

## TD6.2. Data-Driven Steps

14:00 - 15:30 Thursday, 17th October, 2024

Location Room B1.04

Theme Smart Walks

Presentation type Topical Discussion

Tamara Bozovic

Explore how data-driven planning and innovative tools can enhance walkability in urban environments. Experts from Portugal, UK, Germany and Belgium will showcase methodologies and technologies that inform effective urban planning and decision-making, while demonstrating how data can drive impactful changes and support the development of walkable communities.

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### 256 Where to improve walkability? An evaluation of the walkability conditions in Lisbon to maximize the impact of public space interventions.

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#### Contribution Summary

Walking has gained importance as a travel mode. Several public authorities are trying to improve walkability conditions of their territories, by improving the pedestrian network and public space overall. However, often the problems to be solved surmount the available budget, and a strategy is required that prioritize certain areas and/or types of interventions. In this paper, we present the methodology the municipality of Lisbon has adopted to improve the walkability conditions of places, which is based on a two-stage process. First, an overall walkability evaluation is performed for the entire territory, by identifying the relevant opportunities and considering the 'gross' pedestrian network of the territory. Without any evaluation of the concrete walking conditions of the network, results are treated as the 'potential walkability' of the territory. Second, by selecting some neighbourhoods based their potential walkability as well as on demographic, land use and traffic/safety issues, an evaluation of the gross pedestrian network is made, and the impact on walkability is evaluated. This complementary evaluation allows to identify key-places that can trigger major changes, and which interventions are more relevant for the neighbourhood, optimizing budget allocation and walkability impacts.

With this two-stage methodology, it becomes possible to define where to start intervening to maximize the impact of public space interventions to promote walkability. With adequate adjustments, this methodology can be applied in any other city that wants to improve walkability by maximizing the impact of the available budget.

### 303 Are we finally able to make walking count?

Martin Wedderburn<sup>1</sup>, Sara Nalaskowska<sup>1</sup>, Olumide Odetunde<sup>2</sup>

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#### Contribution Summary

Making walking count means ensuring that pedestrian planning becomes an integral part of the design and governance of our cities. Transport planners require significant mode shift to stand any chance of meeting their carbon budgets. In many countries, policymakers are increasingly focussing on understanding accessibility and public health rather than traditional mobility metrics. The real estate sector is seeking to manage risks resulting from changing lifestyles and other external pressures and is thus looking to walkability to create resilience.

No data, too granular, too complex. Transport practitioners have long made excuses for excluding walking from most quantitative decision-making tools, albeit while pronouncing grandly that walking sits at the top of the road user hierarchy. Yet there is a sense of change in the air.

The re:PLACE project (regeneration: Planning Active Centres) is developing methods for the analysis, modelling, and forecasting of footfall in regeneration and masterplanning. The tool is set to be launched soon and will offer insight into

pedestrian accessibility and footfall at an unprecedented level of granularity. It is designed to enable predictive forecasting of the impact of changes in pedestrian movement networks and the density and mix of land use.

This tool represents a step change in the integration of land use and transport in UK planning and design practice. It will provide transport practitioners with evidence-based insights on existing walkability metrics and footfall patterns, and the ability to test the impact of new development and interventions. Consistent and clear accessibility and footfall metrics will also facilitate effective community and stakeholder engagement on local planning issues.

### 385 Towards a Walkable 15-minute City - Integrating Walkability in Accessibility Analyses

Kirsten von Elverfeldt<sup>1</sup>, Christina Ludwig<sup>2</sup>, Moritz Schott<sup>1</sup>, Alexander Zipf<sup>2</sup>

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#### Contribution Summary

Current routing services and accessibility analyses, which form the basis for the popular 15-minute city concept [1], assume that all streets are equally walkable for everyone. Thus, they consider only travel time, neglecting the varying experiences and individual needs of different population groups, such as older adults or children. Planners, however, require detailed information on how the walkability of the urban path network impacts the active mobility of all citizens to take suitable measures ensuring accessibility to essential services for everyone.

To address this gap, we present initial steps towards integrating a walkability index for urban streets with a routing engine. This integration will enable the generation of walkable route suggestions as opposed to merely the shortest or fastest routes. Consequently, the walkability of streets can be considered in accessibility analyses enabling the computation of a “walkable 15-minute city“.

The walkability index will eventually be calculated using various indicators suitably describing the existing infrastructure in terms of a) user friendliness, b) attractiveness, and c) safety. These indicators include the availability of pedestrian infrastructure, liveliness, and the share of deadly accidents. It relies on open data sets, such as OpenStreetMap (OSM) [2], to enable its application across cities worldwide. The walkability index is then integrated into openrouteservice [3], an open-source routing engine based on OSM data. The cost function of the routing algorithm is adapted to factor in walkability in addition to walking duration. This adjustment means that less walkable streets are avoided at the cost of increasing route duration. Based on this routing service, accessibility to essential services, such as supermarkets or doctors, can be calculated under consideration of the walkability of roads.

In this talk, we will present more details about the proposed approach which is currently under development and discuss challenges encountered during its application across cities worldwide. This will include, for example, the variability in data quality within OSM due to spatially varying mapping practices and activity. Additionally, we will compare the results from the adapted accessibility analysis which considers walkability to the classical 15-minute city analysis which is only based on walking duration.

Future research will evaluate whether the adapted accessibility analysis is more closely aligned with the actual experiences of different population groups. In addition, the walkability index will be further developed and eventually shared on an online platform accessible to municipalities and planners. This platform will allow them to assess the current state of walkability in a given area and run simulations of possible future states, e.g., after implementing various measures.

[1] Moreno, C.; Allam, Z.; Chabaud, D.; Gall, C.; Pratlong, F. Introducing the “15-Minute City”: Sustainability, Resilience and Place Identity in Future Post-Pandemic Cities. *Smart Cities* **2021**, *4*, 93-111. <https://doi.org/10.3390/smartcities4010006>

[2] OpenStreetMap. OpenStreetMap Contributors. Accessed March 20, 2024. <https://www.openstreetmap.org>

[3] Openrouteservice. HeiGIT gGmbH. Accessed March 20, 2024. <https://openrouteservice.org/>

### 424 Walkability as a Vector for Inclusion, Sustainability, and Governance: The Case of Bejaia's City Center in Algeria

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#### Contribution Summary

Walkability, fundamental to the urban space experience, lies at the heart of contemporary urbanization challenges, especially in developing cities. While walking serves as a crucial form of mobility, social integration, and beneficial physical activity, it is often sidelined in favor of individual transport modes. These, albeit convenient, lead to multiple issues: congestion, excessive energy and space consumption, air pollution, noise, accident risks, and the exacerbation of social disparities. This research aims to explore how a more thoughtful urbanization approach can rehabilitate walking as a preferred mode of transportation, enhancing both urban life quality and environmental sustainability.

The city of Bejaia in Algeria, known for its dense and active hyper-center, provides a relevant case study for addressing walkability issues. This research seeks to deepen our understanding of urban walkability, focusing on various aspects: the significance of walking as a sustainable mode of transport, the built environment's influence on walking facilitation, and the review of previous studies and methodologies used to assess walkability in urban contexts worldwide. By examining these factors within Bejaia's specific context, our study aims to uncover relevant insights for enhancing pedestrian mobility and, by extension, urban life quality.

To examine walkability in Bejaia's hyper-center, our study employs a diverse methodological approach, outlined within a robust theoretical framework. This approach includes repeated direct observations at different times and locations, cartographic and statistical analysis, and semi-structured interviews with key urban stakeholders. The innovative use of space syntax, developed by UCL, allowed us to examine street connectivity. Moreover, engaging with the local community through surveys and commented walks emphasizes the participatory dimension of our research. The walkability audit, based on an indicator rating system, identifies discrepancies between existing infrastructure, lived experiences, and pedestrian expectations. The study's findings lead to strategic recommendations aimed at significantly improving Bejaia's walkability, thereby encouraging pedestrian mobility in its hyper-center.