

Pedestrian accessibility and attractiveness indicators for walkability assessment

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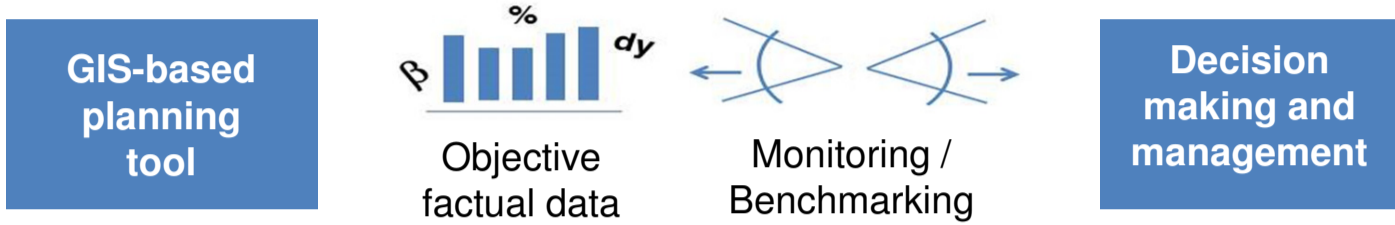
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Aim

From the many benefits to the individual and community health associated with walking, and its role in promoting livable and sustainable cities, critical questions are posed to researchers and urban planners:

How and to what extent can the built environment encourage people to walk, and how to measure the intensity of that link?

The aim of this work was to find and experiment suitable pedestrian accessibility and attractiveness indicators for walkability assessment, in order to support more objective and comprehensive planning strategies.



Multiscale assessment

Different environmental factors affect walking behaviour at distinct scales.

Various scales are addressed in the model, which each scale providing a different layer of understanding useful for planning practitioners. For instance:

- **Global scale** (at city level): characterising whole urban areas, masterplanning, comparing urban settings. Ex.: *street density, housing density.*
- **Macro scale** (at neighbourhood level): classifying existing neighbourhoods or proposed developments; identification of priority intervention areas; benchmarking/monitoring. Quantitative indicators (census data, field observation) were used. Ex.: *land use mix, public transportation coverage.*
- **Meso scale** (as a walkable buffer from a given point): addressing the pedestrian accessibility of public services (schools, health centers, sport and recreation), real-estate prospection and transport planning, considering the trip time and effort. Ex.: *slope, waiting time at crossings.*
- **Micro scale** (at street level): identifying intervention needs, providing a reference database for monitoring/benchmarking; rating intervention alternatives. Qualitative indicators (street auditing) were used. Ex.: *maintenance level, obstacles.*
- **Nano scale** (at intersection level): concerns the nodes of the pedestrian network, addressing crossing interactions. Ex.: *crossing signage, kerb type.*

What to measure

Walkability concept

Walkability as the extent to which the environment is pedestrian friendly, according to its major qualities.

Built Environment qualities: 5 C layout



+ **Coexistence** + **Commitment** = **7 C layout**

- Pedestrian safety from traffic
- Exposure to gas emissions and noise
- Public space depletion
- Conflicts
- Policy level pedestrian promotion
- Community engagement

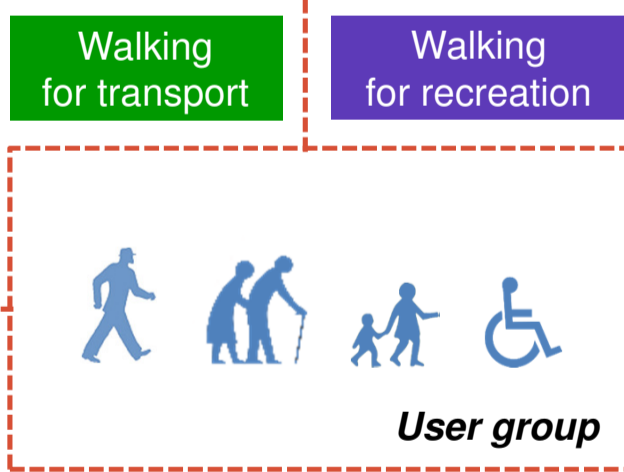
The 5 C layout is proposed to be extended to two other qualities: **coexistence** and **commitment**.

Coexistence: The extent to which the pedestrian and other transport modes can exist at the same time and place with order and peace.

Commitment: The extent to which there exists engagement, liability and responsibility towards pedestrian environment promotion and maintenance

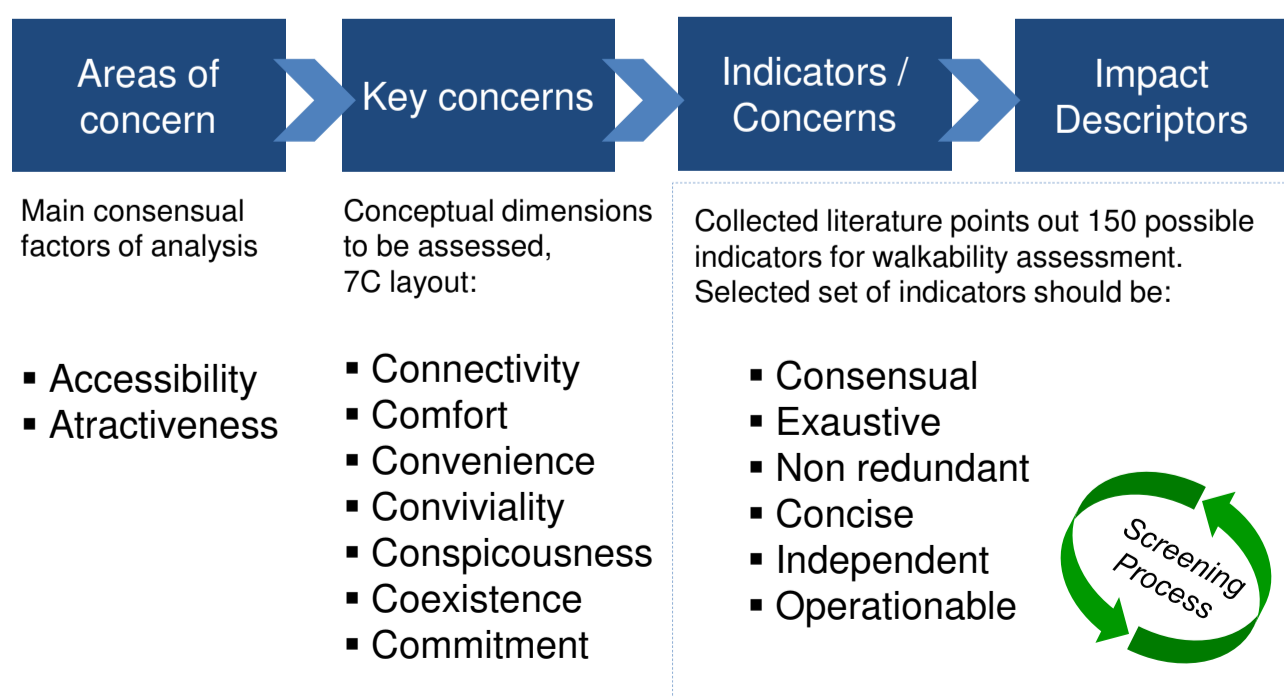
Assessment framework

Walking purpose

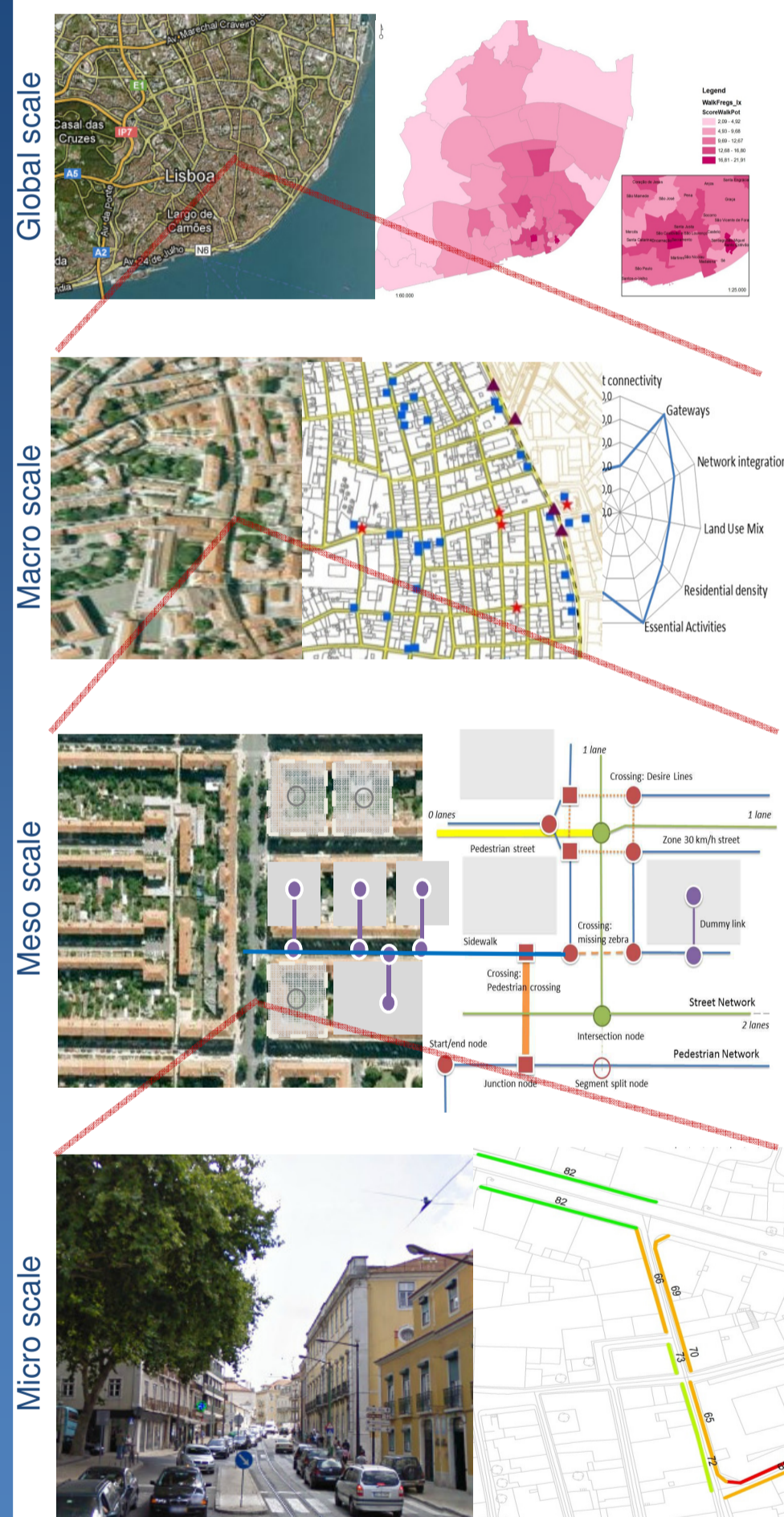


The walkability assessment model can be suited for particular concerns regarding the walking purpose, the analysis scale and the user group. This allows a multi dimensional reading of the pedestrian environment

Model structure



Integrated walkability assessment



Did the city walkability globally improve over the last years?

Where are the most segregated neighbourhoods? Why?

What should be the lowest score acceptable in 10 years time?

Are all city areas improving their rating?

What are the least walkable areas? Where should we act?

Which site will be more suitable for the new day care?

How many people actually live at a 10 minute walk from the station?

How good are the pedestrian routes to the school?

Is there any segment along this path that does not comply with our walkability standards?

Where are the most critical maintenance situations?

- MCDA provides robust indicator weighting and calibration features
- Indicators can be measured by alternative descriptors according to local data availability
- Descriptors can be of quantitative or qualitative nature, as long as objective
- Threshold calibration may be done by policy makers, experts and public participation
- GIS mapping allows good readable outputs for community and policy makers communication
- The proposed framework delivers a comprehensive tool for planners and policy makers to observe, understand and act

my card

your card here