Transnational Network of Integrated Planning Labs: co-creating knowledge on forward-looking transdisciplinary planning perspectives addressing climate change and urban life in the post-pandemic city.

InPlaLabs

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Project: Erasmus+ 2023-1-EL01-KA220-HED-000160477
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Project number: 2023-1-EL01-KA220-HED-000160477 Erasmus+

Potentials of Spatial Analysis

Analyzing, Visualizing and Interpreting Results

10 June 2025

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Potentials of Spatial Analysis

Analyzing, Visualizing and Interpreting Results

Introduction

- Analysis ≠ Insight
- Goal: understanding spatial impact on human behavior
- Focus: visual representation & interpretation

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Representations as Interpretive Tools

- Heatmap/intensity based representations
- Different color bands suggest different things according to different kinds of analysis
- For our purposes the most important aspect is how different streets relate to each other, rather than the absolute value determined by the software

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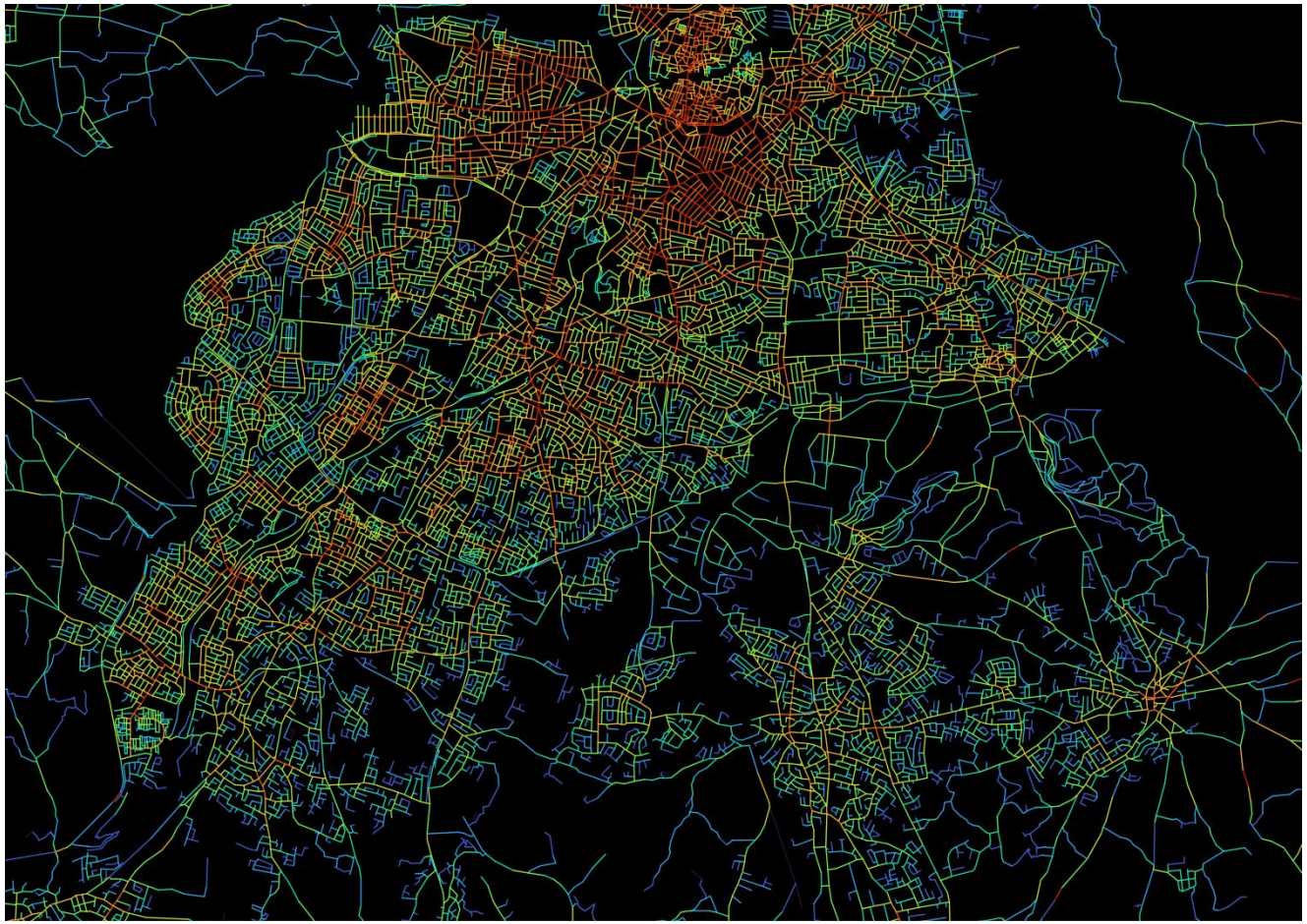
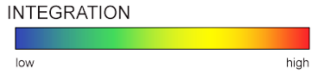


Angular integration is a measure used in spatial analysis (especially in Space Syntax) to show how easily a street or path can be reached from other places in the network, based on the number of direction changes (angles) needed to get there.

It doesn't measure distance in meters—instead, it measures how many turns you need to make, and how sharp those turns are. A street with high angular integration is easy to reach with few or straight turns from many other streets. Streets with low angular integration require many sharp turns to get to, making them less visible or harder to access. Streets with high angular integration often attract more pedestrian traffic and activity.

Left: Angular Integration 500m radius



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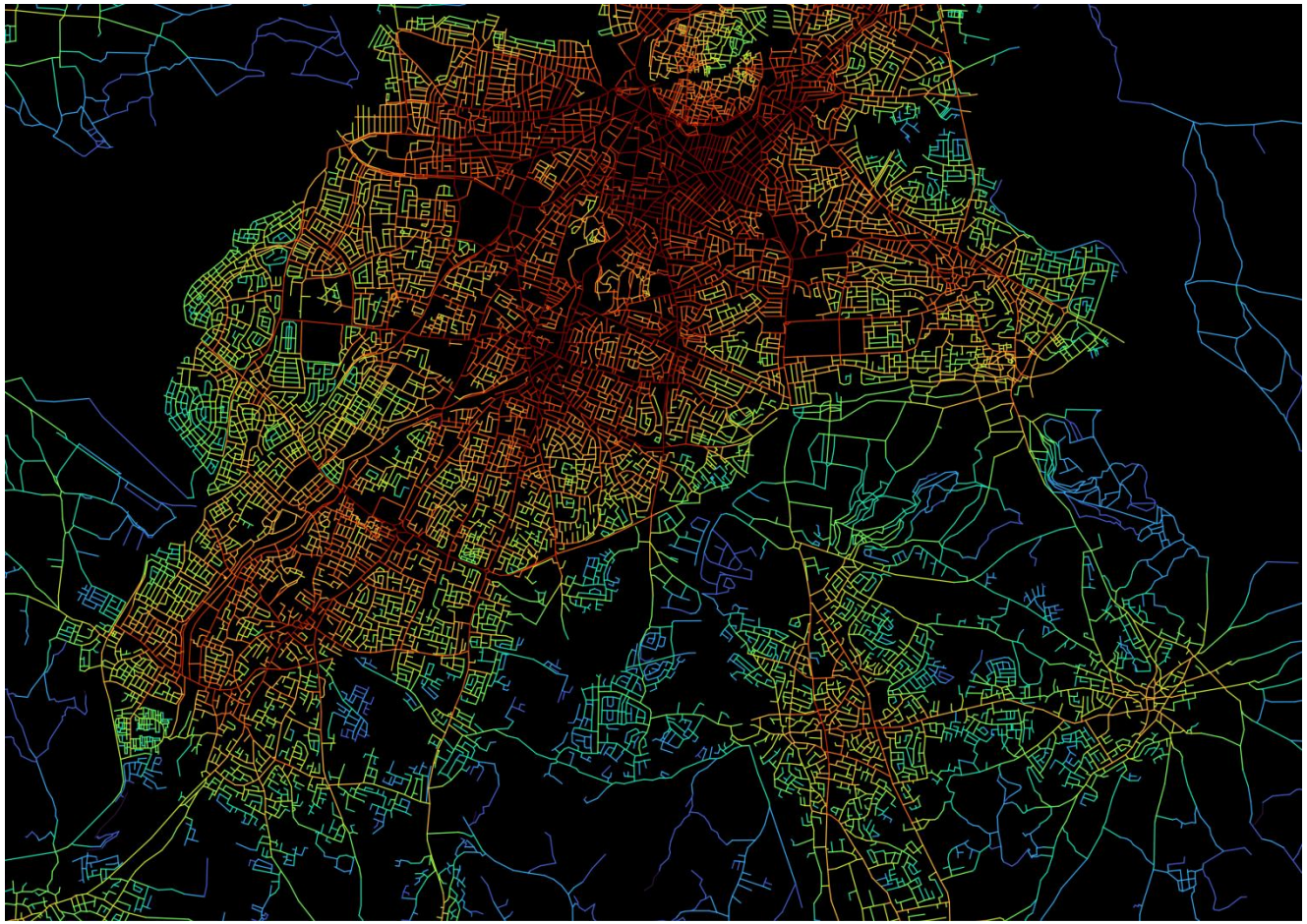
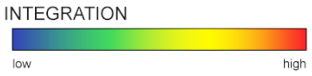


Notice how the centrality ‘hotspots’ shift. A street that’s central in the 500m map might be much less so at 2km—because it’s only well-connected locally, not city-wide.

Which streets become more prominent at 2km? Likely the ones with long straight lines and few turns. These are important for cross-city navigation, even if they’re less used locally.

Left: Angular Integration 2000m radius



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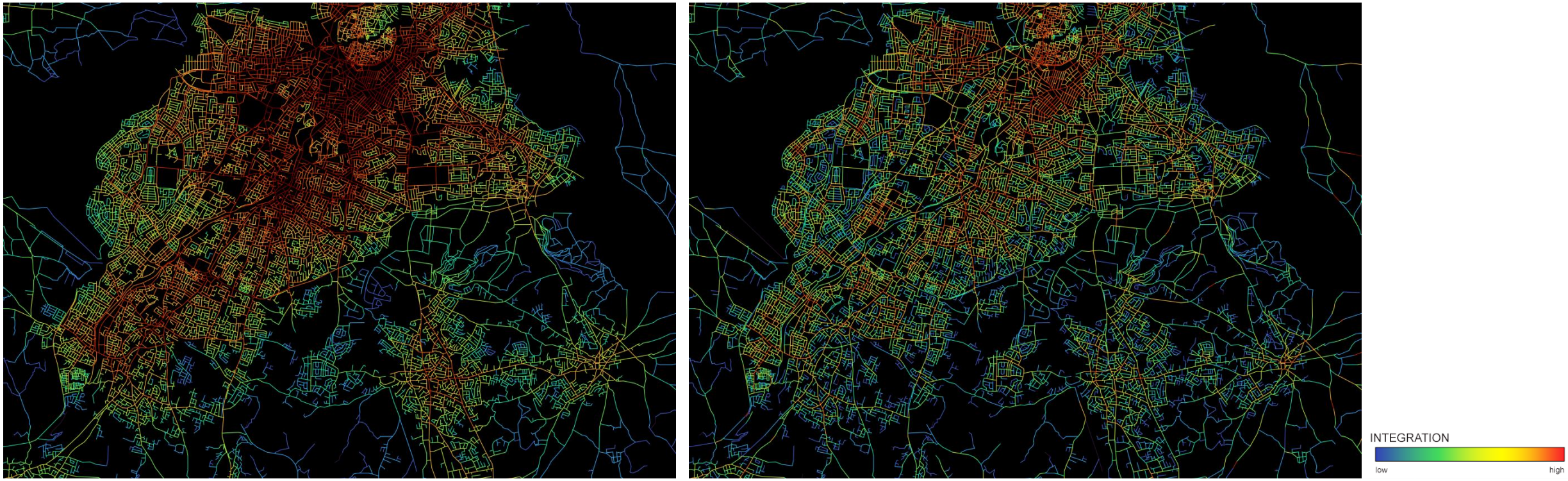

Left: Angular integration 2km radius; Right: Angular integration 500m radius

If we were designing a local plaza, which map would be more useful? What if we were planning a new bus station? Each radius speaks to a different **type of user**. Always ask: who are we designing for? A 6-year-old walking to school—or someone biking from one district to another?

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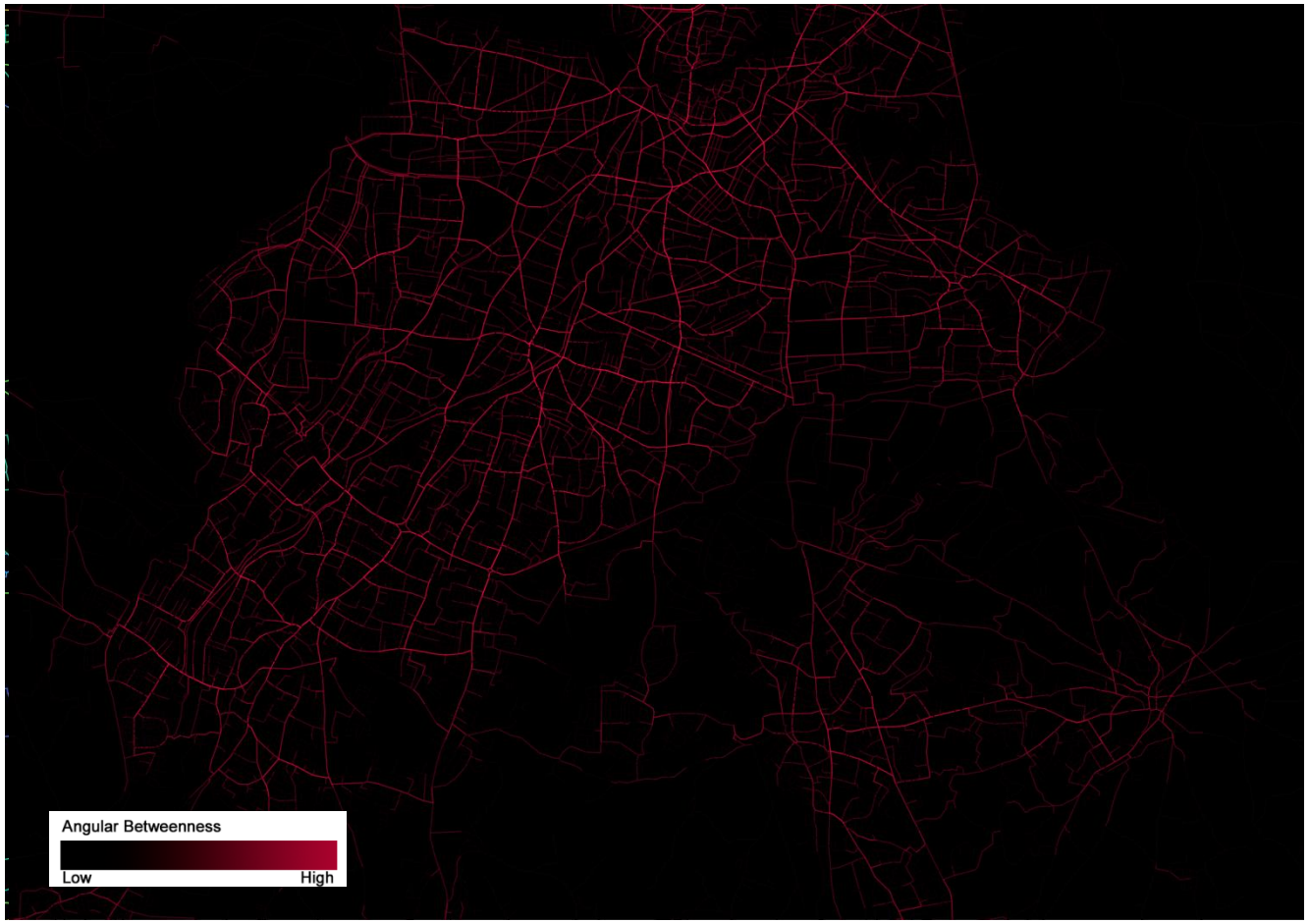

Angular Betweenness is a measure of how often a street or path lies on the straightest (least angular) routes between all other places in a network. It shows which streets are most likely to be used as through-routes.

"How likely is it that people will pass through here on the way somewhere else?"

Left: Angular Betweenness 2000m radius

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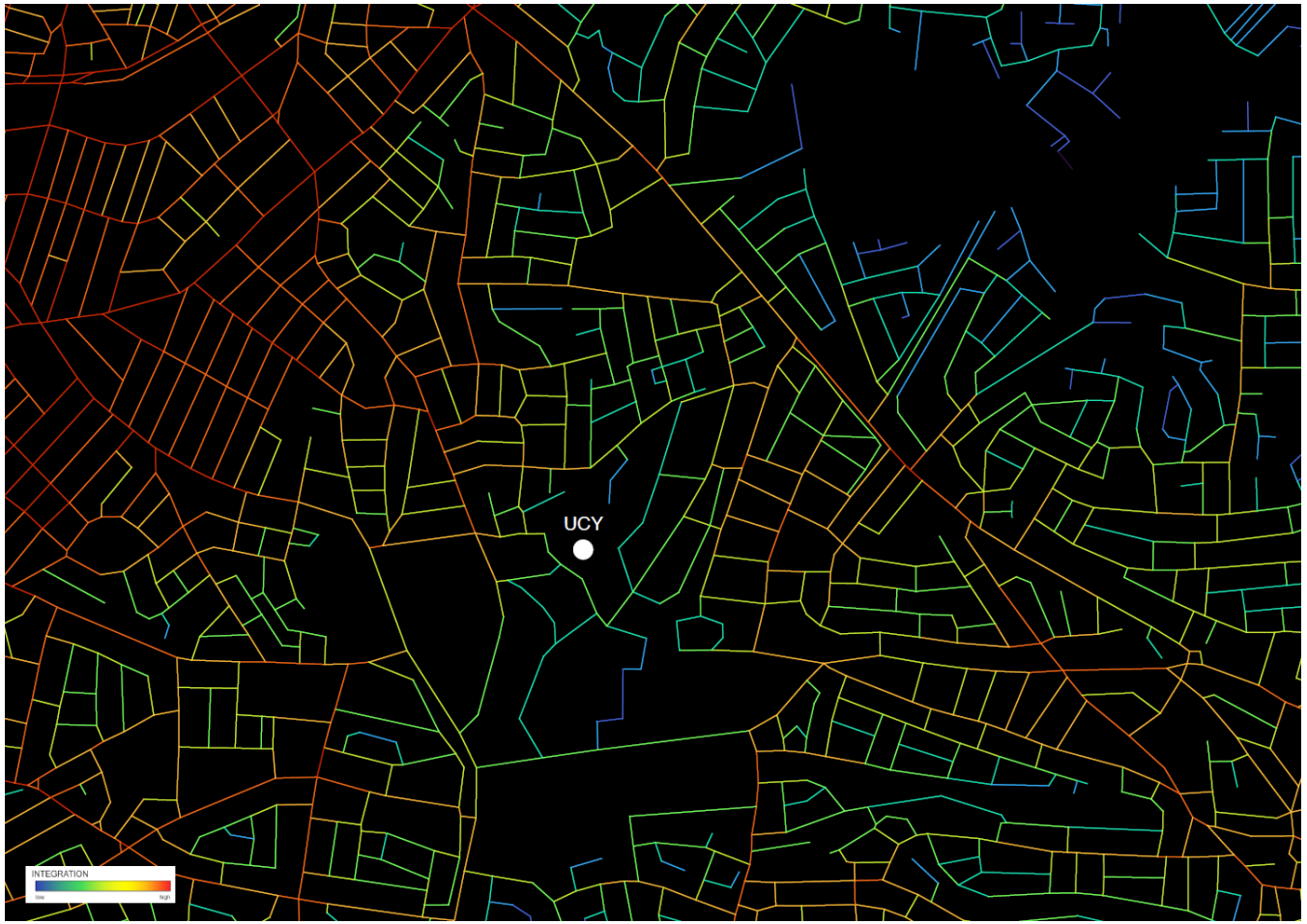

What can we understand about the walkability of the campus from this map?

What positives and negatives can you think about the campus' integration in the street network?

Left: Angular Integration 500m radius

INTEGRATION

low high

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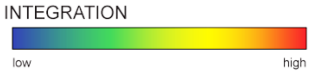
What can we understand about the walkability of the campus from this map?

What positives and negatives can you think about the campus' integration in the street network?

Left: Angular Integration 500m radius



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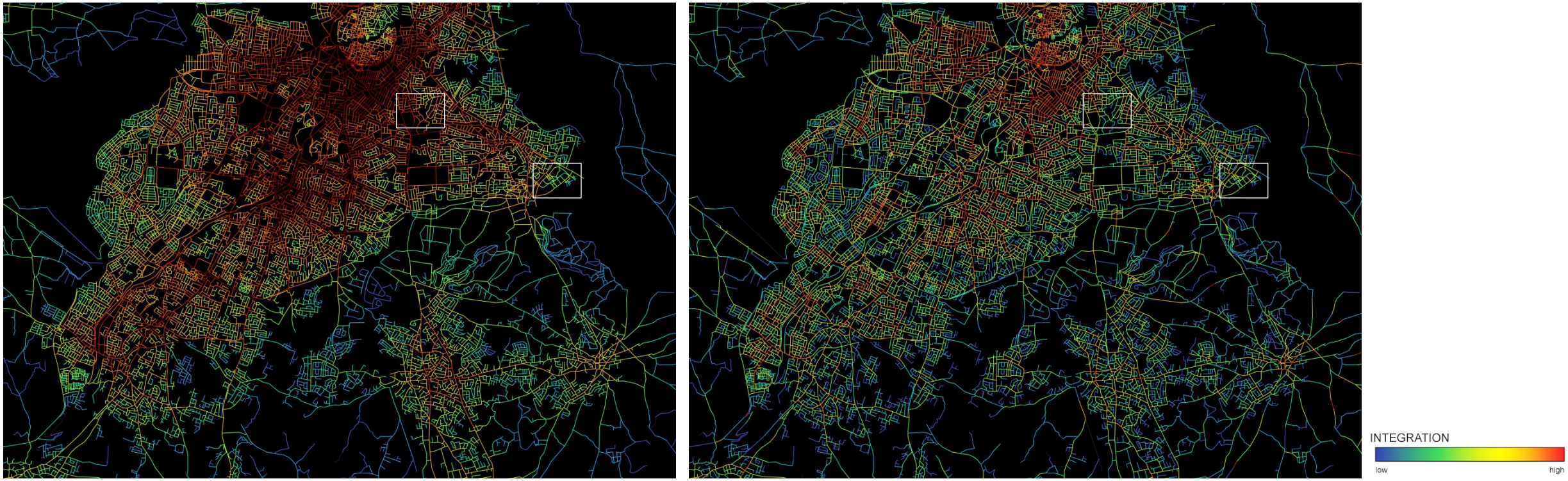

Left: Angular integration 2km radius; Right: Angular integration 500m radius

Different scales of analysis & visualisation tell us different things.

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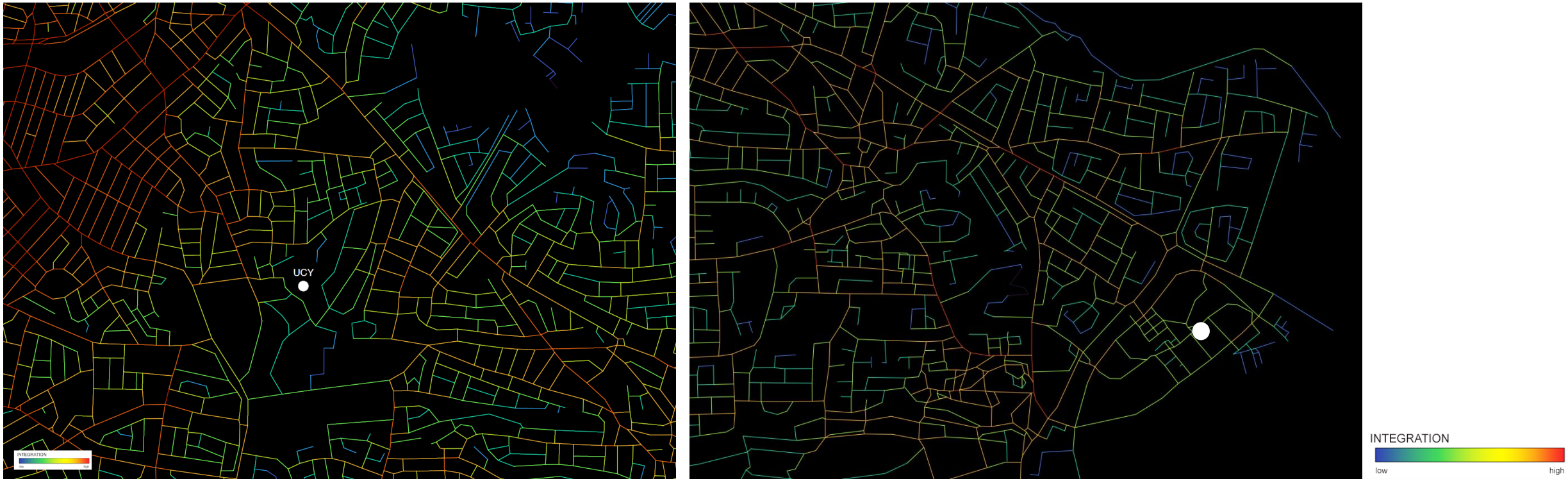

Left: Angular integration Kallipoleos campus 500m radius; Right: Angular integration Aglantzia campus 500m radius

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Key Takeaways: Interpreting Spatial Analysis

- Analysis type matters.
- Scale of analysis matters: Local integration (e.g., 500m) reveals neighborhood accessibility; global integration (e.g., 2km) reveals city-wide connectivity.
- Scale of visualisation matters.
- Visualization ≠ automatic meaning: interpretation is key.
- Compare, contrast, and ask: What does this tell us about movement, perception, and occupation?

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Looking ahead: applications of spatial analysis

- Use spatial analysis as a starting point, not the final answer
- Ask: does the spatial structure support the intended use of space?
- Pair it with on-site observation and community input

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