metropolis

Public Tender

Terms of Reference (ToR): Development of the Metropolitan Observatory Data Visualization Platform

25 July 2024

1. About Metropolis

Metropolis is a global network of the world's largest cities—providing innovative solutions to the critical challenges facing large metropolitan areas. Bringing together over 150 member cities and 700 million inhabitants worldwide, Metropolis serves as a global hub where metropolises can connect, share solutions, and mobilize on issues related to sustainability, social cohesion, metropolitan governance, future planning, and gender equality.

2. Background of the Metropolis Observatory Platform

The Metropolis Observatory, a project funded by the Metropolitan Area of Barcelona (AMB), has provided valuable insights into the dynamics of metropolises worldwide. With this tender, Metropolis seeks to redesign the Platform to enhance its effectiveness and reach.

The new Observatory aims to become the to-go platform for data visualization and analysis for the biggest cities in the world, including megacities (>10 million inhabitants). This platform responds to the growing need for cities to adapt to rapid urbanization, climate change, economic fluctuations, and societal transformations. Cities require data for monitoring, governance, policy-making, and comparisons to enhance urban resilience and better prepare for future challenges.

As cities continue to grow, becoming more complex and influential on the global stage, the role of data in urban planning and policy cannot be overstated. The Observatory aims to foster knowledge and innovation in inclusive and effective metropolitan governance. It will equip city leaders, policy-makers, urban planners, and the public with a tool to understand and analyze urban performance through an **indicator framework for "future-proofing cities"**, organised along four key objectives and around 45 indicators:

1. **Resilient city**: Cities' capacity to absorb and recover from environmental, economic, and social shocks.

   Example indicators: Renewable energy consumption; CO2 emissions; food security; green area; exposure to flooding; air quality; land use efficiency; presence of a local climate action plan; presence of climate risk assessments.

2. **Innovative city**: Measuring the ability of cities to foster innovation that improves quality of life.

   Example indicators: Employment in ICT sector; employment in R&D sector; technology adoption rates; use of big data in business/government; ICT

investment; digital literacy; presence of innovation strategy; presence of digital or AI strategy; presence of dedicated innovation department.

3. **Inclusive city**: Social and economic integration, ensuring access to opportunities, infrastructure and services for all residents.

   Example indicators: Public transport availability and accessibility; public services accessibility; public space availability and accessibility; access to bike lanes; access to safely managed water and sanitation; women representation in local politics; gender pay gap; youth and women unemployment; presence of local gender equality strategy.

4. **Effective governance**: Assessing the effectiveness of metropolitan governance structures in delivering services, managing resources, and engaging with local communities.

   Example indicators: Number of policy sectors led by the city; city budget; fiscal decentralisation; voter's turnout; territorial fragmentation; presence of national urban policy; presence of dedicated department or function for strategic foresight.

The need for future proofing cities cannot be overstated. Data plays a crucial role in decomplexifying urban environments, helping to understand the intricate dynamics at play and enabling cities to prepare effectively for the future. Metropolis Observatory will provide insights into the past and present, laying the groundwork for better prediction and preparedness for future scenarios.

The Observatory is envisioned as much more than just a repository of static data. It will be a dynamic, interactive tool that enables stakeholders to draw actionable insights, benchmark performance against global standards, and make informed decisions that align with both local needs and global best practices. The platform will seek to provide **city comparisons at a global scale** to better understand cities' performance across a set of indicators.

3. Objective

The objective of this assignment is to design, develop, and put into operation the Metropolis Observatory platform. This comprehensive data visualization and analysis tool will be tailored for cities and is expected to include a user-friendly back-end and front-end development, intuitive user interface (UI) and user experience (UX) design, and engaging interactive data visualization solutions for web applications. The platform will be organized into several key sections including a Landing Page, "Comparative View", and "City Profiles", as well as support sections as needed (methodology, user guide, ...).

4. Scope of work

a. Front-end development and data visualization

- Develop a responsive web design ensuring accessibility across various devices and platforms.
- Develop informative, interactive and intuitive visualizations to present the data and benchmark cities' performance. This will include approximately **80 cities** and **45 indicators**.
- Develop custom visualization modules for each component of the platform, particularly the Comparative View and City Profiles.
- Develop features that allow ranking cities on each indicator, with intuitive visuals and narrative to understand how cities compare to their peers.
- Implement tools that enable users to manipulate, including selecting indicator groups or indicators, applying filters, switching between different chart types, etc.
- Implement features allowing users to extract and download data in various formats (e.g. csv, excel, pdf, image files for charts). The platform should be developed in English, ensuring possibility for translating using Google Translate on browsers and taking into consideration the future incorporation of multilingual features.

Platform components

1. **Landing page**: Create a responsive and visually engaging entry point that explains the platform's purpose and features. The landing page should include dynamic KPIs about the data along with key highlights charts and figures.
2. **Comparative view ("Explore the data")**: Develop interactive visualizations that allow users to compare all cities across the list of indicators. This section should feature the possibility to select/highlight a specific city to benchmark its performance against the rest of the cities, against peers (megacities, same region, similar GDP, similar population) and over time. This section should incorporate multiple features that allow cities to play with the data (e.g. filters, switching chart types, etc.).
3. **City profiles ("Explore your city"):** Implement a scrollable dashboard for individual city profiles that displays detailed data across different thematic areas for ~60 cities. This section notably includes both quantitative data and qualitative information, including links to external websites for some indicators.

b. Back-end development

- Design and develop a robust back-end architecture capable of handling large datasets and supporting data interactions.
- Ensure the platform's back-end can be easily updated by the Metropolis team, and scalability to accommodate additional webpages, cities and datasets in the future (also to be added from scratch by the Metropolis team). Whenever possible, this should also involve API integration with existing online datasets (OECD, World Bank, etc.) for easy update of data.
- Ensure the platform is secure, can handle high traffic volumes, and delivers fast loading times and responsive interactions.
- Develop back-end modules that allow for easy extraction of and analysis of data to develop annual summary reports for each city.

c. UI/UX design

- Create intuitive, user-friendly and innovative interfaces that facilitate easy navigation and interaction with complex datasets.
- Design visual elements that align with the theme of future-proofing cities, and incorporate storytelling elements that guide users through the data and illustrate the implications of different metrics and trends.
- Embed accessibility considerations throughout the design. Ensure the accessibility of the platform and any charts or graphs for people with vision impairments, including colour-blindness.
- Ensure the platform's design allows users or internal teams to share links and embedded content from different sections of the website that will appear attractive and adapted to different channels (social media, newsletters, other websites...)

5. Key deliverables

- **Project inception report**: Outline the project approach, timeline, and resources required.
- **Design mock-ups**: Early designs of the platform's layout, UI elements, and visualization tools.
- **Beta version of the platform**: A functional beta version for limited user testing and feedback.
- **Final platform deployment**: Fully operational platform with complete features and content.

- **Code and licenses:** provide links to all open source code and the licenses used.
- **Training materials and documentation**: Provide a short training to the Metropolis team on how to use the back-end of the platform, as well as a comprehensive guide to facilitate future modification of the platform.

6. Expertise required

- Proven experience in web development, especially in developing data-intensive visualization platforms.
- Strong portfolio in UI/UX design, particularly in projects involving complex information architectures.
- Expertise in modern web development technologies and frameworks such as React, Angular, Vue.js, or similar.
- Experience with data visualization tools and libraries (D3.js, Highchart.js., ...)
- Knowledge of database management will be considered an asset.
- Prior experience in developing platforms for urban data analysis or related fields will be considered an asset.

7. Timeline

The total duration of the project is expected to be 4 months from the date of contract signing, with phased deliveries as follows:

- 1 September 2024: Completion of initial design mock-ups and architecture.
- 30 September 2024: Launch of the beta version of the platform for testing.
- 15 October 2024: Final deployment of the platform and transfer of codes and licenses.
- 30 October 2024: Completion of comprehensive user guides, technical documentation and staff training.

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8. Proposal submission

Proposals should be submitted in **English** by **Wednesday, 7 August, 18:00 CET** including a detailed methodology, team qualifications, and a portfolio of similar projects.

Proposals should include a budget outlining costs related to the development and deployment of the platform. Budget up to **30.000 EUR** (including VAT, if applicable).

Submission of the proposal:

- Proposals must be addressed by e-mail to **policy@metropolis.org** no later than 7 August at 18h CET.
- The subject of the email should include: Metropolis ToR: Observatory Platform

Metropolis reserves the right to withdraw the tender if the minimum number of bids is not met or if no proposals meet the expected requirements.

9. Evaluation criteria

The evaluation of proposals will be based on the following criteria:

Nº	General criteria (3/20)	Maximum grade (total 3)
1	Adhesion of the entity to principles of sustainability, gender equality and positive social impact in its business operations.	1
2	A more economic offer.	2

Nº	Specific criteria (17/20)	Maximum grade (total 17)
1	***Technical expertise:*** • Demonstrated understanding of the project scope and objectives. • Quality and feasibility of the proposed methodology. • Innovative approach to visualising the data and integrating a coherent narrative and story-telling techniques.	8

2	***Experience:*** ● Relevant experience in developing data visualization platforms. ● Proven track record in UI/UX design for complex information architectures. ● Expertise in web development and data visualization libraries. ● Prior experience with urban data analysis is a plus.	7
3	***Team qualifications:*** ● Expertise and experience of the proposed team members. ● Clear roles and responsibilities of each team member. ● Strong portfolio showcasing similar projects.	1.5
4	***Proposal quality:*** ● Clarity, coherence, and completeness of the proposal, including clear breakdown of deliverables and feasible milestones and timelines. ● Professional presentation and organization of the submission.	0.5

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