CIVITTA   BRATISLAVA

Climathon Bratislava 2023 Challenges

In the 4th edition of Climathon Bratislava, we have prepared 3 challenges for participants, who can bring their ideas for solutions:

1. How can we make Bratislava and its citizens more resilient to extreme weather events?
2. How can we increase participation and engagement of residents in sustainable development of the city using digital tools such as Bratislava ID?
3. Open challenge: How can we as citizens help the city become more sustainable and combat climate change?

Challenge 1: How can we make Bratislava and its citizens more resilient to extreme weather events?

Challenge vision

Bratislava is looking for innovative ideas that strengthen its resilience to extreme weather events. We are looking for ideas that are based on data and digital technologies, which will help the city to decrease the negative impacts of extreme weather events on citizens and infrastructure. Ideas in this challenge should aim to help the city in the following areas:

1. Help the city with new modelling tools or resources to prepare reactions before the events even occur. Thanks to your ideas and solutions, the City of Bratislava will be able to create reaction and action plans based on simulations of events.
2. Help the city to engage, protect and educate the citizens. Thanks to your solutions, the City of Bratislava will be able to increase public awareness about the potential risks, mitigation plans and properly engage them in responses to these events.

When approaching this challenge, you should aim to make the most relevant data and information available in a form that can be easily understood and used by the beneficiaries, (e. g. crisis management, dispatching, road management and maintenance or citizens).

Challenge context

Over the past three decades, Europe has seen a 60 percent increase in extreme weather events like droughts, forest fires, heatwaves, storms and heavy rain. It is clear that these events will be happening more often and with greater intensity. For densely populated cities, such as Bratislava, they pose a major challenge as they have a major impact on the safety & health of citizens and on the infrastructure. According to EEA, extreme weather has been responsible for 500 bn EUR in economic loses and up to 145,000 human fatalities across Europe.

Bratislava has been experiencing extreme weather events mainly in the form of heavy rainfall and long heatwaves. During heavy rain falls, the sewage systems in the city are overwhelmed, causing road closures and infrastructure damage on the surface. During heatwaves, public spaces in the city become a health risk to the vulnerable groups in the city due to the urban heat island effects.

Swiss Re   ibl weather software solutions   Wolt   NADÁCIA Slovenskej sporiteľne

We identified internal problem areas that the city needs to streamline itself:

- **Adapt infrastructural and systematic changes:** Identifying key high-risk areas based on complex data analysis (digital twin) and adapting necessary mitigation measures in those areas (e.g. specific anti-flood systems and infrastructure repairs, increasing green areas, etc.).
- **Planning ahead:** In case of an upcoming extreme weather event, The Slovak Hydrometeorological Institute issues an alert, but the city does not know exactly which areas will be affected and to what extent. To this end, the city needs to collect various datasets that are challenging to combine into coherent analysis of potential outcomes.
- **Managing the situations:** The city crisis managers need to be able to prepare crisis scenarios in advance so that the different components of response units (citizens, city police, fire dept., etc.) have a clearer definition of what we will do if a certain situation arises. Moreover, the city needs to be able to manage the communication and coordination between different departments and response units, which can be challenging.

The City is actively working on multiple solutions to these challenges. For example, the city is developing its own city sensor network (meteorological sensors, noise sensors, rain gauges, etc.) to be able to predict the situation in specific locations based on accurate data. Moreover, the MIB department (Metropolitan institute of Bratislava) has conducted several studies to outline the necessary infrastructure and system changes needed.

Inspirations

We are looking for ideas that will help to tackle this challenge by using data analytics tools, visualisation tools, digital applications or similar digital innovations. Your solutions should aim to address specific needs and goals of the Crisis management unit at the City of Bratislava. When tackling this challenge, we recommend focusing on demonstrating the power of your solutions on specific cases or areas.

Ideas could be based on, but not limited to:

Heavy rainfall and floods:

- Inundation modelling in critical case scenarios (extreme rainfall, sewage failure, flood defence failure along Danube, etc.), which would give the city the ability to plan their emergency responses via specific decision trees – what situations are most likely to occur in specific high-risk locations
- Closing information gaps between the city and citizens (e.g. enabling communication in an easy-to-understand and accessible format and via appropriate channels – data visualization).
- Engaging and protecting the citizens in crisis management, whereby citizens can help the city to monitor and manage the situation in real time and are informed about the city responses and updates on the situation via appropriate channels.

Heatwaves and urban heat islands:

- Modelling of Urban Heat Island Effect – identifying critical areas, buildings, surfaces.

- Mapping and monitoring hot-spots to support effective action in case of hot and windy weather, when dust particles swirl, causing respiratory problems (road maintenance and watering).
- Effective communication with residents including recommendations for drinking more water, reducing physical activities or staying more in shadow (such as outdoor sports) during affected hours of the day.

General targets:

- Develop a way which will enable the city to inform residents promptly about warnings or development of situations, in order to protect health and infrastructure and minimize the damage.

Challenge owners and beneficiaries

The owner of this challenge is the Crisis management unit at the City of Bratislava (Martin Blaha)

Useful resources

- Demographics of Bratislava residents - https://www.scitanie.sk/storage/app/media/dokumenty/SK582000.pdf
- EU´s adaptation strategy - https://climate.ec.europa.eu/eu-action/adaptation-climate-change/eu-adaptation-strategy_en
- NASA Global Climate Change - https://climate.nasa.gov/news/2943/study-confirms-climate-models-are-getting-future-warming-projections-right/
- European Green Deal: the main focus of our policy support work https://www.eea.europa.eu/en/about/policy-corner-eu-policies-we-support -

Available data and digital tools

- Sewerage 2022 (Utilities) https://geoportal.bratislava.sk/pfa/apps/webappviewer/index.html?id=382e3cec09c74739b4a85adc6967fac7
- **Case study calculation of rain deductions -** https://www.karlovaves.sk/wp-content/uploads/Karlova_Ves_modelovanie_zrazok_studia_DHI_PERFECT.pdf
- **Bratislava terrain slope map** https://geoportal.bratislava.sk/pfa/apps/webappviewer3d/index.html?id=2c00499a1941457fb4afb3175326c641
- **Copernicus data** Land Cover | Copernicus Global Land Service cds.climate.copernicus.eu/#!/home
- **Weather data provided by** https://www.iblsoft.com/ - we will specify the dataset at the event
- Netatmo data (weather stations), NWP model and climate data https://climathon.iblsoft.com/

Challenge 2: How can we increase participation and engagement of residents in sustainable development of the city using digital tools such as Bratislava ID?

Challenge vision

Bratislava has launched its brand-new city platform, **Bratislava ID (Digital City Account)** in April 2023. The idea is very simple - after creating an account, citizens can access city services faster and easier. The vision is to extend it and to have all the digital services of city organisations and city boroughs at one place.

Currently, the platform is in its early stages. Users can pay their property tax or buy tickets for the swimming pool. The main goal is to make the user experience with city services faster and more convenient. In the future, the platform can also provide a space for networking, getting in touch with city representatives or for generating ideas on how to make our city a better place to live. Data from the trustworthy online interactions with citizens via such platform could be used by city representatives for data-driven decision-making.

At the same time, Bratislava ID interactions could be linked to a physical face-to-face meetings (e.g. participatory meetings), thus creating an omnichannel experience for the citizens.

The key challenges that the City of Bratislava needs to solve are:

- How can the city motivate and involve citizens in driving climate-neutral changes and sustainable behaviour?

- How can we improve Bratislava ID to serve the sustainable development goals of the city?

- How can we inspire, motivate and support the citizens to make low-carbon and environmentally conscious choices?

- How might we create a Bratislava Citizen Climate Board by direct digital integration into Bratislava ID?

Challenge context

Bratislava as an open and **inclusive city** for all, which actively cooperates with and involves the public in the planning and management of the city. The city actively communicates and involves different groups of citizens in the **planning and policy-making of the city**.

Communication is a key function of local government. It is essential for increasing resident satisfaction and building a positive relationship with the city. It creates a sense of belonging and contributes to improving the quality of life in the community. Effective two-way communication between the city and all stakeholders is an essential part of the democratic process. It is a prerequisite for the success of almost any city project, policy or initiative. It helps to **build trust**, which is essential for gaining the support of city residents for future major changes.

The problem is that the city and its citizens face multiple channels of contact. When citizens engage with the city, they need to know whom and how to approach and see the results of their communication. However, there are often too many channels and formats for communication and engagement with the city, especially around the topics of city services or sustainable development e.g. front office, call centrum, a several online forms, social media etc. At the same time, the City aims to simplify and unify the experience for citizen interactions. A relevant use case might be a 311 system in the NYC which concentrate the whole city-citizen experience in one place.

Challenge owners and beneficiaries

Department of innovation and digital services (Martina Mihalkovičová)

Climate office (Adela Syslová)

Inspirations

We are looking for digital solutions that will build on Bratislava ID and help the city to engage citizens. In a user-friendly, trustworthy and mutually-beneficial ways. Your ideas and solutions could be based around tools that are connected to or integrated into the Bratislava ID (currently a web-based platform).

Ideas **that have been explored but found to be difficult to implement** were **around schemes for discounts for city services or "coupons"**. You should try to avoid ideas around these areas.

Ideas could be based on, but not limited to:

- Multifunctional platform that could combine online and offline citizen participation and engagement model.
- Open to various forms of interaction: surveys, polls, forms, interactive research, open feedback space, messages to the mayor, suggestions for improvement - idea generator for citizen, the space for their own proposals.
- Easy and user-friendly navigation between all the city's services and priority topics for open discussion and participation.
- The user should be able to see the status of the open proposal and any progress being made.
- Formats to easily visualise and share data uploaded by citizens.
- Bratislava Climate City Board will be connected online and offline as well.
- Based on the example of the strategy room from the Nesta or Decidim project of Barcelona (linked below), the city wants to create the online platform where the citizen can get in touch with city online and participate on a crucial topics connected to climate change.

Relevant sources of information

- Nesta – Creating the Strategy Room for Municipalities
  https://media.nesta.org.uk/documents/The-Strategy_Room-report.pdf
- https://decidim.org/

Relevant Data

- Digital account open source – will be made available during the event
- Data about the actual users – will be made available during the event

Challenge 3: Open challenge- How can we as citizens help the city become more sustainable and combat climate change?

Challenge vision

In order to make a meaningful and measurable impact, as many people as possible need to make the right choices as often as possible. From this perspective, the main objective of this challenge is for you to suggest how to motivate and support the citizens in more sustainable ways of life. You can use any of the available resources and mentors for other challenges.

Challenge Context

The message of the latest report of the Intergovernmental Panel on Climate Change (IPCC) is unequivocal: If we want to keep global temperature rise to 1.5 C by the end of the century, we need to reduce emissions to net-zero by 2050 - otherwise we risk dire climate consequences.

The city is aiming to reach climate neutrality by 2030. The city will regularly monitor the carbon footprint of its infrastructure and activities and carry out an action plan to reach climate neutrality. However, the city infrastructure and its activities are responsible only for a fraction of the total carbon footprint. The majority of total city carbon footprint is in the hands of the citizens and businesses. The city can set common standards and incentives for them, but more is needed to drive meaningful and measurable impact in a shorter time span.

Challenge owners and beneficiaries

The owner of this challenge is a Climate Office.
The beneficiaries are all citizens and business owners, who want to live in a climate-neutral city and are inclined to make the necessary adaptations.

You must check your approaches and ideas with the mentors from the City of Bratislava and support your proposals with relevant information about the behaviour and needs of the beneficiaries (city, citizens and/or businesses).

Inspirations

When tackling this challenge, you are invited to combine resources available from the other challenges and include your own ideas or resources to create meaningful ideas that will help the City of Bratislava to achieve sustainable development. Your ideas should be aligned with the Sustainable Development Goals of the City and validated with the relevant mentors

We are looking for ideas that will enabling climate-neutral behaviour of citizens or communities in specific areas of interest:

- Energy saving
- Water consumption

- Better waste management
- Sharing mobility
- Sharing economy
- Community services

You should **avoid ideas or solutions linked to discounts for city services** or utilities or similar schemes. The implementation of such ideas is out of the scope of Climathon.

Relevant resources
https://www.klima-community.de/en/home.html

Bratislava 2030 - Metropolitný inštitút Bratislavy (mib.sk)
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