics and terms and perform comparison over time. The main objective of this scenario is to identify the most relevant trend which allows to identify emerging markets, so policy makers will be able to provide support in the right direction.

3.3.2 Description of Scenario

This action will allow to know the trends in each of the markets that are of interest, knowing the trends in the sector it will be possible to adjust the diffusion policies considering all possible parameters.

3.3.3 Policy Modelling Editor

This scenario tries to identify trends in the wine sector though specialized websites. Identifying which topics and terms are being discussed and compare them over time.

1. Which are the most relevant trends in the world of wine?
2. Identify emerging markets that present opportunities

For this scenario, the following parameters will be used:

1) Relevant **KPIs** (as specified in D6.10 [2]):

- **SAR-KPI8**: Total number occurrences. New concepts related to wine sector, that are trends in the source data
- **SAR-KPI9**: relative Total n° occurrences %.

In this case, the analysis must add in addition to the sections and impact on social networks, the study of specialized websites, trendsetters and all the information available on the wine market.

2) **Analytical tools**:

- Data Visualisation-
 - Type: tag concepts, tables with more relevant concepts

3) **Additional parameters to be specified**:

- “idate”, period of time to be evaluated.
- “region”, the geographic area of interest.

Once the policy maker has reviewed and submitted the Policy Model, he/she will be redirected to the PDT in order to evaluate the submitted Policy Model.

3.3.4 Policy Development Toolkit

For this scenario, the policy maker will need to select the Policy Model defined previously and specify the relevant KPI for its evaluation and the terms and concepts to be monitored.

In the properties of the KPI, the policy maker needs to specify the data source, Twitter, so the toolkit will perform the analysis and it will show the visualization results the concepts for one specific time

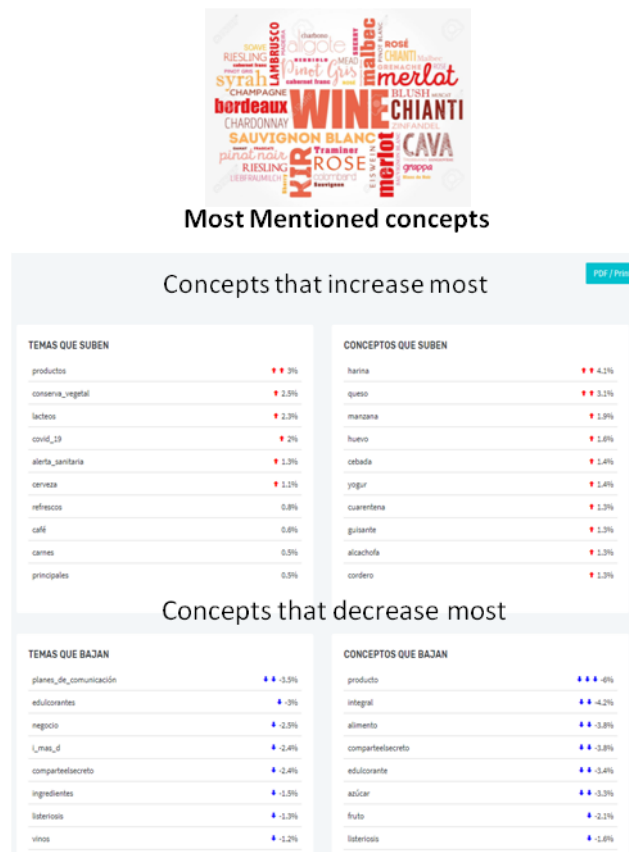


FIGURE 9 - MOCKUPS FOR TREND PRODUCT ANALYSIS VISUALIZATIONS

4 SOFIA - Use case 3

The aim of this use case (**UC3 - Facilitating urban policy making and monitoring through crowdsourcing data analysis**) is to support Sofia Municipality's policy making in important areas of citizen's everyday life. Sofia municipality is constantly working to improve the urban environment and meet the challenges that the city facing. Evidence-based policy making is crucial for addressing urban challenges in a cost-efficient way. The PolicyCLOUD project will support Sofia municipality to address this challenge by adapting the design of its policies, considering analytics' results that combine information of sectors, related to a) road infrastructure; b) environment and air quality, c) waste collection and waste disposal; d) transport and parking, e) cleanliness of public spaces, f) violation of public order; and other topics of importance to citizens.

All scenarios will use data from Sofia Municipality's Contact Centre CallSofia (mobile application, 24/7 phone contact centre, and web channel), with scenario B (Environment and air quality) also using data from the Sofia Municipality's air quality measurement stations. Scenarios A, C, D, E and F use data with similar attributes, variables and KPIs and will have similar end-to-end structure. Scenario B would add an additional type and source of data, and can include cross-analysis of data sources.

As of December 2021, the first visualizations of scenario A have been implemented and showcased during the co-creation workshop. Scenario B is currently being developed, and the work on scenario C is about to start in the beginning of 2022.

4.1 Scenario A (SC1). Road infrastructure

4.1.1 Overview

Road infrastructure, together with adjacent urban environment (such as pavement, fences etc.) is one of the most important and budget consuming elements, that affects citizens' everyday life.

4.1.1 Description of Scenario

Sofia Municipality will be able to carry out a detailed analysis of the territorial distribution of the signals by categories / types, areas, districts, major transport roads, etc. The results of the analysis will allow the municipal and district administrations to identify the problems in the road infrastructure and adjacent urban environment and to adopt or modify adequate policy making decisions, including on budget planning and effective use of budget and public resources. It will also help Sofia Municipality to better control and monitor, as well as can serve as early warning to prevent issues.

The PolicyCLOUD visualisation technologies will enable policy makers to identify tendencies.

4.1.2 Policy Modelling

For this scenario the following parameters can be defined:

KPIs:

- # of incidents
- # of incidents per year
- # of incidents per geographical location
- # of incidents per category per location
- % per type of incident
- % per month
- % per year
- change in frequency over the years

Analytical tools:

- Data Visualization:
 - **Type: Heatmap**, that illustrates:
 - the occurrence of incidents or issues, leading to citizen signals in a given area,
 - geographical distribution
 - areas with repeating incidents over given time
 - **Type: Pie Chart**, that illustrates major categories of incidents
 - **Type: Line Chart**, that illustrates frequency of issues per area over time, etc.
 - **Type: Radar Chart**, that illustrates the number of incidents in road infrastructure per month and per type
 - **Type: Horizontal Bar Chart**, that illustrates the number of incidents in road infrastructure per district

Configurable parameters related to the selected KPIs

- Dependant on choice - users should see either an Annual percentage increase/decrease
- Combined analysis including cross analysis of several criteria should be possible – e.g. per type and district and year
- Increase / decrease per type/ year/ district/ month
- Geographical spread per district/ per geo location
- share of incidents per type / per month / per year

4.1.3 Policy Development Toolkit

For this scenario, the policy maker will need to select the Policy Model defined previously and specify the relevant KPI for its evaluation and the terms and concepts to be monitored.

In the properties of the KPI, the policy maker needs to specify the data source, so the toolkit will perform the analysis and it will show the visualization results as it is shown in the following picture.

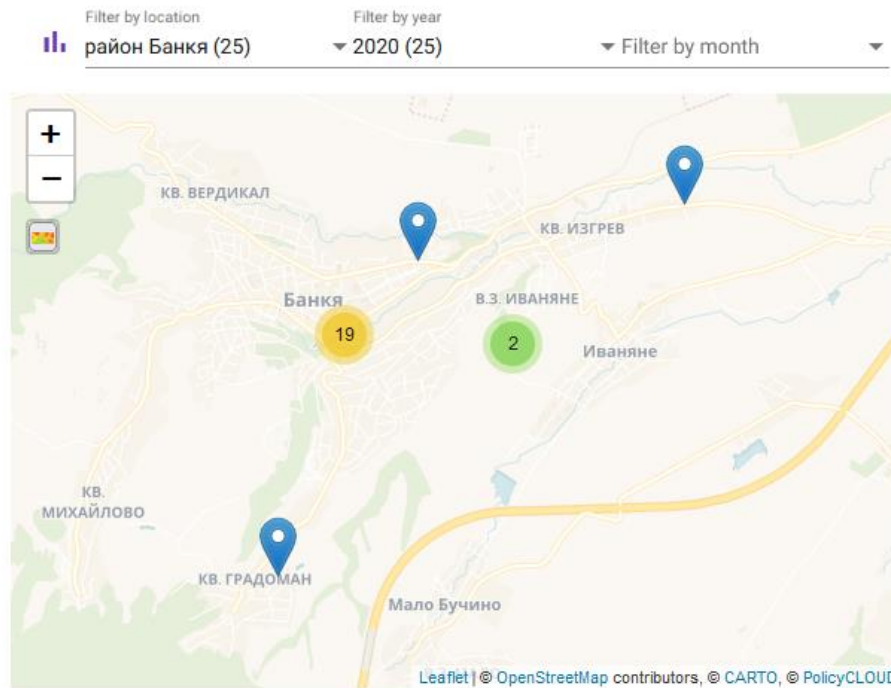


FIGURE 10 - HEATMAP FOR ROAD INFRASTRUCTURE INCIDENTS/ISSUES REPORTED



FIGURE 11 - PIE CHART FOR ROAD INFRASTRUCTURE INCIDENTS/ISSUES REPORTED

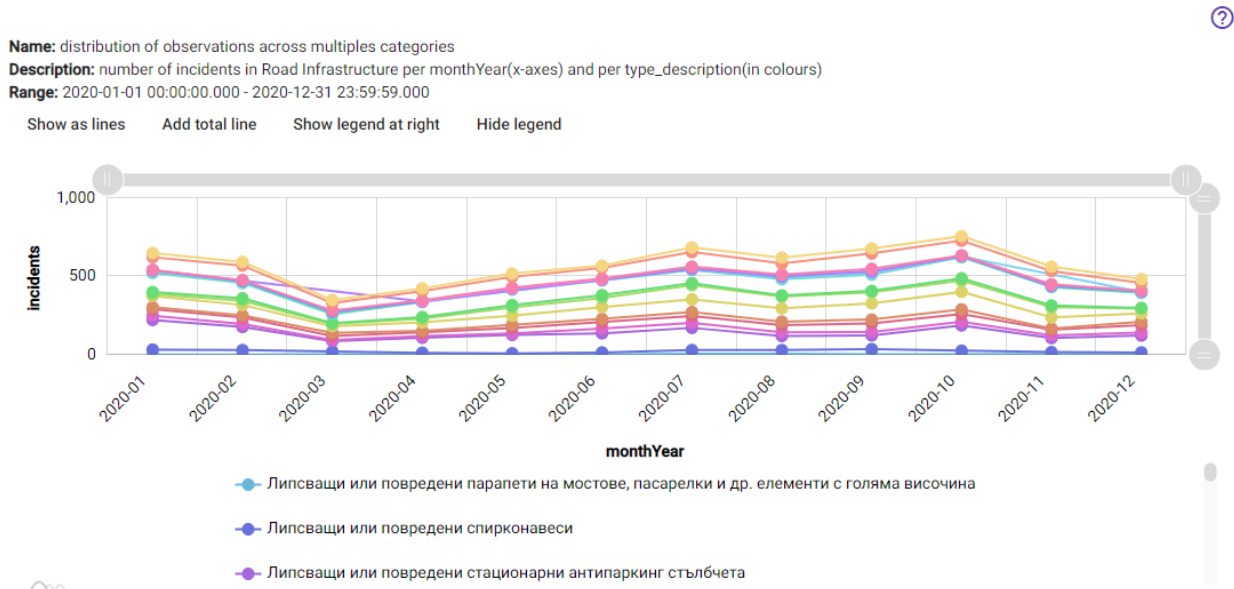


FIGURE 12 - LINE CHART FOR ROAD INFRASTRUCTURE INCIDENTS/ISSUES REPORTED

Name: distribution of observations across multiples categories
Description: number of incidents in Road Infrastructure per monthYear(x-axes) and per type_description(in colours)
Range: 2020-01-01 00:00:00.000 - 2020-12-31 23:59:59.000

Add total line Show legend at right Hide legend



FIGURE 13 - RADAR CHART FOR ROAD INFRASTRUCTURE INCIDENTS/ISSUES REPORTED

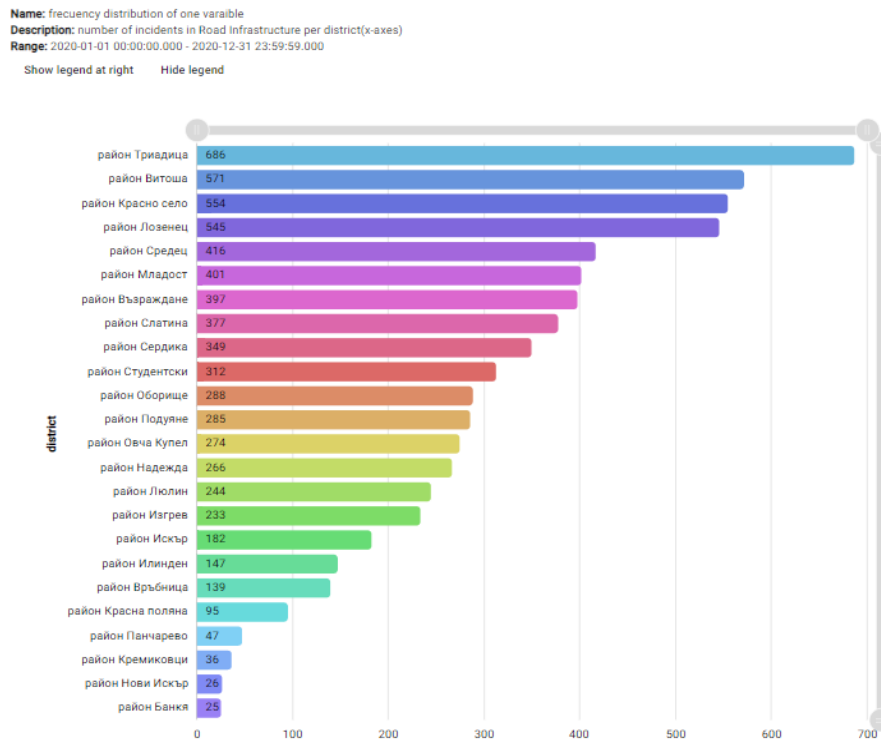


FIGURE 14 - HORIZONTAL BAR CHART FOR ROAD INFRASTRUCTURE INCIDENTS/ISSUES REPORTED

4.2 Scenario B (SC2). Environment and Air quality

4.2.1 Overview

Air quality is another issue of key importance to citizens that has a strong effect on the overall quality of the urban environment and quality of life in the city. It is closely connected to other priority areas of Sofia Municipality, such as the various activities related to urban planning – all strategically important and budget consuming elements that affect everyday life in the city.

4.2.2 Description of Scenario

Sofia Municipality will be able to carry out a detailed analysis of the territorial distribution of the signals by categories / types, areas, districts, major transport roads, etc. The results of the analysis will allow the municipal and district administrations to identify challenges related to Environment and Air Quality and to adopt or modify adequate policy making decisions, including on budget planning and effective use of budget and public resources. It will also help Sofia Municipality to better control and monitor, as well as can serve as early warning to prevent issues on the field. The PolicyCLOUD visualization technologies will enable policy makers to identify tendencies and facilitate the overall data-based policy making in Sofia Municipality.

This scenario will also allow for cross-sector analytics, as it uses data from both the Sofia Municipality's Contact Centre CallSofia and air quality measurement stations across the city.

4.2.3 Policy Modelling Editor

The same as in scenario A (Road Infrastructure).

4.2.4 Policy Development Toolkit

The same as in scenario A (Road Infrastructure).

4.3 Scenario C (SC3). Waste collection and disposal

4.3.1 Overview

Waste collection and disposal are other issues of key importance to citizens that have a strong effect on the overall quality of the urban environment and quality of life in the city. They are closely connected to other priority areas of Sofia Municipality, such as the various activities related to urban planning – all strategically important and budget consuming elements that affect everyday life in the city.

4.3.2 Description of Scenario

Sofia Municipality will be able to carry out a detailed analysis of the territorial distribution of the signals by categories / types, areas, districts, major transport roads, etc. The results of the analysis will allow the municipal and district administrations to identify challenges related to Waste Collection and Disposal and to adopt or modify adequate policy making decisions, including on budget planning and effective use of budget and public resources. It will also help Sofia Municipality to better control and monitor, as well as can serve as early warning to prevent issues on the field. The PolicyCLOUD visualization technologies will enable policy makers to identify tendencies and facilitate the overall data-based policy making in Sofia Municipality.

Sofia Municipality collects information about waste collection via CallSofia, as well as by using smart meters like smart bins, smart garbage trucks, etc. Gathering and analyzing large amounts of data related to waste management, will help Sofia Municipality improve its policy making in the area of urban sustainability and will help Sofia to become a greener city.

4.3.3 Policy Modelling Editor

The same as in scenario A (Road Infrastructure).

4.3.4 Policy Development Toolkit

The same as in scenario A (Road Infrastructure).

5 LONDON - Use Case 4

The aim of this use case (**UC4 - Predictive analysis towards unemployment risks identification and policy making**) is to support Camden's policy making in the matter of tackling unemployment. Camden has dedicated strategic plan to tackle issues such as anti-social behavior and crime. Evidence-based policy making is necessary for reducing the level of negative affects cause by high unemployment rates. The PolicyCLOUD project will support the London borough of Camden in addressing the series of negative issues caused by unemployment.

5.1 Scenario A. Analysis of statistics

5.1.1 Overview

The following E2E scenario will be based on using the PolicyCLOUD platform to explore analytics based on genders, in relation to unemployment. The purpose of this scenario is to produce useful insights that will help policy makers create/update a policy based on statistics.

5.1.1 Description of Scenario

The main objective of this scenario is to use the analytics and visualisations produced from the PolicyCLOUD platform to identify key information that could help to determine groups of citizens that are affected by unemployment.

The results will be presented to the policy maker using a line chart that will highlight major differences.

5.1.2 Policy Modelling

The following list contains the KPIs required for the unemployment analysis:

- % of Males receiving benefits within specified month
- # of Males claiming per month
- # of Females claiming per month
- % of Females claiming benefits per month
- % Annual percentage of males claiming benefits
- % Annual percentage of females claiming benefits
- % Annual percentage increase/decrease of males claiming benefits
- % Annual percentage increase/decrease of females claiming benefits

Analytical tools selected

- Data visualisation
 - Type: line chart highlighting trends/correlations based on the selected parameters

Configurable parameters related to the selected KPIs

- Dependant on choice - users should see either an Annual percentage increase/decrease in # of claimants
- Dependant on choice - users should see either a Monthly percentage increase/decrease of claimants
- Field: Gender – choice of Male/Female
- Field: Month – choice of month
- Field: Year – choice of year

5.1.3 Policy Development Toolkit

For this scenario, the policy maker will need to select the Policy Model defined previously and specify the relevant KPI for its evaluation and the terms and concepts to be monitored.

In the properties of the KPI, the policy maker needs to specify the data source, so the toolkit will perform the analysis and it will show the visualization results as it is shown in the following picture.

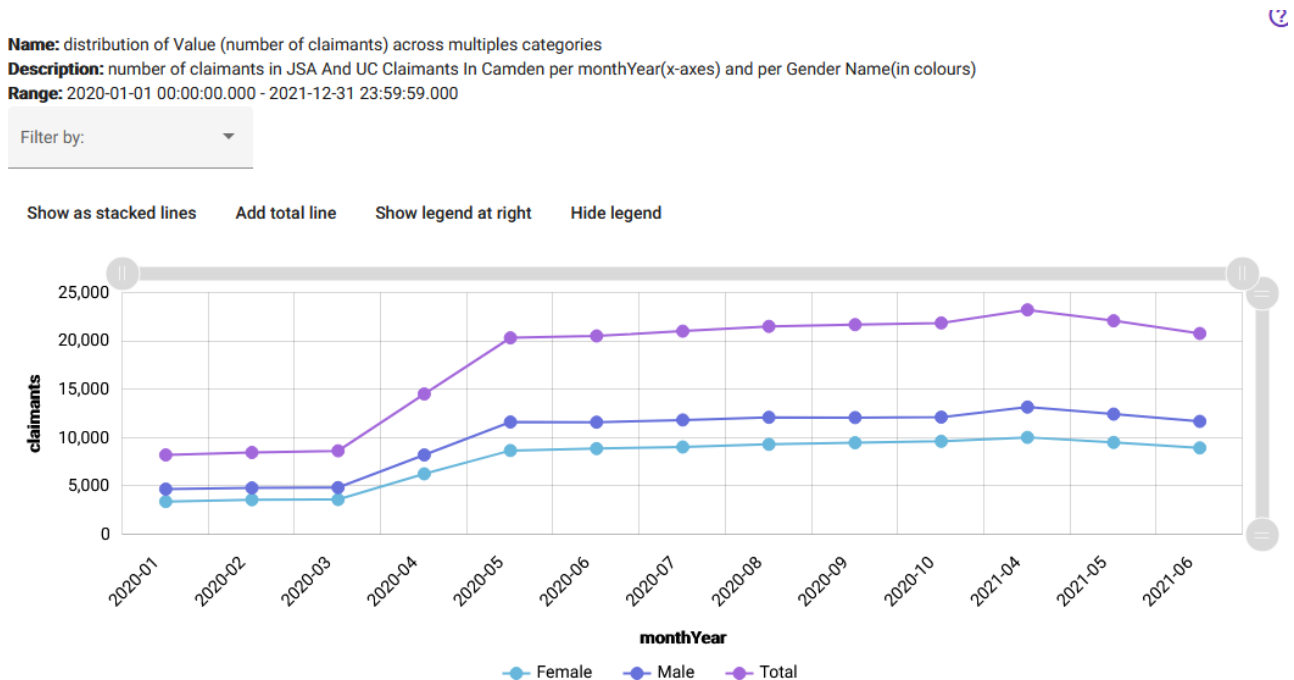


FIGURE 15 - LINE CHART FOR NUMBER OF CLAIMANTS BY SEX IN CAMDEM

5.2 Scenario B. Evidence-based predictions

5.2.1 Overview

This scenario will focus on using the PolicyCLOUD platform to produce analytics and visualisation as evidence that can assist with justifying and updating policies based on unemployment historic figures in comparison to current figures.

5.2.2 Description of Scenario

The main objective of this scenario is to produce analytics that can help justify the structure and decisions behind the creation of specific policies, as well as demonstrate the use of past collated data. The goal of this scenario is gain useful time specific visualisation and analytics that are derived from historic figures and compared against the current ones.

5.2.3 Policy Modelling Editor

The following list contains the **KPIs** required for the unemployment analysis:

- % total percentage of claimants within specified month
- # total number claiming per month
- % of citizens claiming benefits per year
- % total number of all citizens claiming benefits
- % Annual percentage increase/decrease of all citizens claiming benefits

Analytical tools selected

- Data visualisation
 - Type: tables for comparative analysis

Configurable parameters related to the selected KPIs

- Dependent on choice - users should see either an Annual percentage increase/decrease in # of claimants
- Dependent on choice - users should see either a Monthly percentage increase/decrease of claimants
- Field: Gender – choice of Male/Female
- Field: Month – choice of month
- Field: Year – choice of year

5.2.4 Policy Development Toolkit

For this scenario, the policy maker will need to select the Policy Model defined previously and specify the relevant KPI for its evaluation and the terms and concepts to be monitored.

In the properties of the KPI, the policy maker needs to specify the data source, so the toolkit will perform the analysis and it will show the visualization results as it is shown in the following picture.

Claimant Count: Latest monthly change to November 2021					
<i>Source: ONS, © Crown Copyright.</i>					
	October 2021	November 2021	Direction of travel	Monthly change	Monthly change (%)
Persons	8,825	8,770	↓	-55	-0.6%
Men	4,945	4,960	↑	15	0.3%
Women	3,880	3,810	↓	-70	-1.8%
Age					
16-24	1,325	1,305	↓	-20	-1.5%
25-49	5,065	5,090	↑	25	0.5%
50+	2,435	2,375	↓	-60	-2.5%

Claimant Count: Annual change to November 2021					
<i>Source: ONS, © Crown Copyright.</i>					
	November 2020	November 2021	Direction of travel	Annual change	Annual change (%)
Persons	11,060	8,770	↓	-2,290	-21%
Men	6,185	4,960	↓	-1,225	-20%
Women	4,875	3,810	↓	-1,065	-22%
Age					
16-24	1,855	1,305	↓	-550	-30%
25-49	6,435	5,090	↓	-1,345	-21%
50+	2,775	2,375	↓	-400	-14%

FIGURE 16 - MOCKUP OF THE SCENARIO VISUALISATION

5.3 Scenario C. Trend analysis

5.3.1 Overview

This scenario will focus on identifying trends in order to identify new factors or existing ones that might be affecting the citizens. This is especially true across time periods because repeated trends across three years for the same age demographic will signify a larger issue. Which can be very useful information for policy makers.

5.3.2 Description of Scenario

The main objective of this scenario is to highlight trends within the datasets which can be used to produce key insights in order to support measuring the success and effectiveness of updated policies. The policy makers for this scenario are solely interested in creating/updating policies. There is also ambition to create impactful policies that are making a change. The trends highlighted in this scenario is a good way to indicate whether things are going in the correct direction. However, in the case of upwards trend this could alert policies users to take action and update/create polices accordingly.

5.3.3 Policy Modelling Editor

The following list contains the KPIs required for the unemployment analysis:

- # total 16-24 number claiming per month
- # total 25-49 number claiming per month
- # total 50+ number claiming per month
- % of Females claiming benefits per month
- % Annual percentage of different age range categories (16-24) claiming benefits
- % Annual total number increase/decrease of citizens claiming benefits against previous year
- % Annual total number increase/decrease of females claiming benefits against previous year

Configurable parameters related to the selected KPIs

- Dependent on choice - users should see either an Annual percentage increase/decrease in # of claimants
- Dependent on choice - users should see either a Monthly percentage increase/decrease of claimants
- Field: Month – choice of month
- Field: Year – choice of year
- Field: Age – Various ages ranges, e.g. 16-25

5.3.4 Policy Development Toolkit

For this scenario, the policy maker will need to select the Policy Model defined previously and specify the relevant KPI for its evaluation and the terms and concepts to be monitored.

In the properties of the KPI, the policy maker needs to specify the data source, so the toolkit will perform the analysis and it will show the visualization results as it is shown in the following picture.

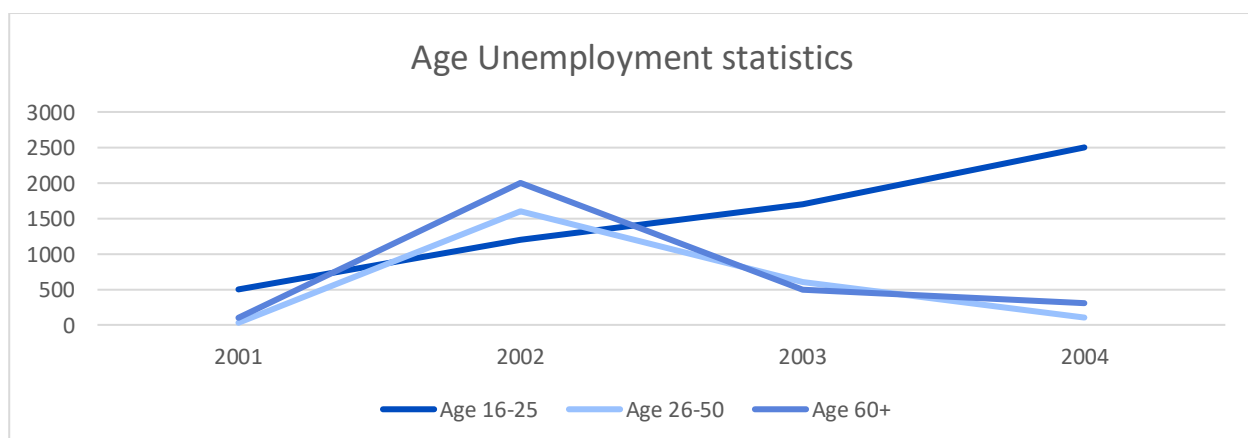


FIGURE 17 - MOCKUP FOR THE SCENARIO VISUALISATION

6 Methodology

6.1 Co-Creation and Experimentation

6.1.1 Co-creation methods and techniques

Co-creation is defined as the participation of users in the process of developing a product or a service. The core principle of the co-creation is engaging people to create valuable experiences together. A central element of the transition to co-creation is the ability to effectively develop and manage two-way communication. An example within the context of smart cities projects, Spagnoli et al. (2019) [3] views co-creation as *"an active flow of information and ideas among five sectors of society: government, academia, business, non-profits and citizens, which allows for participation, engagement, and empowerment, developing policy, creating programs, improving services and tackling systemic change with each dimension of society represented from the beginning"*.

In the literature, there are different methods and techniques related to co-creation which can be used in different phases of the design process: discover opportunities, generate concepts and ideas, and methods for design. Examples of methods include workshops, prototyping, surveys, testing, evaluation and validation. A multitude of techniques are used, e.g., personas, scenarios, mock-ups, interviews, focus groups, questionnaires, observations and more. A categorization of primary, secondary and tertiary users¹ can provide valuable guidance on how to compose different groups of users for activities (see Figure 18). It can also be used as help to interpret and understand conflicting opinions between different users.

¹ In PolicyCLOUD, there are the following three categories of users:

Primary users: policy makers and operators working for a public organisation at any level (local, regional, national, international).

Secondary users: technicians (data analysts, software developers, legal experts, etc.) and third-party providers (enterprises: start-ups, SMEs, companies; RTOs)

Tertiary users: organisations and entities that can support in the creation and implementation process of the policies (NGOs, schools, religious communities, community-based organisations, etc.)

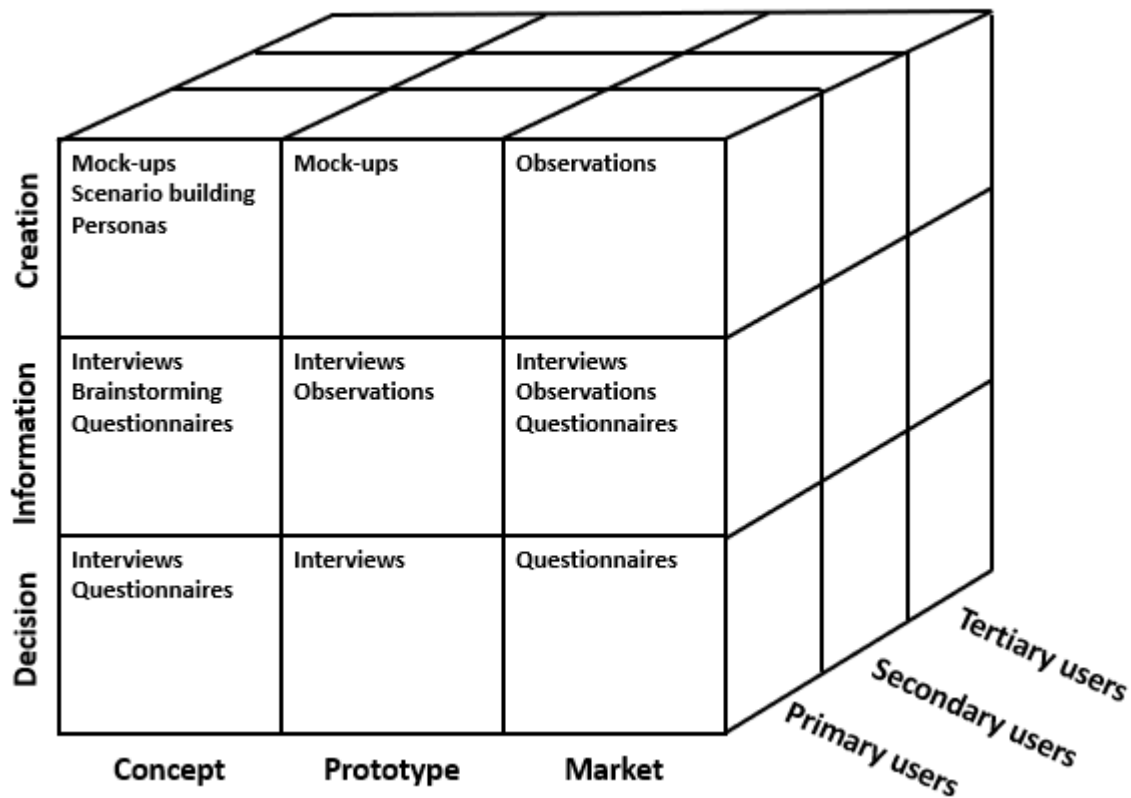


FIGURE 18 - MODIFIED CUSTOMER INTEGRATION CUBE WITH SUGGESTED TECHNIQUES FOR USER CONTRIBUTION

Some of these methods are described below:

Discover opportunities

The aim is to gain insight into the different basic needs that different stakeholders have of the service. It is important to start by determining the target user group for the “discover needs” phase. Here the aim should be to find established groups due to the difficulty of finding time and place for the interview.

- Contextual Design:** This method is described as a collection of principles and techniques, founded on the perspective that systems development should have its starting point in the future users work but with the purpose to enrich it through the new possibilities the technology can offer. It consists of a combination of interviews and observations where the purpose is to gain as rich picture of the actual work situation as possible with their roles, areas of responsibilities, problems related to the work and the existing tools and so forth.
- Why-Why-Why:** To sustain a broad perspective throughout the investigation it is important to question and exceed the apprehension about the defined “problem” that already exists in the design situation. One way to do this is to ask a number of “why” questions and by that means build a chain of relations backwards from the original formulation.
- Dialog café:** This has the purpose to create a common dialog, to exchange experiences and knowledge, to highlight the common knowledge and to enrich the fellowship. This process is

carried out in small conversation groups around round tables exploring a question or a specific theme. At certain points in time, the participants change groups. This method is suitable when sharing experiences or discussing a question with the aim to increase the individual knowledge sought. In addition, it is suitable when similarities and differences in opinion needs to be highlighted or when different perspectives on an issue are desired.

In PolicyCLOUD, we have adopted the contextual design particularly for the first co-creation sessions that were organised during the first year of the project. The main goal was to validate the preliminary set of scenarios and mock-ups that were developed following the requirement elicitation and engineering process.

Generate concepts and ideas

Different stakeholders can be involved in generating ideas for new solutions using workshops, brainstorming and idea competitions. The generated ideas and further developed solutions can be concretized in various ways so that it is easier for end users and other stakeholders to understand them in a similar way and evaluate their suitability.

- **Workshops:** Workshops can be used for different purposes where stakeholders' input is required. The purpose of these groups is to gather different kinds of groups around a joint subject or matter or to find a subject to gather around and work more with. Workshops can be implemented, e.g., using rotation table or open space techniques presented below. Workshops can also be arranged online, e.g., via web conferencing tools, where the participants are guided to answer certain topics. The result should be concrete action plans that are implemented in their own context. The original idea of a workshop is to bring together people from various backgrounds who all share an interest in a common issue or a problem. The aim is to increase people's participation in solving collective problems by giving them an opportunity to influence future decisions of an issue whose development might otherwise be defined solely by traditional decision makers such as policy makers, civil servants or experts.
- **Brainstorming:** This can be used for generating a lot of new ideas in a short time. Brainstorming is a method for generating ideas to solve a design problem in a systematic way. It is a creative activity where people produce as many ideas as possible for later analysis, and under the direction of a facilitator. The tone of the session is open to the inscription and tolerant. Brainstorming serves to promote a culture of building on the ideas of others generated from multiples perspectives and levels of expertise. Using brainstorming and collages provides the participants to translate their experiences. The strength of brainstorming is the potential participants have in drawing associations between their ideas in their environment, thereby broadening the solution space. The participants are told to lose their inhibitions and that no ideas will be judged so that people are free to shout out any ideas at all without feeling uncomfortable. People should build on the ideas called out by other participants.
- **Experience Prototyping:** This is research through design and learning through practice, a methodology for designing with context in mind. Experience prototyping is valuable when designing a service that adapts to the situation the participants are in. Experience Prototyping is

less a set of techniques than it is an attitude, allowing the designer to think of the design problem in terms of designing an integrated experience, rather than one or more specific artifacts. Therefore, an Experience Prototype is any kind of representation, in any medium, that is designed to understand, explore or communicate what it might be like to engage with the product, space or system being designed.

In PolicyCLOUD, we have/will organise workshops and brainstorming sessions for the evaluation of the developed tools and services. The main goal is to test and validate the implemented E2E scenarios in the different pilots.

6.1.2 Chosen methodology for co-creation

Design Thinking (DT) is a term coined and popularized by David Kelley [4]. Briefly, it brings forward and systematizes the mindset and ecosystem in which designers think and develop their ideas. DT deploys the typical design setting for iteratively prototyping ideas. In a workshop setting that is inspired by the DT process, ideation and experimentation aims at generating as many ideas as possible in a short time, making a selection of ideas that are further developed and tested through quick prototyping. In a workshop setting, this may be simulated by forming groups and swapping ideas between them. Groups may rotate between ideas as an attempt to liberate the participants from their first favourite ideas, making the process more open-ended. At the end of the workshop, all groups present their outcomes and the generated ideas are discussed in each table. The workshop ends by sharing insights of different tables with the rest of the participants and reflecting on the results from all tables.

Pilot partners have chosen the DT methodology to help them to reach the goal of co-creation and that would be a good fit for the intended audience. DT is co-creative and iterative by nature. It is about changing and improving, now and in the future. It is key to understand the starting point of innovation (current situation), the preferred situation (vision) and the way to get there. This is needed to make a change and start with smaller steps that lead towards the end goal. DT puts people and their context at the centre. Experiences are influenced by the social, physical and cultural context. Insight in the daily context of those involved enables the creation of solutions that meet people's needs and wishes. The process is iterative. Small interventions make things tangible and enable reasoning towards the unknown. Stakeholders are actively involved in the different steps through co-creation. Design tools are applied to visualize insights and create common ground.

DT is about approaching things differently with a strong user orientation and fast iterations with multidisciplinary teams to solve complex problems. It is equally applicable to (re)designing products, services, processes, business models, and ecosystems. It inspires radical innovation as a matter of course, and ignites capabilities beyond mere potential.

In Lombardy and Aragon region, many stakeholders and policy makers are already familiar with the concept of DT, so the choice to use DT as their method was quite obvious. Instead of starting at the beginning, more time could be spent in exploring the possibilities of policies and finding concrete applications.

6.1.3 Setting the agendas

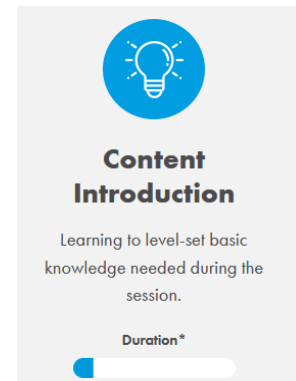
In order to facilitate the organisation of the co-creation sessions in the four pilots, MAG as leader of Task 6.3, proposed the following step-by-step approach to be used as a guideline for setting up the agendas of the workshops. This of course is only the starting point of discussion; the pilot partners have set the specific agendas based on their needs, ambition and status of implementation of the different scenarios.

Step 1: Introduction

- Brief presentation of the PolicyCLOUD project
- Introduction to the specific purpose of the co-creation session and supporting tools to be used

Goal: define what is expected from the participants during the session and explain the co-creation process

Duration: 10-15 min

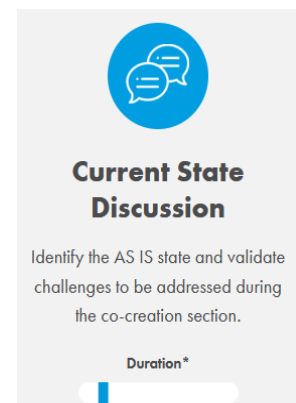


Step 2: Preliminary discussion

- Presentation of the E2E scenario(s)
- Establish a common understanding of the context and work practices

Goal: Establish a common understanding of the context and work practices; identify the existing practices to be followed by Policy Makers and discuss potential challenges (if applicable)

Duration: 5-10 min (per scenario)

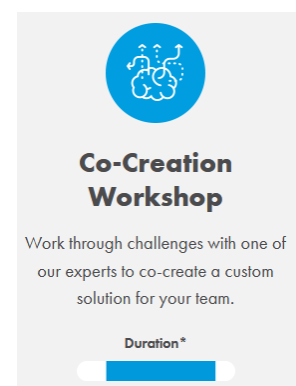


Step 3: Co-creation session

- Scenarios' development: focus on the implementation of the scenarios in the platform and how it should be used by the relevant stakeholders

Goal: showcase the implemented scenario(s) and conduct co-design sessions for further improvements/fine-tuning of the services

Duration: 45-60 min

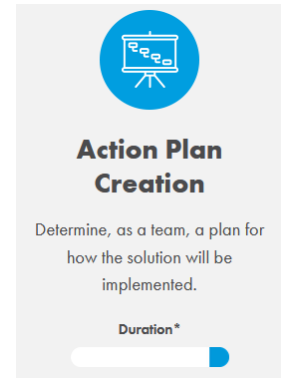


Step 4: Action Plans

- Next steps:
 - Improvements/enhancements of existing scenarios
 - Additional scenarios to be implemented

Goal: define with the policy makers the next action points to be carried out and their expected involvement.

Duration: 10-15 min



Step 5: Reporting

- Common templates (see Annex 1)
- Dissemination through the project website and social media channels



6.1.4 Planning

Below it is presented the agreed plan for the upcoming co-creation workshops:

- **Co-creation 1:** M9-10 (September-October 2020)
- **Co-creation 2:** M21-22 (September-October 2021)
- **Co-creation 3:** M27-28 (March-April 2022)
- **Co-creation 4:** M33-34 (September-October 2022)

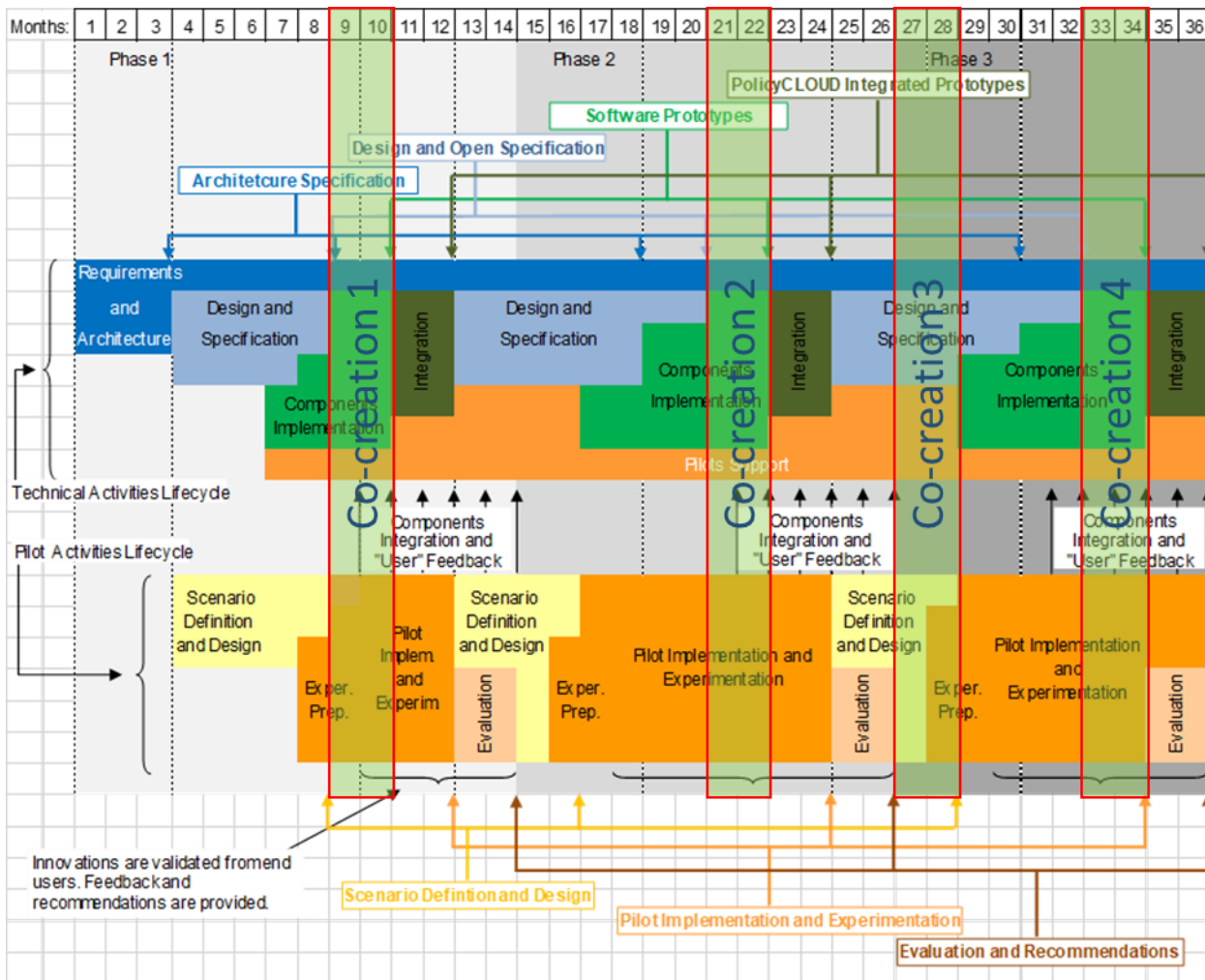


FIGURE 19 - CO-CREATION SESSIONS PLANNING

6.2 Co-Creation Workshops

6.2.1 Maggioli – Use Case 1

Organisation

The second co-creation workshop of Maggioli was held on 2nd December 2021. During the event, the PolicyCLOUD project, the different scenarios developed in collaboration with Lombardy region, and the current status of their implementation, including the available visualisations were presented.

The participants - representatives from the DG Digital Transformation and Innovative Systems and DG security with various Municipal structures and the local ecosystem - received formal invitations 3 weeks prior to the event. Most of the participants have already participated in the first co-creation workshop, and it was important to show them the progress to date and the plan for the next months. The event was also promoted through the project website and social media channels in order to extend the invitation to other relevant stakeholders.

Agenda

Time	Description	Presenter
11:00 – 11:05	Welcome from the host	Daniele Crespi
11:05 – 11:15	PolicyCloud at glance	Armend Duzha
	<ul style="list-style-type: none"> Brief project introduction 	
11:15 – 11:45	Presentation of the use case + demo session	Armend Duzha
	<ul style="list-style-type: none"> Current implementation status Plan for the next months 	
11:45 – 12:15	Open discussion	Daniele Crespi
	<ul style="list-style-type: none"> Ferdinando Ferrari – Lombardy Region, DG Digital Transformation and Innovative Systems Oscar Sovani – Lombardy Region, DG Digital Transformation and Innovative Systems <p>(local police representatives)</p>	
12:15 – 12:25	Follow-up questionnaire	Armend Duzha
	<ul style="list-style-type: none"> Feedback and recommendations Evaluation (technical, business,..) 	
12:25 – 12:30	Wrap up and meeting closure	Daniele Crespi

Participants

List of Participants		
Organisation	Department	No. of participants
Gruppo Maggioli	Innovative Systems Development and eGovernment	1
	Gruppo Maggioli, R&D Department	2
Lombardy region	DG Digital Transformation and Informative Systems	2
	DG security	5
Municipality of Corbetta	Local police unit	1
Municipality of Bergamo	Local police unit	2
Municipality of Martinengo	Local police unit	1
Municipality of Olgiate Comasco	Local police unit	1
Municipality of Rozzano	Local police unit	1
Municipality of Cremona	Local police unit	1

Short summary

During the workshop, we presented scenario A, which has been fully implemented. Many of the attendees appreciated the filtering capacity and the fact that the system can be easily support additional datasets. Regarding the other unfinished scenarios, we had the possibility to illustrate them the existing mock-ups and the development ideas.

In conclusion of the workshop and in particular during the open discussion we received positive feedback from the participants. Many of the participants could clearly see the benefits of the platform and how it can be integrated with existing systems, including the one provided by Maggioli. Regarding the potential future usage of the platform, there were already many questions about the continuation of the usage after the project end and the need for a defined business model, in particular for those entities that are already customers of Maggioli. The representatives from DG Digital Transformation and Informative Systems proposed that in future events to extend the invitation to other departments of the region as they could already see the benefits of the platform in other domains.

Further suggestions regarding the integration with the social media were provided, in order to eliminate ‘false positives’ or ‘misleading’ information from different sources. The stakeholders would have also like to have seen more KPIs related to the specified scenarios.

6.2.2 Sarga – Use Case 2

Agenda

Time	Description	Presenter
09:30 – 09:40	Welcome for the host	
09:40 – 10:20	A global vision of the PolicyCLOUD project	Javier Sancho (Sarga)
10:20 – 10:50	Results of the first PolicyCLOUD workshop	Vega Rodrigálvarez (ITA)
10:50 – 11:30	Progress of the project <ul style="list-style-type: none"> Challenges and difficulties found out 	Government of Aragón
11:30 – 12:30	Q&A <ul style="list-style-type: none"> Debate on improvements of the different use case scenarios. 	Government of Aragón
12:30	Coffee	

Participants

A total of **105** participants joined the workshop, out of which **75** from the public sector, **28** for the industry and **2** freelancers.

Participants from Public sector		
Organisation	Department	No. of participants
Aragon government	Agricultura Ganaderia y Medio Ambiente	20
	Ciencia, Universidad y Sociedad del Conocimiento	19
	Economia, Planificación y Empleo	9
	Hacienda y Administración Pública	7
	Vertebración del territorio, movilidad y vivienda	3
	Cudadania y Derechos Sociales	3

	Sanidad	3
	Presidencia y Relaciones institucionales	2
	Industria, Competitividad y desarrollo empresarial	2
Zaragoza City Council		2
Cortes de Aragón		2
Diputación Provincial de Huesca		3

Short summary

In the second co-creation workshop of the PolicyCLOUD project, we began by making a brief summary of the main objectives and use cases of the project, as well as an overview of the Horizon 2020 program. We also made a summary of the first co-creation workshop and the different meetings and exchange of opinions that we have had during the project with the end users. We appreciated it important to start like this so that we can later focus the debate on technical and usability issues in order to continue developing the different scenarios.

During the event, we presented scenario B, which has been already implemented. Some of the attendees highlighted that it was necessary to improve the filtering capacity, they were told that it was not finalized and that it was in the process of improvements. As for the other two scenarios that are in the process of implementation. The existing mock-ups and the development idea that are in the project were shown.

6.2.3 Sofia – Use Case 3

Organisation

The second co-creation workshop of Sofia Municipality was held on 13th December, 2021. During the event, we presented the PolicyCLOUD project, the use case of Sofia Municipality, and the first demo of the system, including the current visualisations for Scenario A 'Road Infrastructure'.

The participants - representatives of various Municipal structures and the local ecosystem - received invitations and a brief overview of the project 2 weeks prior to the event. Some of the participants have already participated in the first co-creation workshop, and it was important to remind them of the key aspects of the project and to show them the progress to date.

A week before the event, we sent the participants:

- The questionnaire and a brief overview of the aspects of the system we would like to discuss in more detail together.
- A link to Sofia's and Maggioli's demos, so that they could have more time to experience the platform themselves, get acquainted with the available functionalities, and get a better idea of the focus of the webinar.

By sending the materials (translated in Bulgarian) in advance, we ensured that the participants could be better prepared for the workshop in advance.

Agenda

Time	Description	Presenter
10:00 – 10:05	Welcome from the host	Metodiyka Tarlyovska, Ana Georgieva
10:05 – 10:15	Introduction <ul style="list-style-type: none"> • Brief introductory words • Introduction of the Sofia's team • Round table presentation of all participants 	Dobrinka Blagova
10:15 – 10:45	Overview presentation and showcasing demo <ul style="list-style-type: none"> • PolicyCLOUD at a glance: goals, consortium, value-added services, pilot use cases, importance of co-creation, etc. • Sofia's pilot use case: scenarios, datasets, KPIs, expected results, progress so far • Showcasing the demo: current functionalities and expected ones, visualisations available for the first scenarios 	Ana Georgieva Metodiyka Tarlyovska Petya Nikolova

10:45 – 11:35	<p>Q&A session</p> <p>Moderated discussion with the participants about the PolicyCLOUD platform - their first impressions, questions, recommendations, etc.</p> <p>Basis for discussion:</p> <ul style="list-style-type: none"> • the presentation and the demo • the co-creation workshop questionnaire provided by the Consortium partners 	Metodiyka Tarlyovska, Ana Georgieva
11:35 – 11:45	Summary and next steps	Metodiyka Tarlyovska, Ana Georgieva

Participants

List of Participants		
Organisation	Department	No. of participants
Sofia Municipality		7
	IT Department	2
	Call Centre Department	1
	Climate, Energy and Air Directorate	1
	Secretary	1
OKYS		1
Fund of Funds, Bulgaria		1
Sofia University		1
GATE Sofia University		1
Green Sofia		3
AI Cluster Bulgaria	Biotech and Life Sciences Cluster	1

Short summary

The participants recognized the added value of the project, especially with regards to the opportunities related to:

- the exchange of various international good practices
- the development of concrete data-based policies, analysis of trends, predictions of policy effects
- overall implementation of more-efficient policies in the long run with the support of the tool

According to stakeholders, even though the tool is still under development, its overall look and ‘feel’ is very nice; they liked the diversity of available graphs and the colors used. They think that the tool allows for relatively easy use, especially by people who have a certain degree of previous experience in working with digital platforms. The general opinion is that once completed, the platform will be able to bring added value to a wide variety to stakeholders, and will support policy-makers in developing more effective and efficient policies, thus facilitating the improvement of the overall quality of life for citizens

Some questions arose from the fact that not all functionalities of the system for all scenarios of Sofia have been implemented yet, and that there are some questions with regards to the concrete functionalities that would be available overall by the end of the project (e.g. analysis of texts in Bulgarian language, provided by different stakeholders, not only by Sofia Municipalities).

6.2.4 London – Use Case 4

Organisation of the workshops

The purpose of this co-creation workshop was to update the stakeholders with the status of the PolicyCLOUD platform so far. The stakeholders will then be demonstrating the platform in action with selected pilot scenarios, KPIs and visualizations. Once the demonstrations are complete there will be an open discussion about the platform and any questions about the platform will be addressed.

Agenda

Time	Description	Presenter
11:00 – 11:05	Welcome from the host	Ben Williams, Adil Mohammed Ali
11:05 – 11:15	PolicyCloud at glance <ul style="list-style-type: none"> - Brief project introduction - Benefits to camden 	Ben Williams
11:15 – 11:35	PolicyCLOUD platform demo <ul style="list-style-type: none"> - Current status of the implementation - Plans for next months 	Ben Williams
11:35 – 11:45	Q&A	Ben Williams, Adil Mohammed Ali
11:45 – 11:55	Follow up questionnaire <ul style="list-style-type: none"> - Feedback and recommendations - Evaluation questionnaires 	Ben Williams, Adil Mohammed Ali
11:55 – 12:00	Wrap up and meeting closure	Ben Williams, Adil Mohammed Ali

Participants

List of Participants		
Organisation	Department	No. of participants
London Borough of Camden		8

Short summary

In conclusion the workshop contained positive feedback from the participants. Many of the participants could clearly see the benefits of the platform and potential future usage of the platform. There were positive comments about the layout a functionality aspect of the platform. Stakeholders also praised the quality of the map visualisations because they were aware of the technical difficulties and resources needed to accurately represent data against maps.

A few minor suggestions were made in workshops regarding the security components of the platform. However, this matter is already being dealt with by the technical partners and will be resolved in future interactions. The stakeholders would have also like to have seen more KPIs related to the specified scenario.

7 Conclusion

This deliverable describes the selected E2E scenarios that have been experimented so far and partially those that will be implemented during the last year of the project. The E2E scenarios will assist the technical partners in making sure the PolicyCLOUD platform is able to adapt and meet the requirements of the scenarios provided. Successfully completing this task will ensure that the PolicyCLOUD platform is robust and can be configured to support different scenarios produced by the end users in different domains.


This document also contains details on configurations based on the various analytical tools and KPIs that are required for each scenario in order to produce the desired results. In the upcoming deliverable D6.13 we will provide several additional scenarios that will be experimented by the pilots. The expanded scenarios will aim to have the same structure as the one expressed in this deliverable with the use of different analytical tools and visualisations.

References

- [1] PolicyCLOUD. D6.4 Use Case Implementation and Experimentation. Ben Williams. 2021.
- [2] PolicyCLOUD. D6.10 Use Case Scenarios Definition Design. Javier Sancho. 2020
- [3] Spagnoli, F., van der Graaf, S., & Brynskov, M. (2019). The Paradigm Shift of Living Labs in Service Co-creation for Smart Cities: SynchroniCity Validation. *Organizing for Digital Innovation* (pp. 135-147). Springer, Cham.
- [4] Kelley T., Kelley, D. (2013) *Creative Confidence: Unleashing the Creative Potential Within Us All*. Currency.

8 Annex I – Templates

8.1 Workshop agenda template



Policy Cloud
Cloud for Data-Driven Policy Management

**CLOUD FOR DATA-DRIVEN POLICY
MANAGEMENT**


Project Number: 870675 Start Date of Project: 01/01/2020 Duration: 36 months

**AGENDA OF CO-CREATION WORKSHOP #2
(DATE), (TIME)**

NOTE TO EDITORS

Please remove this section when starting the deliverable.

The template contains several guidelines to provide the editors with hints about the different sections. Please remove these guidelines before sending the agenda.

 PolicyCloud has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 870675. The opinions expressed and arguments employed herein do not necessarily reflect the official views of the European Commission.



1 Agenda

Meeting Objective(s) and Expected Results:


- Describe here briefly which is the general purpose of the 2nd co-creation workshop.
- Describe here the expected results from the meeting/teleconference.
- Indicate who called the meeting.

Enter your text here.


Time	Description	Presenter
10:00 – 10:05	Welcome for the host	
10:05 – 10:xx	[Provide information about the topic to be discussed. Break down the text into several subtopics when necessary.] e.g. PolicyCloud at glance	[Add the Organization Name responsible for reporting about the item or the topic]
10:xx – 10:xx	[Provide information about the topic to be discussed. Break down the text into several subtopics when necessary.] e.g. Presentation of the use case	[Add the Organization Name responsible for reporting about the item or the topic]
10:xx – 10:xx	[Provide information about the topic to be discussed. Break down the text into several subtopics when necessary.] e.g. Scenarios implementation	[Add the Organization Name responsible for reporting about the item or the topic]
10:xx – 10:xx	[Provide information about the topic to be discussed. Break down the text into several subtopics when necessary.] e.g. Demo session	[Add the Organization Name responsible for reporting about the item or the topic]

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8.2 Workshop report template



Policy Cloud
Cloud for Data-Driven Policy Management



Policy Cloud
Cloud for Data-Driven Policy Management

CLOUD FOR DATA-DRIVEN POLICY MANAGEMENT

Project Number: 870675 Start Date of Project: 01/01/2020 Duration: 36 months

UC#N Co-creation Workshop #2

Report

Date: dd/mm/yyyy

Submitted by: name surname (partner short name)

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1 Meeting information

Meeting information	
Date	dd/mm/yyyy
Location	
Host / Organising partner	
Facilitator	
Note keeper	
No. of invited persons	NN
No. of participants	NN

2 Agenda

Time	Description	Presenter
10:00 – 10:05	Welcome for the host	
10:05 – 10:xx	[Provide information about the topic to be discussed. Break down the text into several subtopics when necessary.] e.g. PolicyCloud at glance	[Add the Organization Name responsible for reporting about the item or the topic]
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10:xx – 10:xx	[Provide information about the topic to be discussed. Break down the text into several subtopics when necessary.] e.g. Demo session	[Add the Organization Name responsible for reporting about the item or the topic]

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3 List of participants

List of Participants	
Name	Organisation
[Name Surname]	[Organisation name]
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4 Proceedings / Notes

Summary for technical partners

1. Requirement evaluation

2. System performance

3. System usability

4. Business processes

5. Other relevant information / comments

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