The Geography of the 15-minute City in Urban Regions

11.06.2026

Ljubljana

Geographical Chat

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Structure of the presentation

1. The concept of the 15-minute City (15mC)
2. The project TuneTo15
3. Measuring the 15mC: the TuneTo15-Index
4. Spatial pattern of the 15mC in urban regions
5. Differences and disparities in 15mC qualities
6. Car dependency in urban regions
7. Conclusions

1
The concept of the 15-minute City (15mC)

The 15-minute City (Carlos Moreno, 2016)

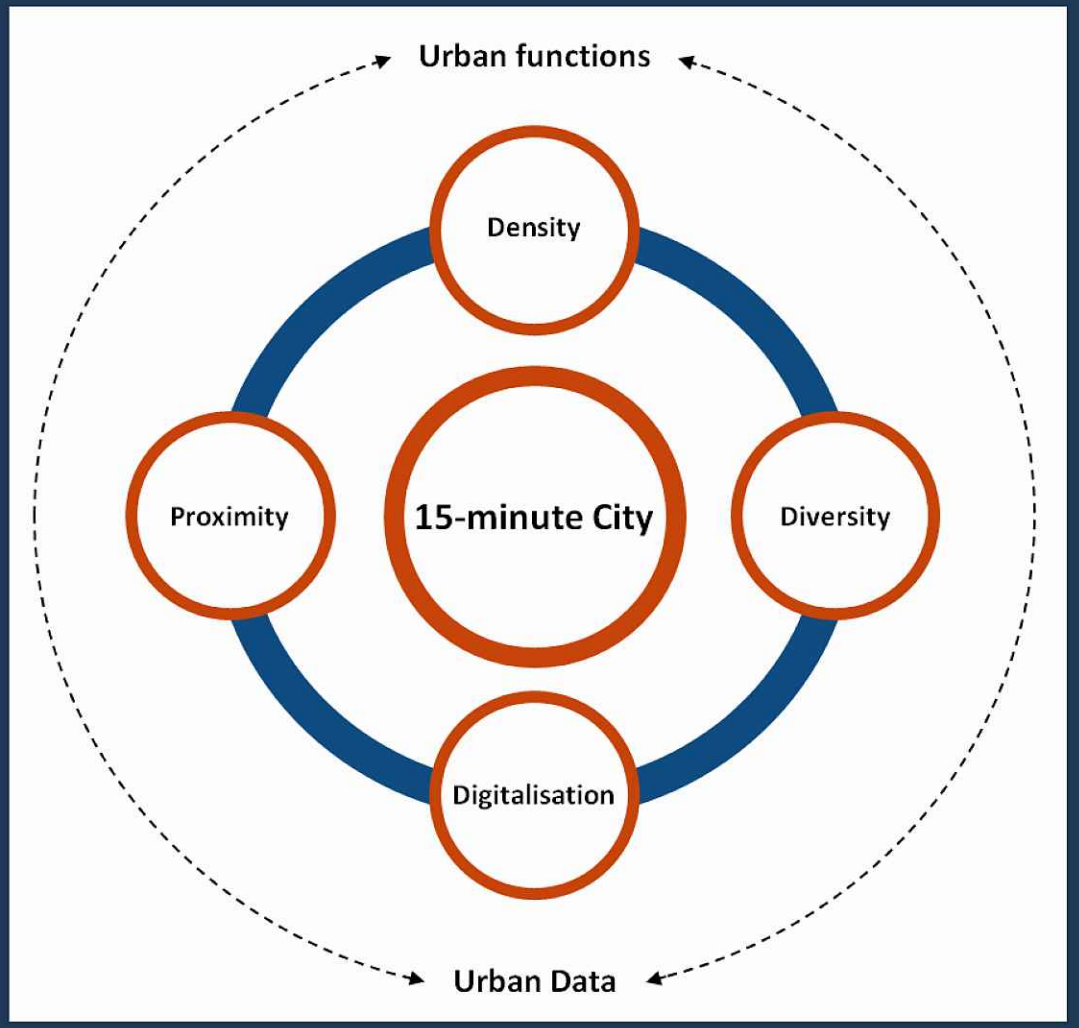
The urban structural goal pursued with the concept of the 15-minute city is to **spatially organise** as many **functions of daily life** as possible **so that they can be reached on foot or by bicycle within** a travel time of up to **15 minutes**.

Essential urban social functions are:

- Living/housing
- Working
- Commerce
- Health care
- Education
- Entertainment

The 15-minute City

Requirements that should be matched by the urban realm



Moreno et al. (2021)

The 15-minute City

15mC concept **based on the philosophy of "chrono-urbanism"**, a coupling of spatial and temporal dimensions.

Sets a **normative orientation framework**, particularly

-> the target of a maximum travel time of 15 minutes

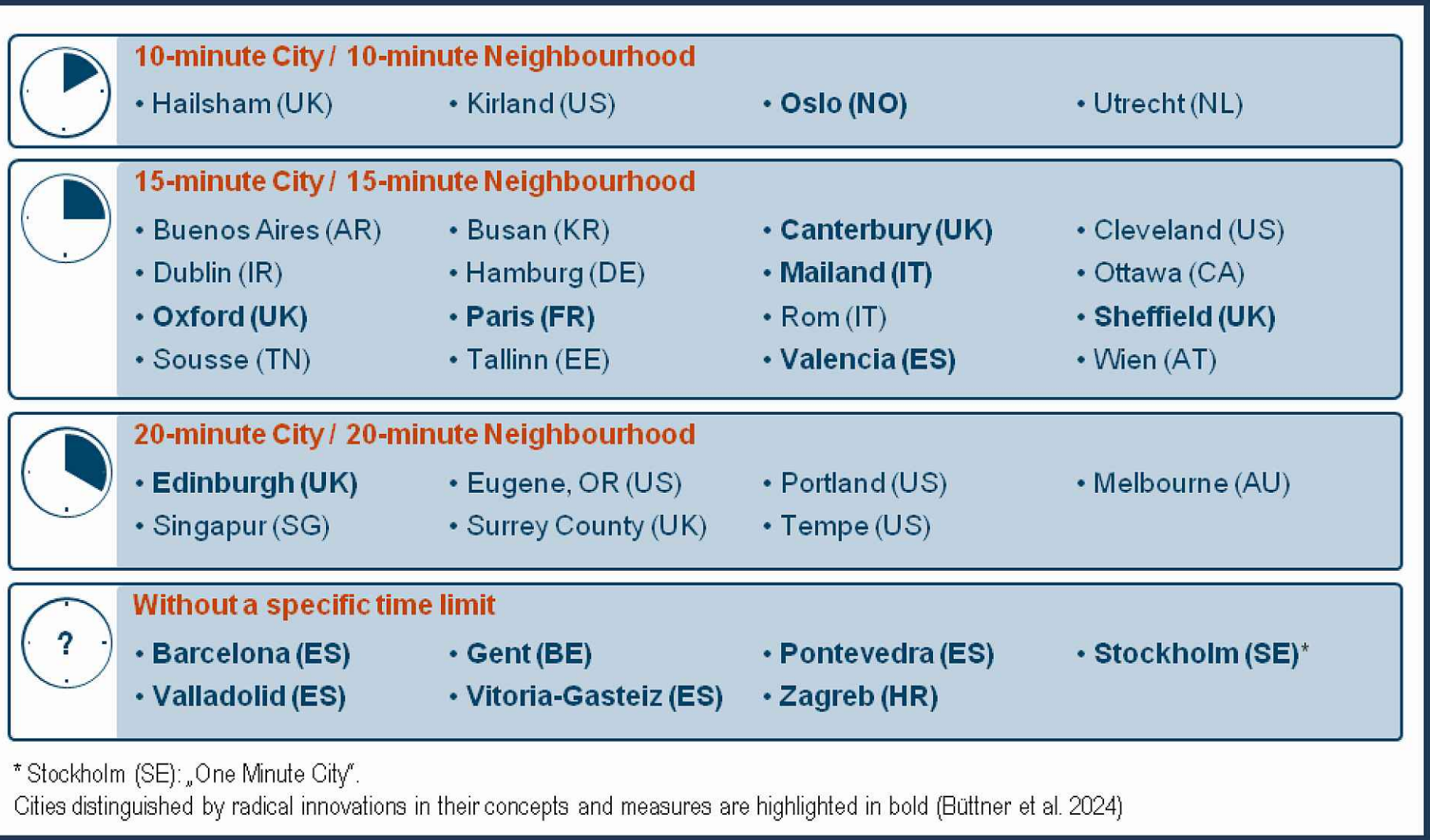
-> the focus on walking and biking as active transport modes

The **15mC concept challenges**

-> car dependancy of current spatial structures

-> long commuting by public transport

Selection of cities with concepts for 10/15/20mC



10-minute City / 10-minute Neighbourhood

- Hailsham (UK)
- Kirland (US)
- **Oslo (NO)**
- Utrecht (NL)

15-minute City / 15-minute Neighbourhood

- Buenos Aires (AR)
- Busan (KR)
- **Canterbury (UK)**
- Cleveland (US)
- Dublin (IR)
- Hamburg (DE)
- **Mailand (IT)**
- Ottawa (CA)
- **Oxford (UK)**
- **Paris (FR)**
- Rom (IT)
- **Sheffield (UK)**
- Sousse (TN)
- Tallinn (EE)
- **Valencia (ES)**
- Wien (AT)

20-minute City / 20-minute Neighbourhood

- **Edinburgh (UK)**
- Eugene, OR (US)
- Portland (US)
- Melbourne (AU)
- Singapur (SG)
- Surrey County (UK)
- Tempe (US)

Without a specific time limit

- **Barcelona (ES)**
- **Gent (BE)**
- **Pontevedra (ES)**
- **Stockholm (SE)***
- **Valladolid (ES)**
- **Vitoria-Gasteiz (ES)**
- **Zagreb (HR)**

* Stockholm (SE): „One Minute City".
Cities distinguished by radical innovations in their concepts and measures are highlighted in bold (Büttner et al. 2024)

Schwarze et al. (2025)

Criticism of the 15mC

From unfounded accusations to substantial claims

Conspiracy theory

Social engineering and climate confinement threats

Deep political desilusion

Anti-urban and conservative movement

Distrust of centralised planning and of preferential treatment given to urban life

Fear of surveiliance and technocratic solutions

Individual and group fears

Loss of automobile as loss of freedom, lifestyle and rights

Rejection of state interference with personal decisions

Science-driven criticism

Risk of gentrification and social exclusion

Fight for social justice, greater civic participation, and equity-based policies

Marchet et al. (2024)

Scientific based criticism of the 15mC

- Claims to be new and **ignores history of urban planning** models such as „Compact City“ or „City of Short Distances“
- Generates **gentrification**, **social exclusion** and further segregation of urban population
- **Unrealistic assumption for decentralisation** of services and amenities: efficiency of central vs. decentral solutions
- Factual limitation of the 15mC to central areas of cities **ignores spatial-structural realities** of urban regions
- Focus on **walking and cycling as only transport modes** in contrast to current public transport based urban models such as settlement axes or transit-oriented development

2
The project TuneTo15

TuneTo15

Funded by the **Driving Urban Transition (DUT) Partnership** within the 15-minute City (15mC) Transition Pathway.

Co-funded by three **National Funding Agencies** from Austria, Germany, and Slovenia

TuneTo15 project

Adapting the 15-minute city concept to functional urban areas in the context of socio-spatial disparities and transition conflicts

The **objectives of TuneTo15** are:

(1) to **identify the limits and potentials** of the 15mC concept in diverse spatial settings, especially beyond the urban core

(2) to **understand the impacts** of the concept **on different social groups** and identify conflicts between them

(3) to **engage municipal stakeholders** in co-creative processes to develop implementation and conflict resolution guidelines

„Measurement“ of the 15mC

- What are the **spatio-structural pre-conditions** for the 15mC in urban regions?
  - ➢the (mis)match between residential location and access to daily amenities
- What are the **spatial differences** of these pre-conditions in urban regions?
  - ➢the situation of different areas in urban regions
- What are the **social differences** (age, socio-economic status etc.) of these pre-conditions in urban regions?
  - ➢socio-spatial disparities in urban regions

3
Measuring the 15mC: the TuneTo15-Index

Features of methodology

- Reflection of broad daily needs
  - via wide integration of different amenity types, services etc.
- Representation of population by four age groups
  - kids, younger adults, older adults, seniors
  - each with different needs and mobility abilities
- Detailed representation of space
  - exact location of amenities and services
  - population in 100 m raster cells
- Full representation of transport networks
  - walking network including paths, stairs, gradients
  - cycling network including cycle paths, gradients
  - full road network for cars including speed limits (for car dependency)
  - full public transport network with timetable (for car dependancy)
- Accessibility model
  - travel times between places of residence and amenity locations

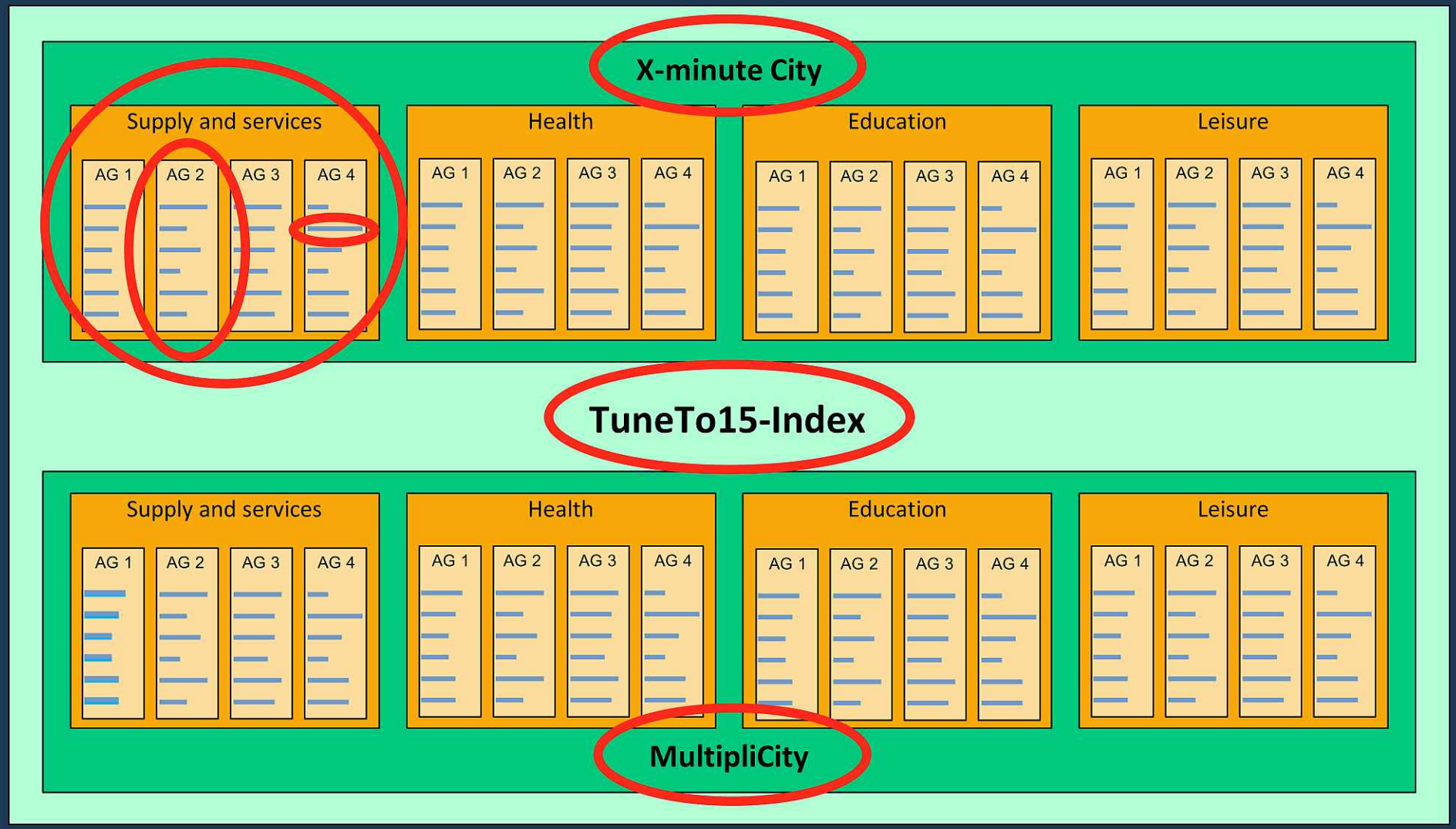
Dimensions, categories and amenities

Dimension	Category	Amenity/service type	Mode	Berlin	Hanover	Ljubljana	Vienna
Supply and Services	Food supply	Supermarkets/Discounters/Local food shops	Walking				
		Other grocery stores	Walking				
	Retail/commercial service	Retail	Walking				
		Commercial services	Walking				
		Bank branches	Walking				
		Cash machines	Walking				
		Post offices	Walking				
		Parcel lockers	Walking				
	Connectivity/Mobility	Public transport stops	Walking				
		Bicycle shop/Bicycle repair shops	Biking				
Health	Health care	Doctors surgeries	Walking				
		Paediatrists	Walking				
		Gynecologists	Biking				
		Dental practices	Walking				
		General specialist practices	Biking				
		Pharmacies	Walking				
	Care	Nursing homes/Day care facilities	Walking				
Education	Early childhood education	Kindergartens/Daycare centres	Walking				
	Schools	Elementary schools	Walking				
		Secondary schools	Biking				
	Open education	Public libraries	Biking				
		Adult education centers	Biking				
		Music schools	Biking				
Leisure	Green and open space	Urban green and open space	Walking				
	Entertainment/culture	Cinemas/Theatres/Museums/Music clubs etc.	Biking				
	Play and sports facilities	Playgrounds	Walking				
		Sports facilities	Walking				
		Swimming facililties	Biking				
	Gastronomy	Gastronomy	Walking				
	Community	Churches/Mosques/Synagogues	Walking				
		Firefighters	Walking				
		Senior meeting places	Walking				
		Youth leisure centres	Biking				

TuneTo15-Index as combination of two sub-indices

- **X-minute City**
  - focus on short travel times
  - for each amenity type: travel time to the “nearest” location
  - weighted (across amenity types and age groups) average time
  - expressed e.g. as 5-minute City, 15-minute City or 25-minute City
- **MultipliCity**
  - focus on variety and choice options within 15 minutes travel time
  - for each amenity type: number of locations in 15 min. travel time
  - transferred to an index (0-100) via weighting (as above)

TuneTo15-Index



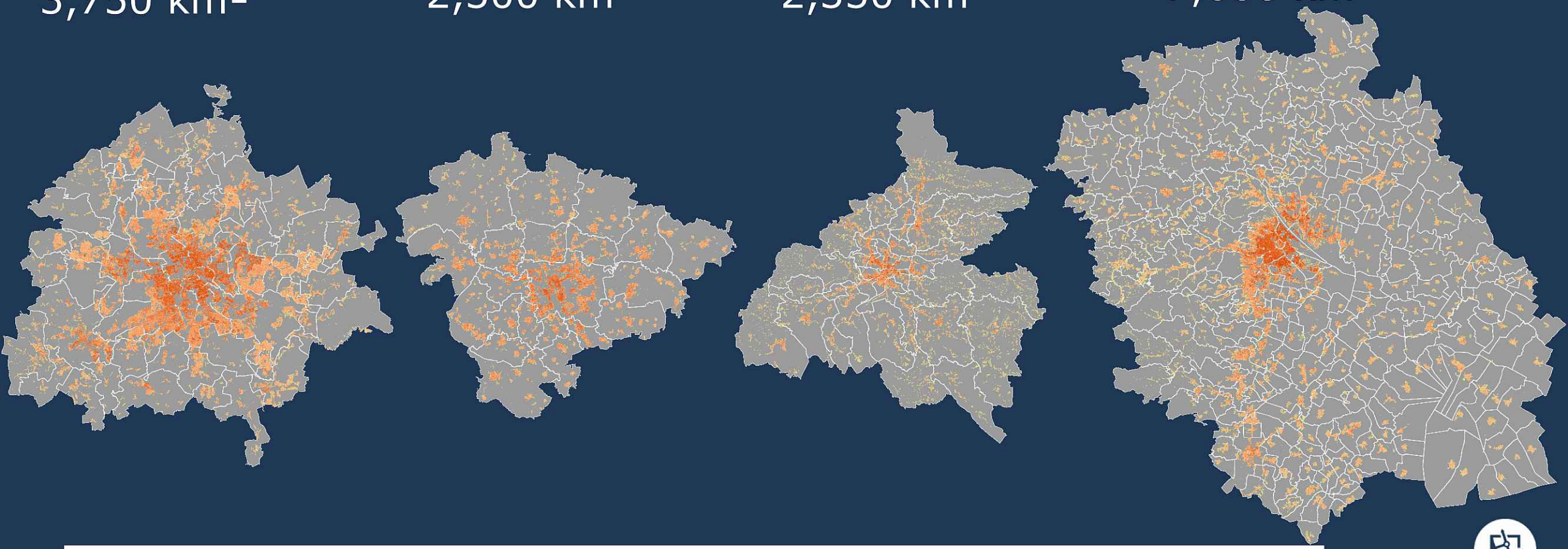
Case study regions

Berlin
4,615,000 pers.
3,750 km²

Hanover
1,114,000 pers.
2,300 km²

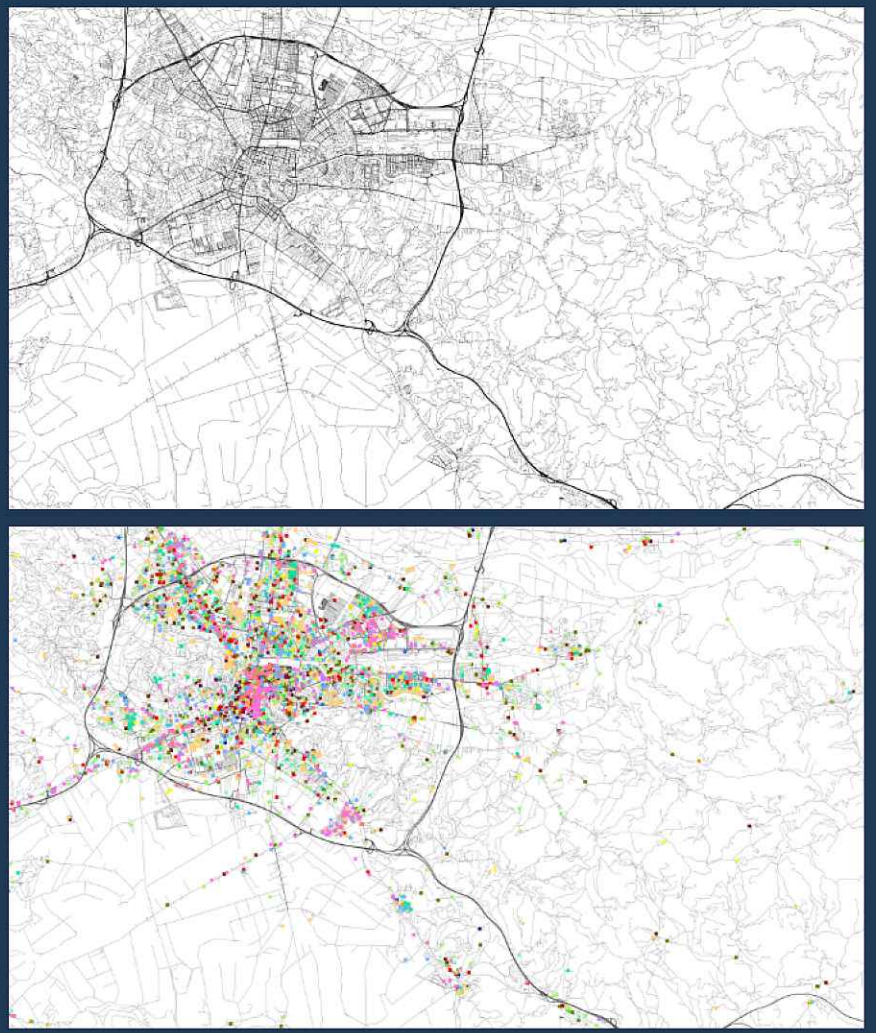
Ljubljana
568,000 pers.
2,330 km²

Vienna
3,080,000 pers.
7,600 km²

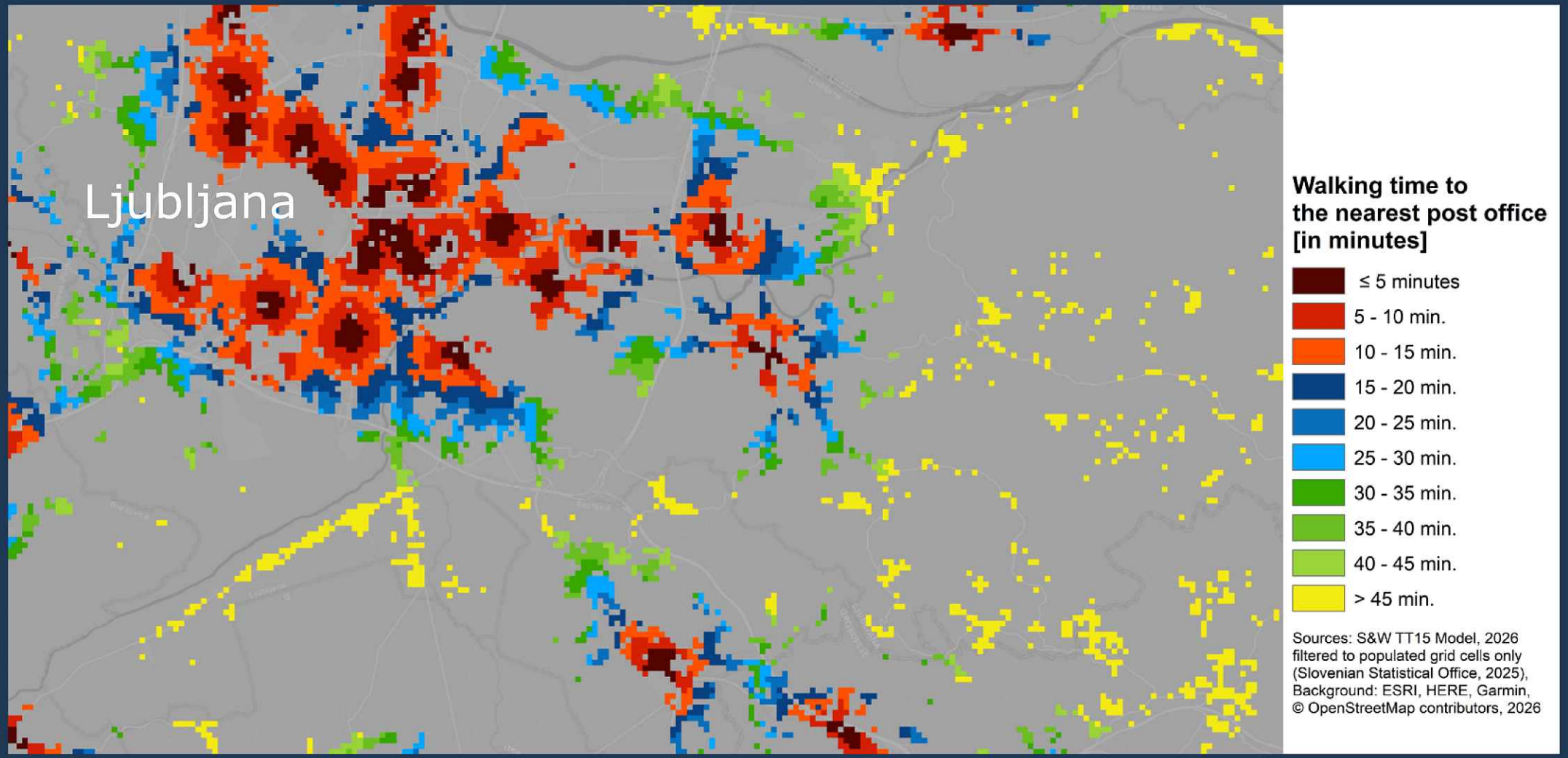


Implementation: networks and locations

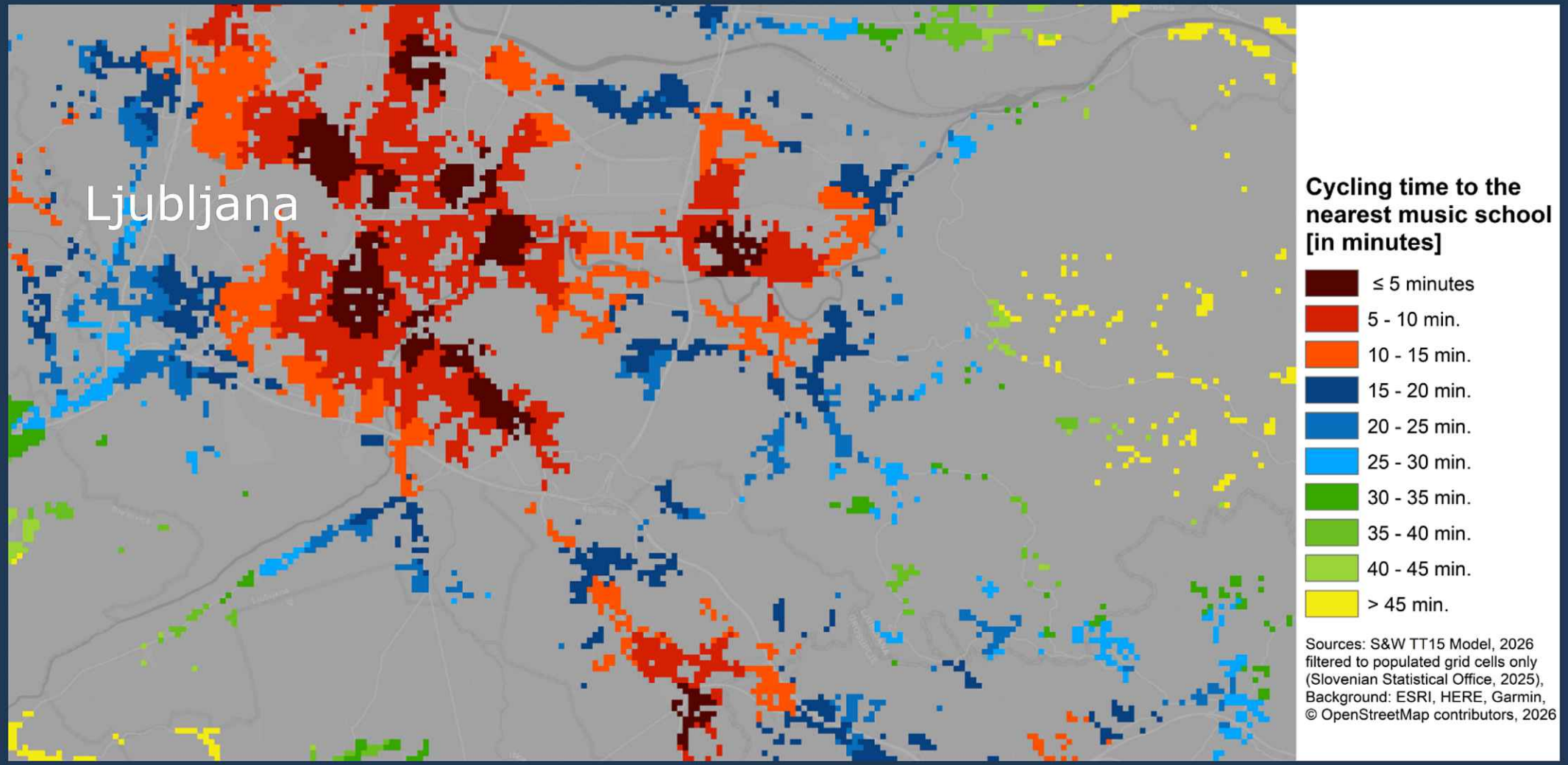
- **OpenStreetMap network** (OSM)
- **Multi-data-source approach** (combination of methods: spatial overlay, distance-based matching, substantive validation, and additional consistency checks)
- In each case study region, **local partners** supported data collection and processing



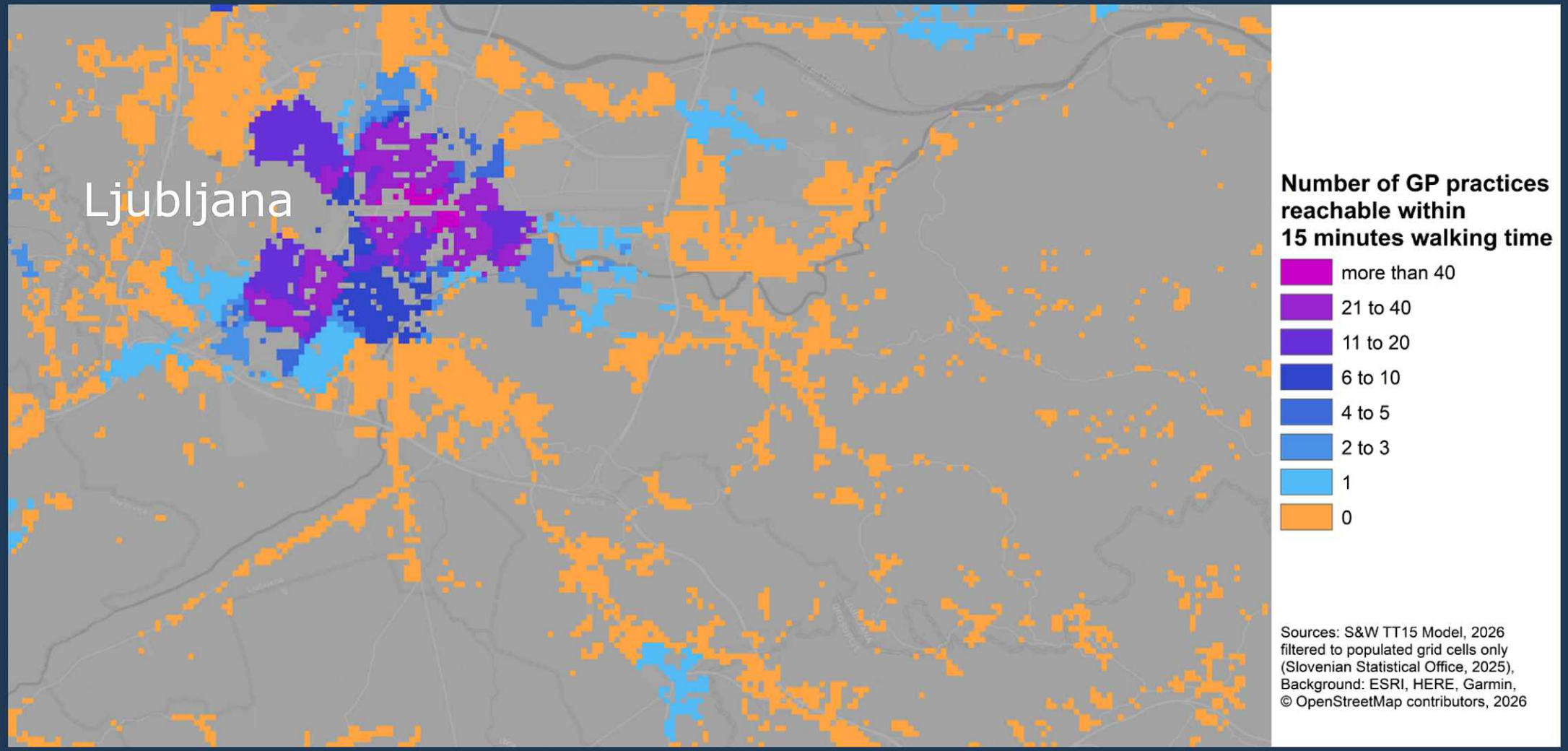
Example: walking time to post offices



Example: cycling time to music schools



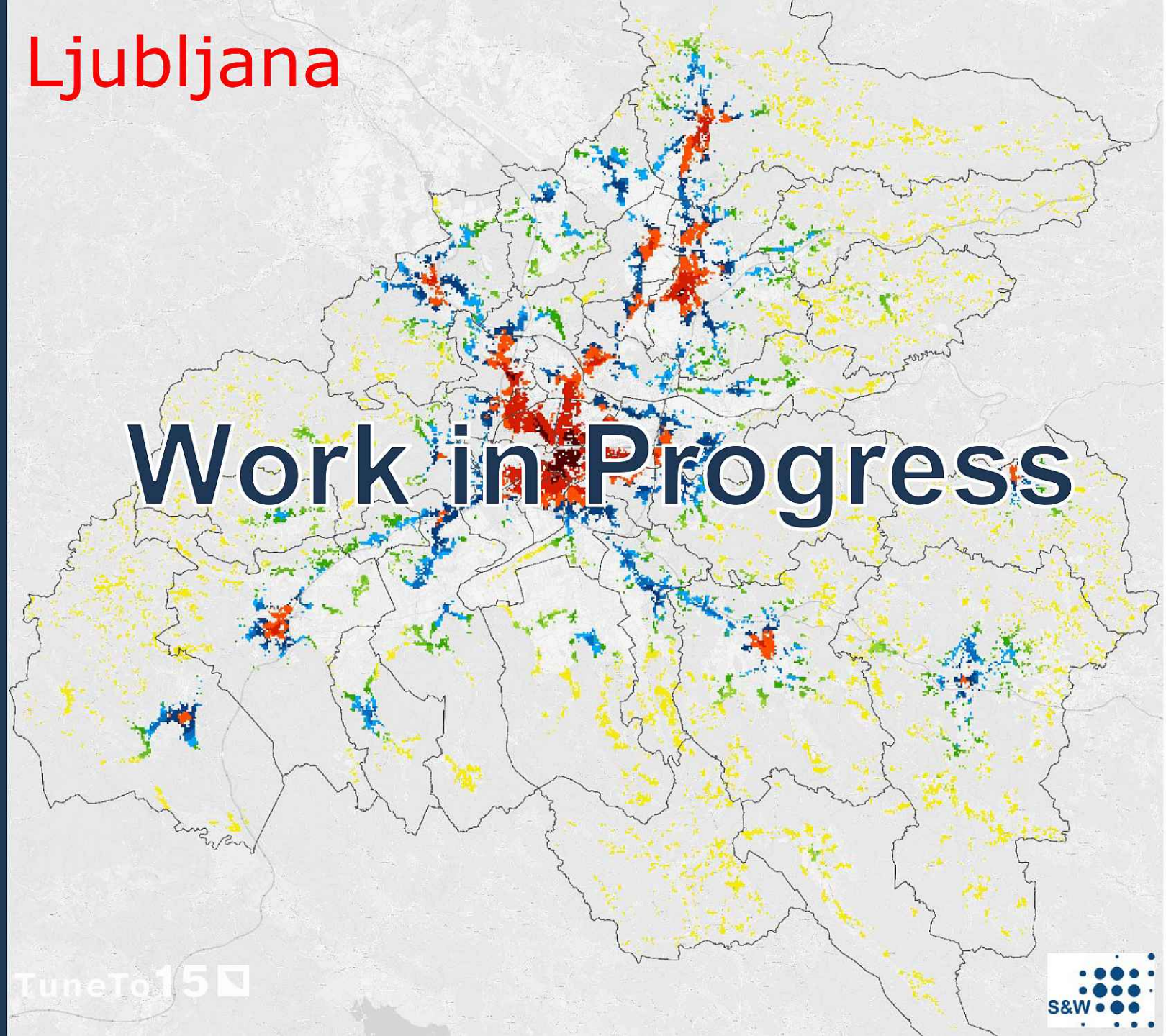
Example: cumulative number of general practitioners



4

Spatial pattern of the 15mC in urban regions

Ljubljana



X-Minute City
Total

Weighted Average Travel Time [Minutes]

- ≤ 5 minutes
- 5 - 10 min.
- 10 - 15 min.
- 15 - 20 min.
- 20 - 25 min.
- 25 - 30 min.
- 30 - 35 min.
- 35 - 40 min.
- 40 - 45 min.
- > 45 min.

Sources: S&W TT15 Model, 2026
filtered to populated grid cells only
(Slovenian Statistical Office, 2025),
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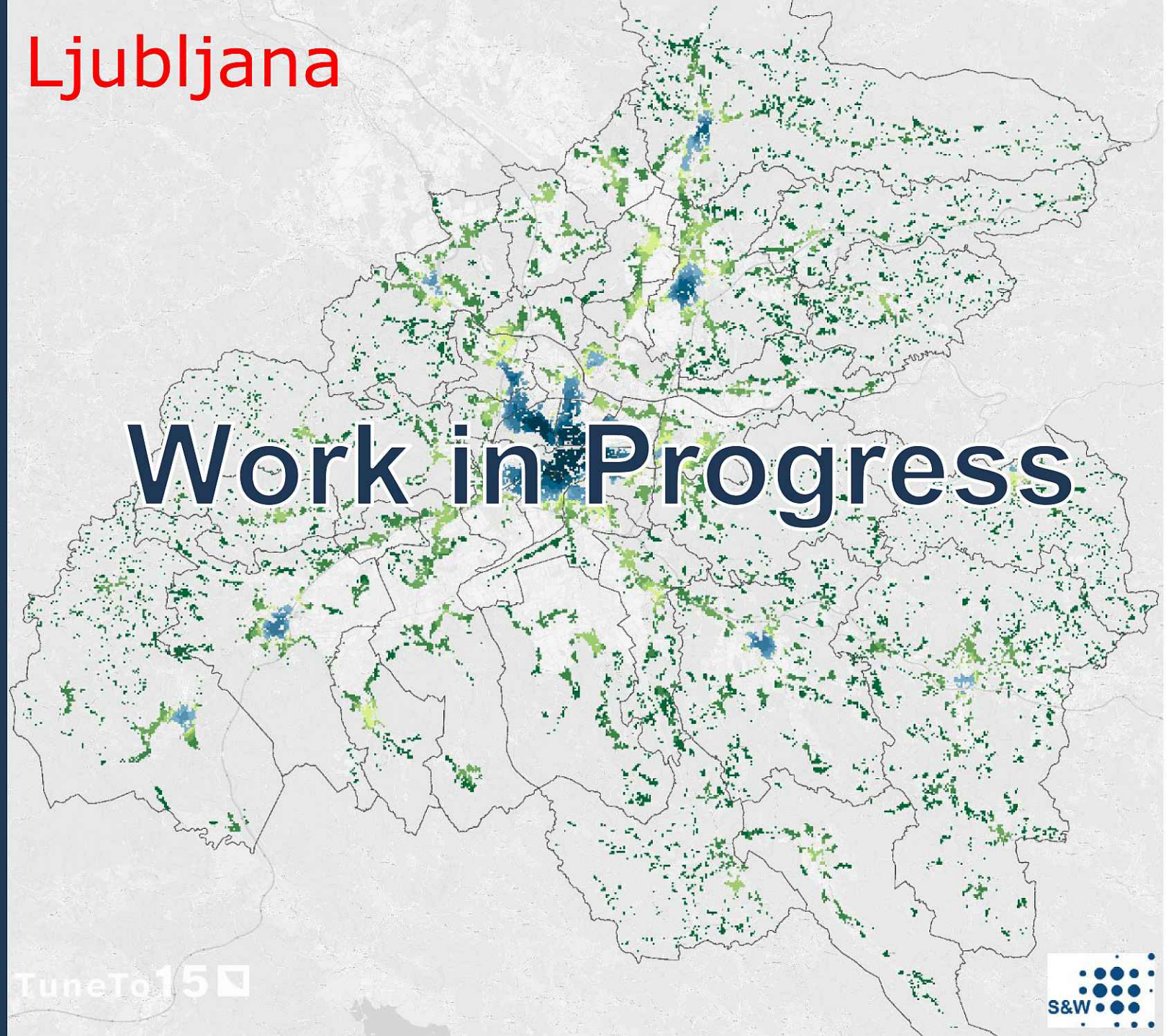
TuneTo15

S&W

Ljubljana



MultipliCity
Total

Index [0..100]

> 90	very high	
80 - 90		
70 - 80	high	
60 - 70		
50 - 60	moderate	
40 - 50		
30 - 40	low	
20 - 30		
10 - 20		
≤ 10	very low	

Sources: S&W TT15 Model, 2026
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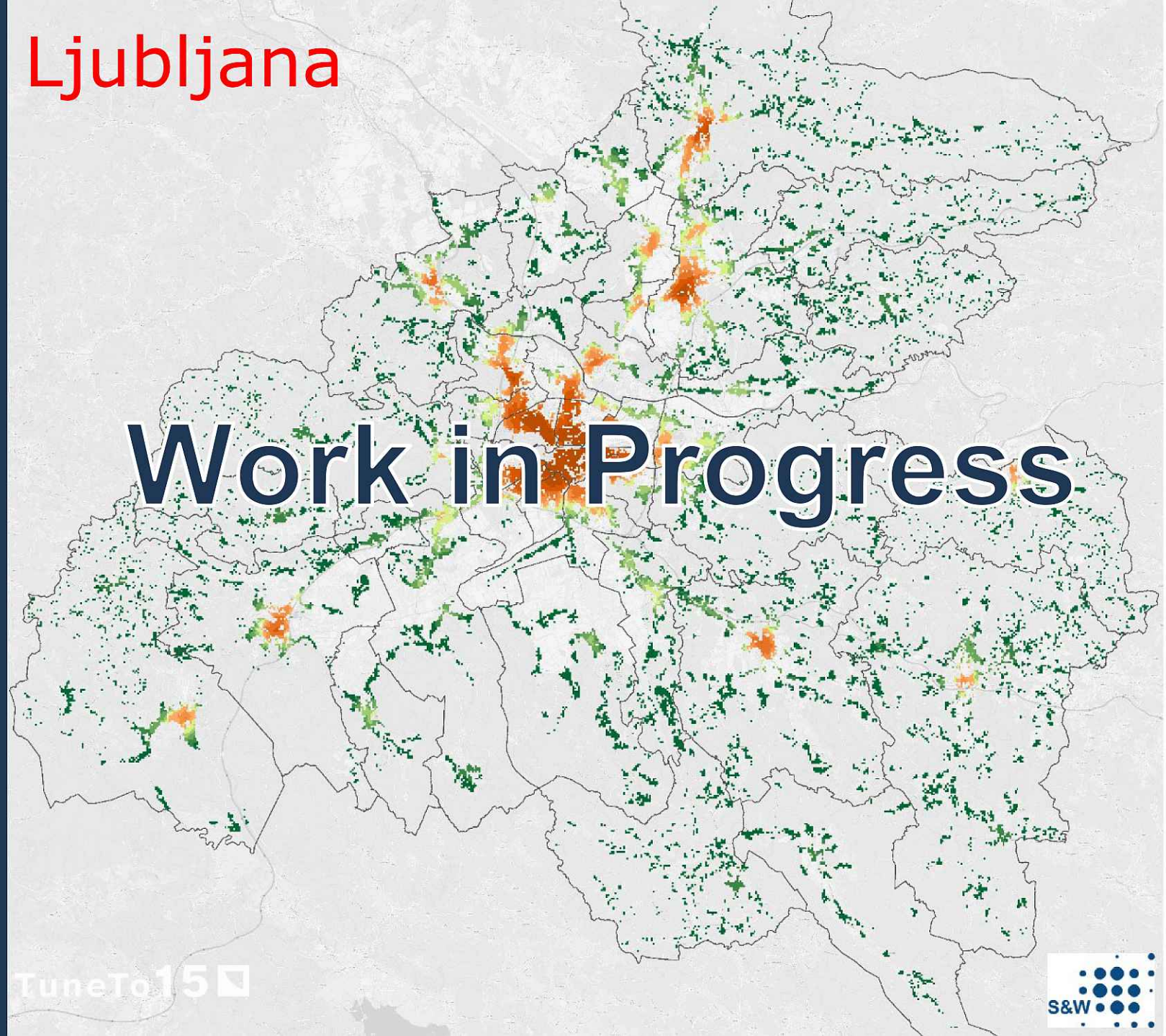
TuneTo15

S&W

Ljubljana



TuneTo15 Index
Total

Index [0..100]

> 90	very high	
80 - 90		
70 - 80	high	
60 - 70		
50 - 60	moderate	
40 - 50		
30 - 40	low	
20 - 30		
10 - 20		
≤ 10	very low	

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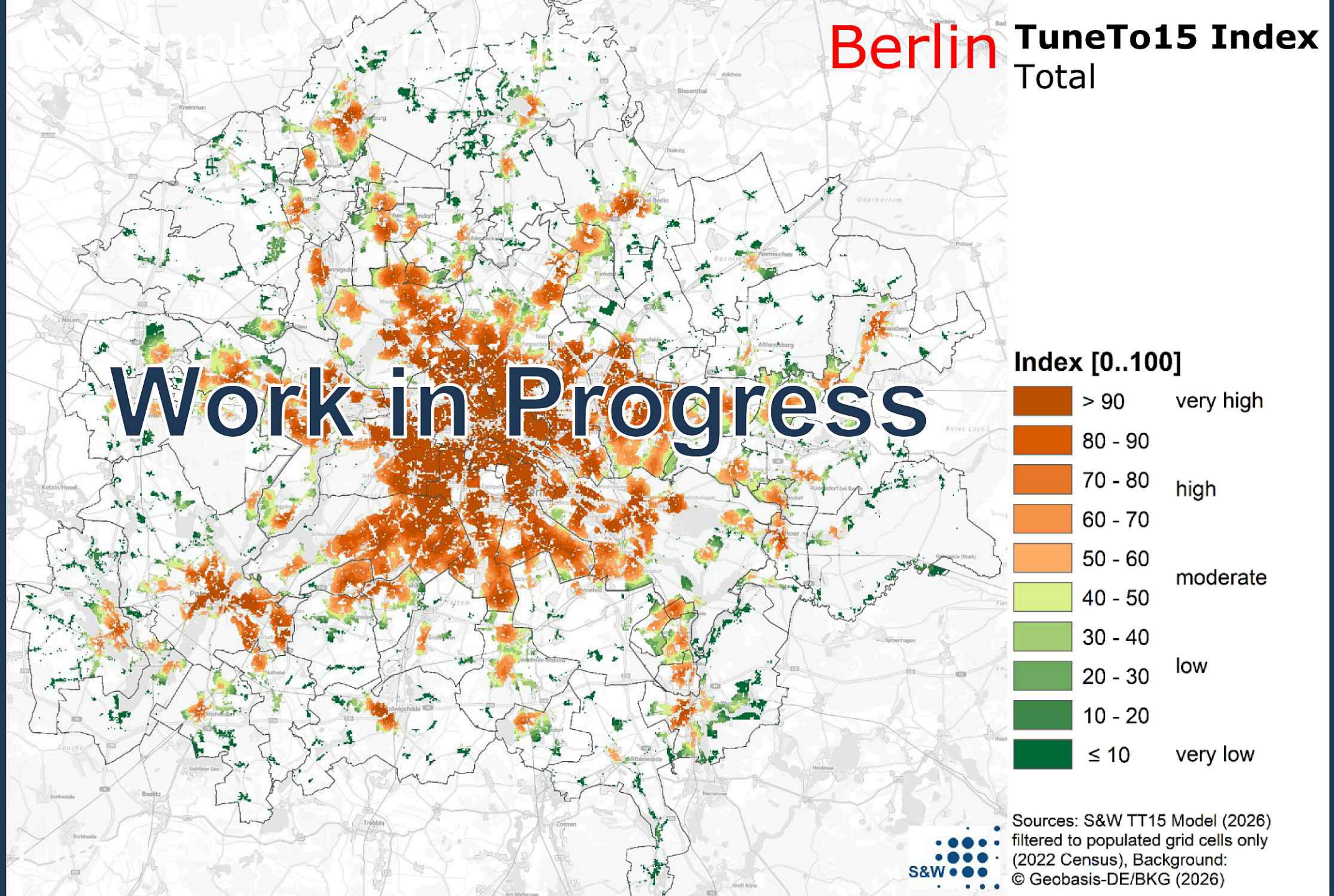
TuneTo15

S&W


Berlin
TuneTo15 Index
Total
Work in Progress
Index [0..100]
> 90
very high
80 - 90
70 - 80
high
60 - 70
50 - 60
moderate
40 - 50
30 - 40
low
20 - 30
10 - 20
≤ 10
very low
Sources: S&W TT15 Model (2026)
filtered to populated grid cells only
(2022 Census), Background:
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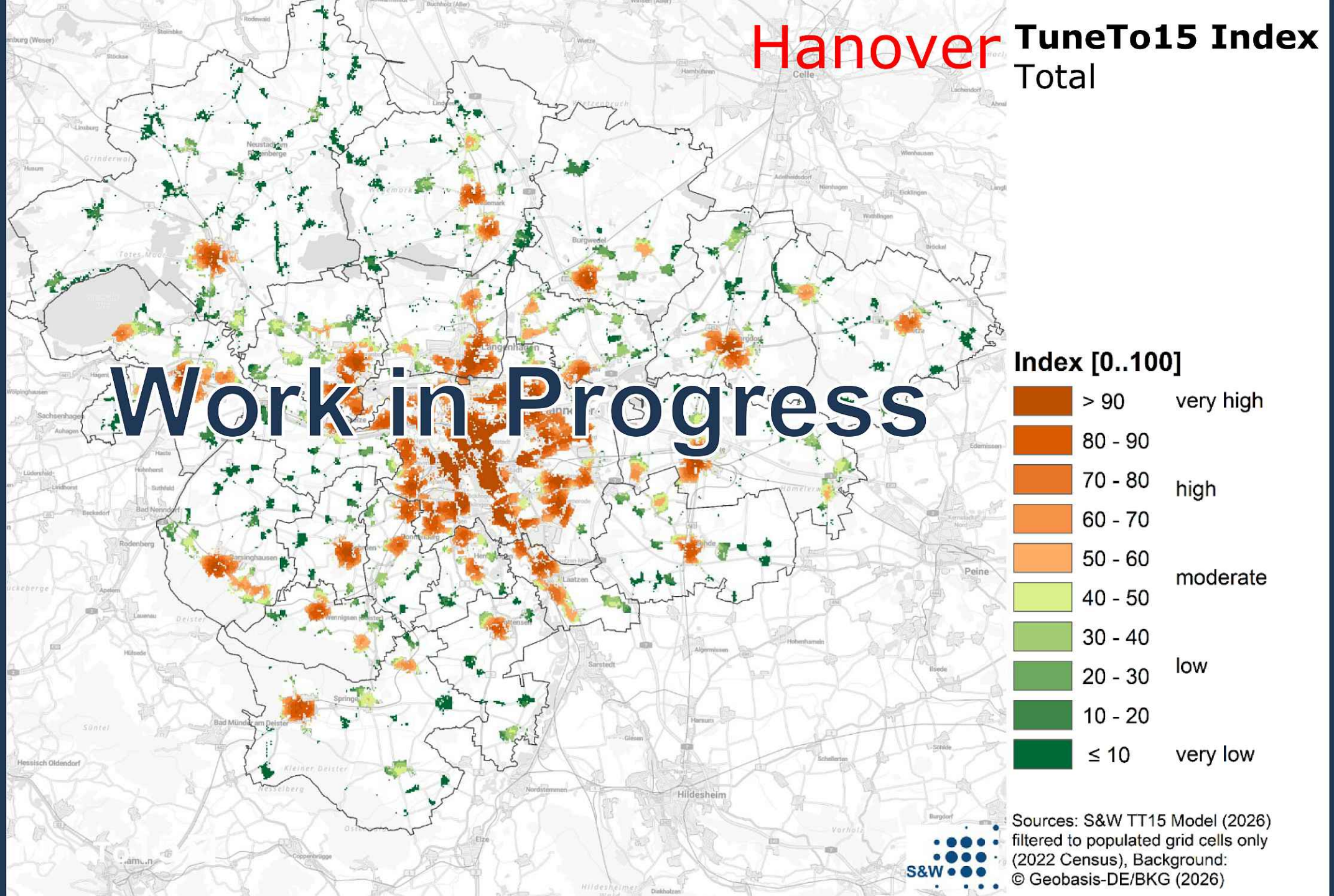
S&W


Hanover
TuneTo15 Index
Total
Work in Progress
Index [0..100]
> 90
very high
80 - 90
70 - 80
high
60 - 70
50 - 60
moderate
40 - 50
30 - 40
low
20 - 30
10 - 20
≤ 10
very low
Sources: S&W TT15 Model (2026)
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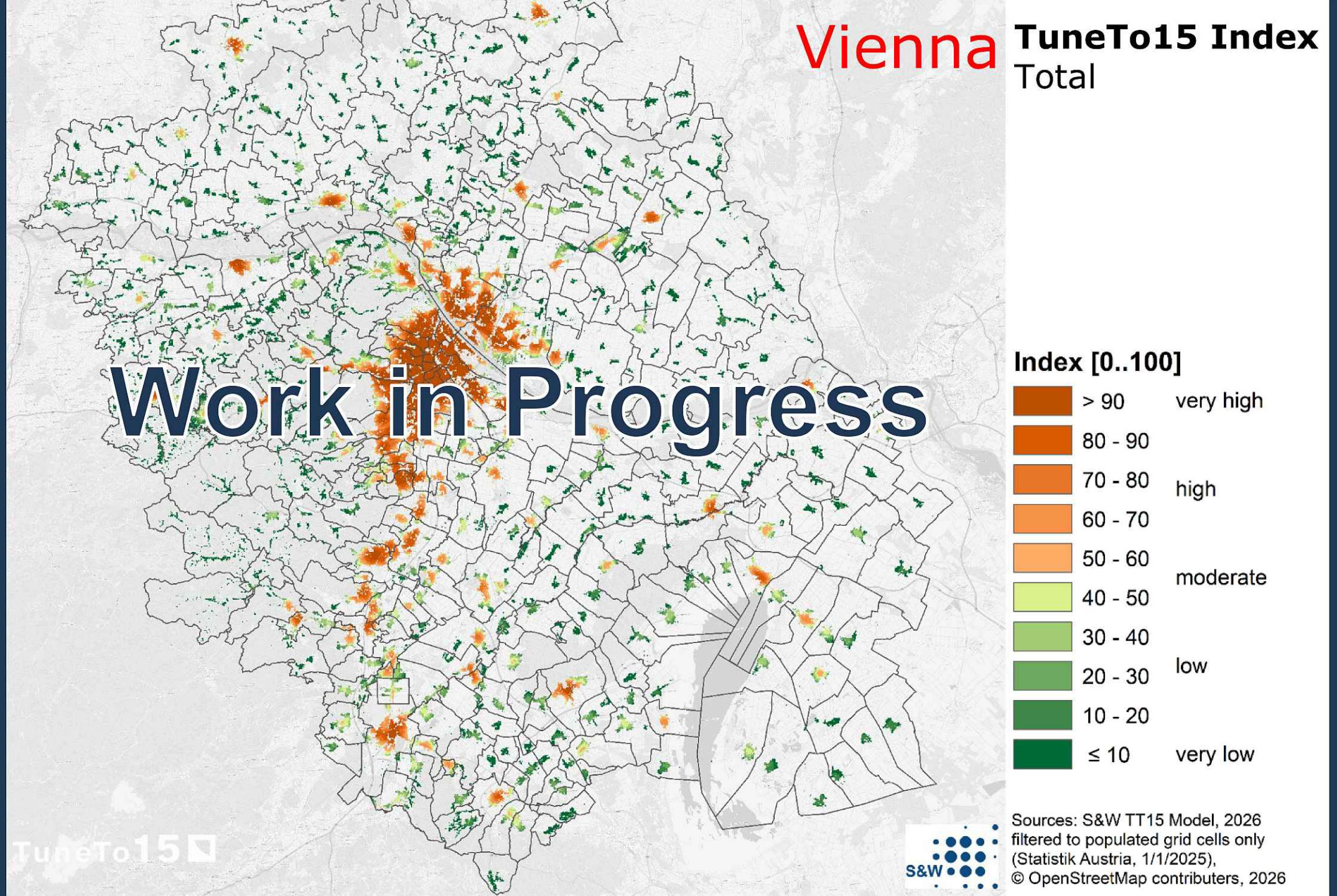
S&W


Vienna
TuneTo15 Index
Total
Work in Progress
Index [0..100]
> 90
very high
80 - 90
70 - 80
high
60 - 70
50 - 60
moderate
40 - 50
30 - 40
low
20 - 30
10 - 20
≤ 10
very low
Sources: S&W TT15 Model, 2026
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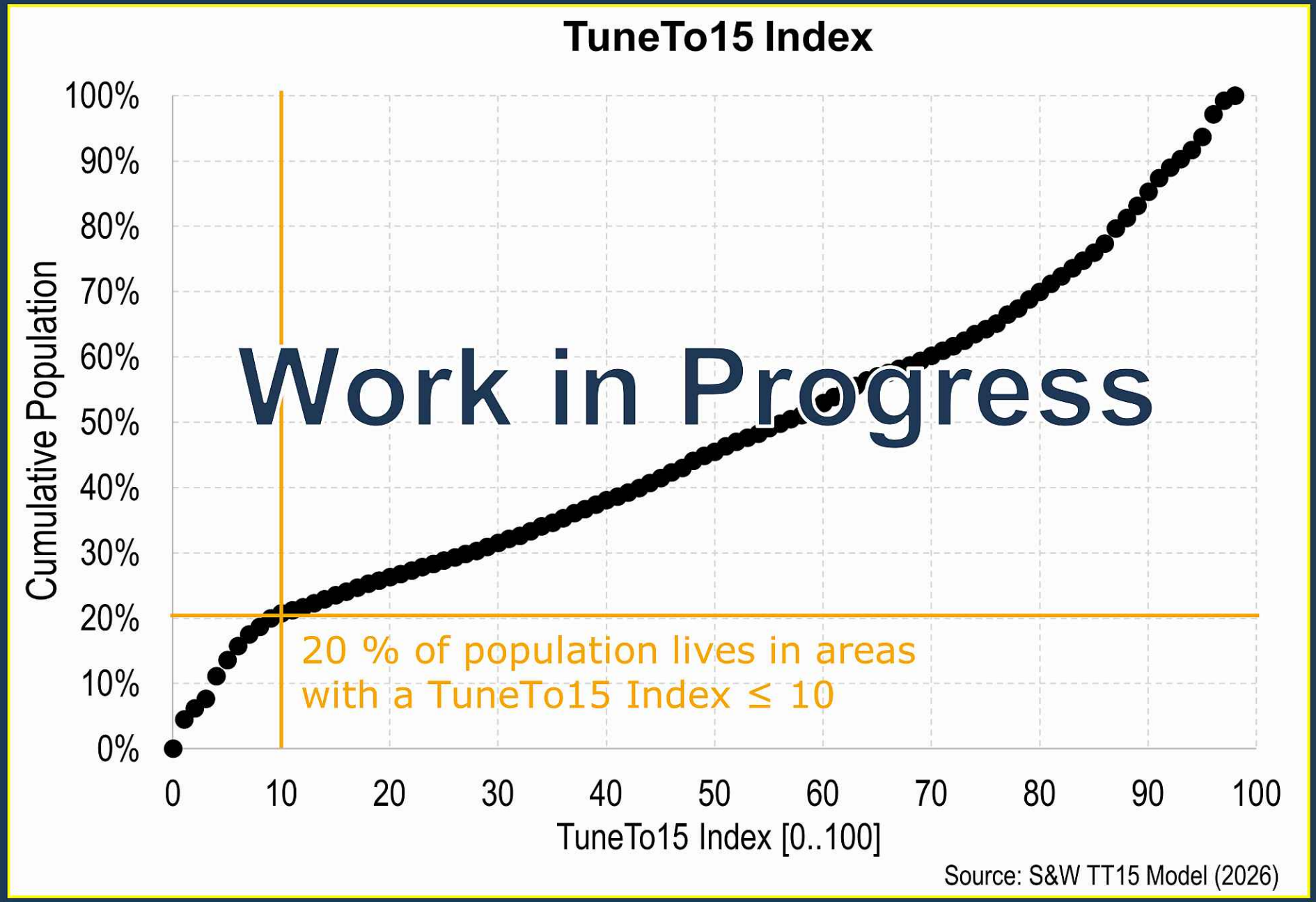
TuneTo15

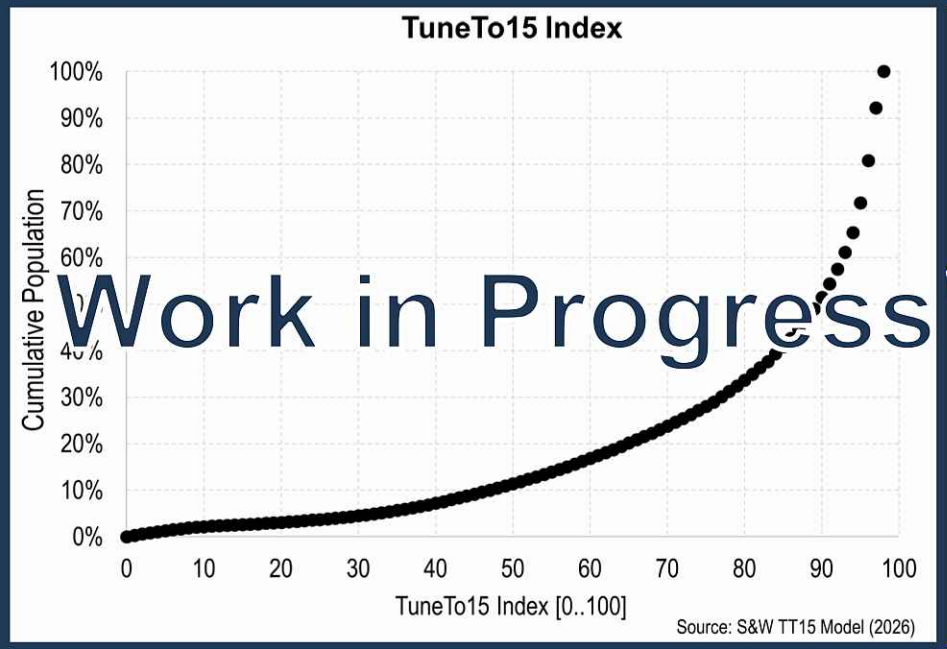
Cumulative population across the TuneTo15-Index

Ljubljana



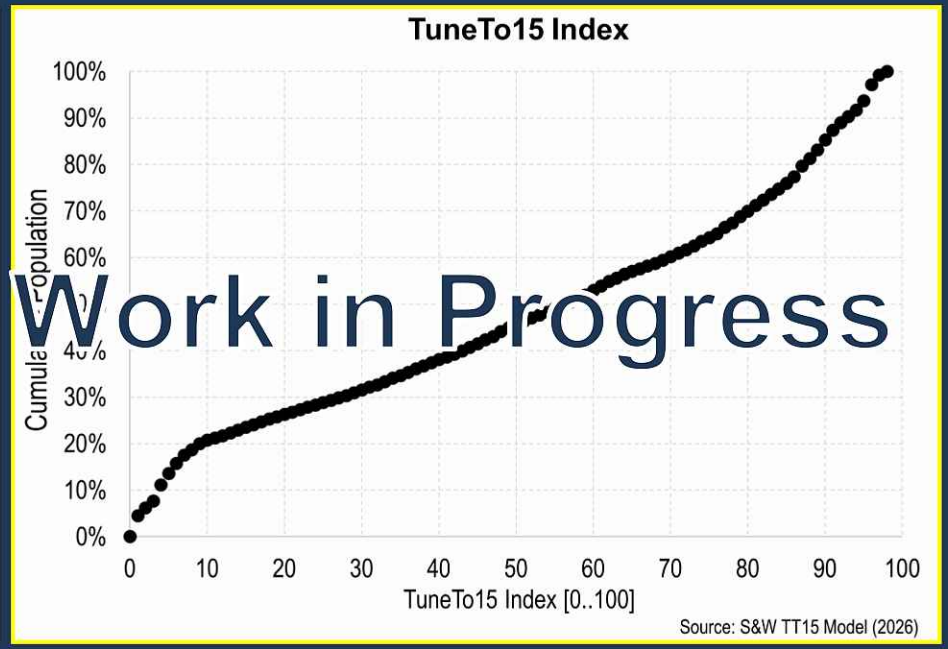
Cumulative population across the TuneTo15-Index

Berlin



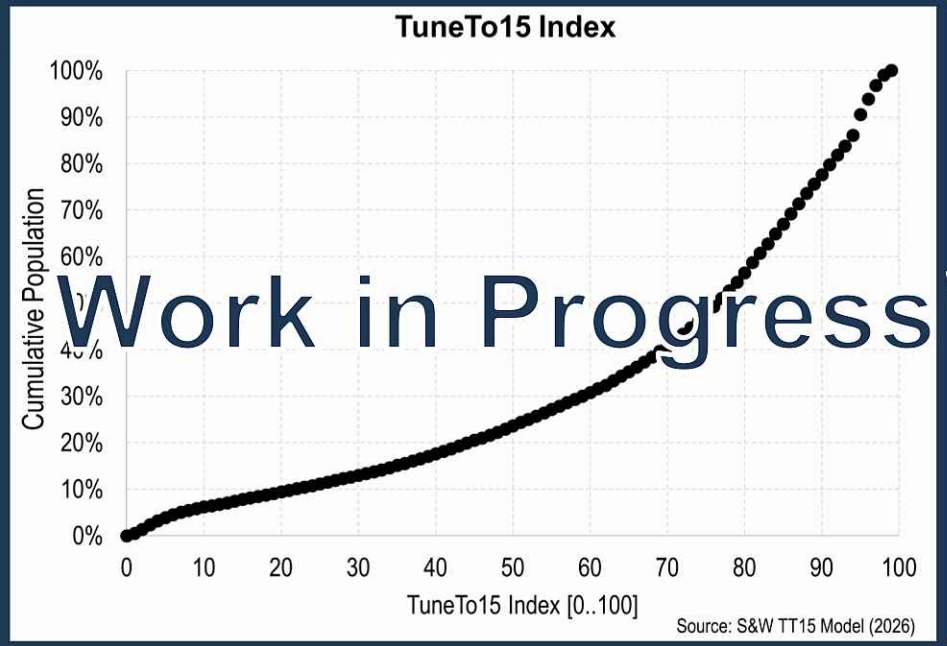
Work in Progress

Ljubljana



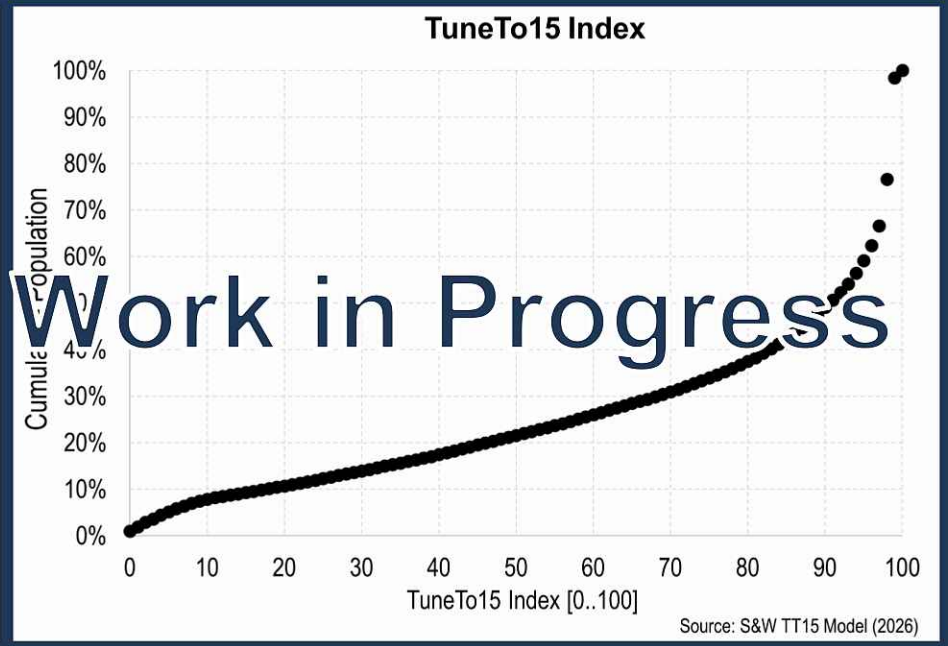
Work in Progress

Hanover



Work in Progress

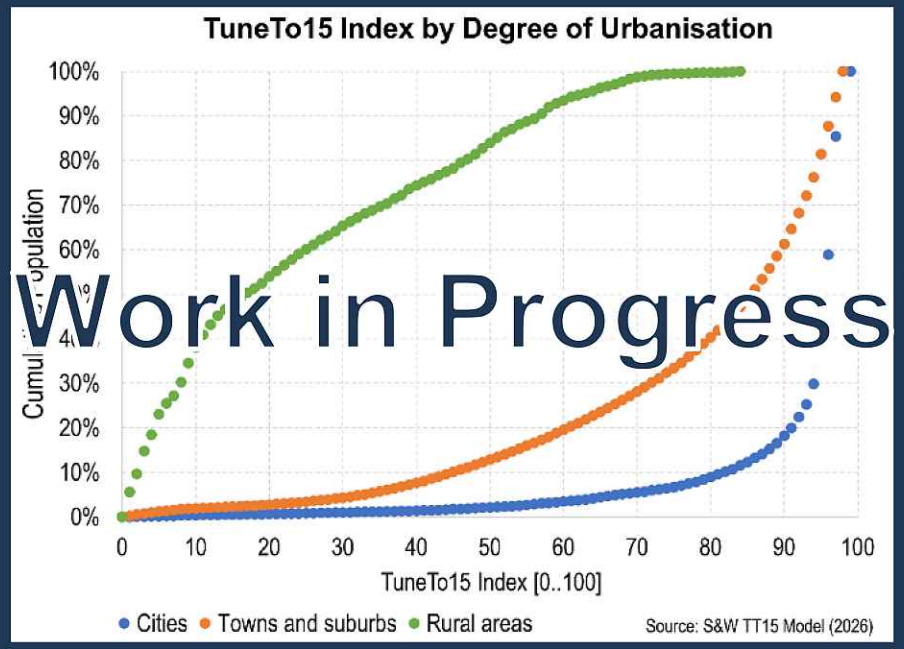
Vienna



Work in Progress

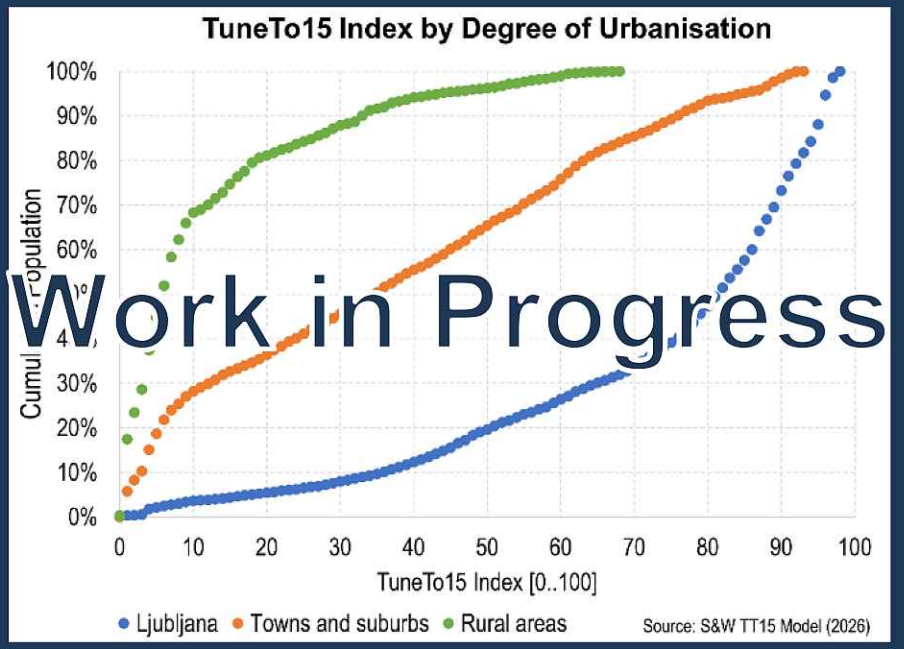
Cumulative population by Degree of Urbanisation

Berlin



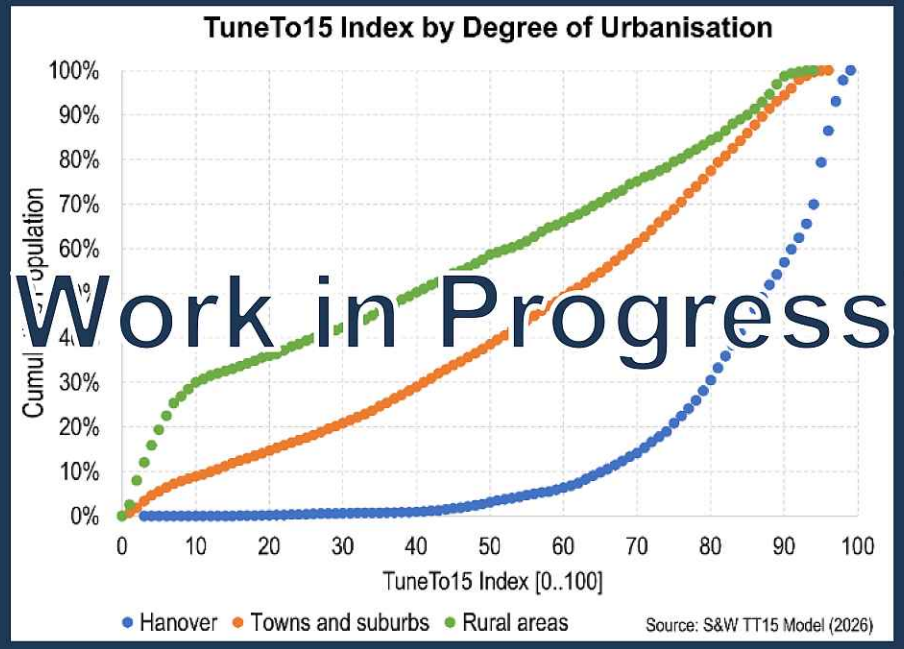
Work in Progress

Ljubljana



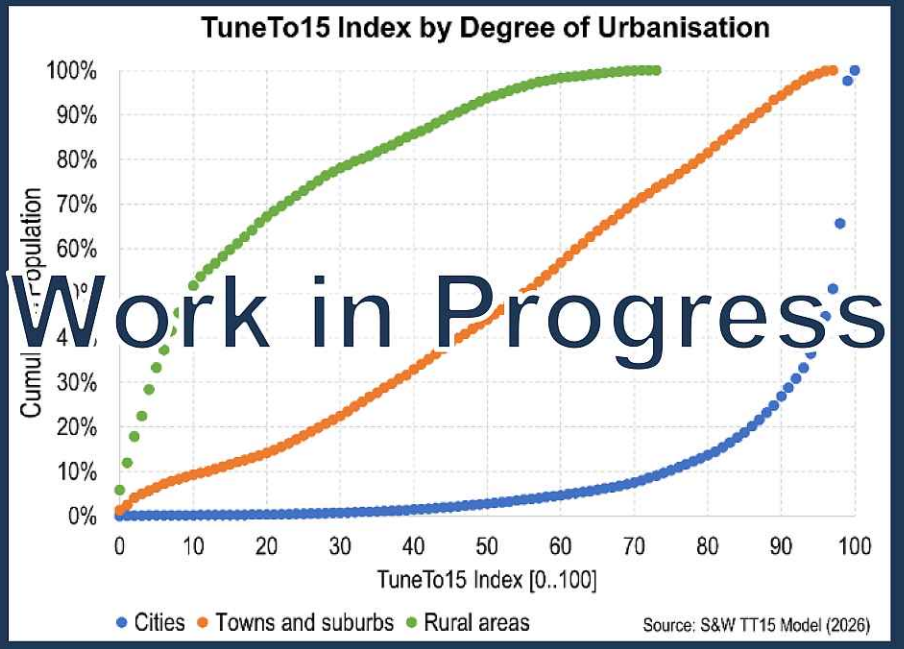
Work in Progress

Hanover



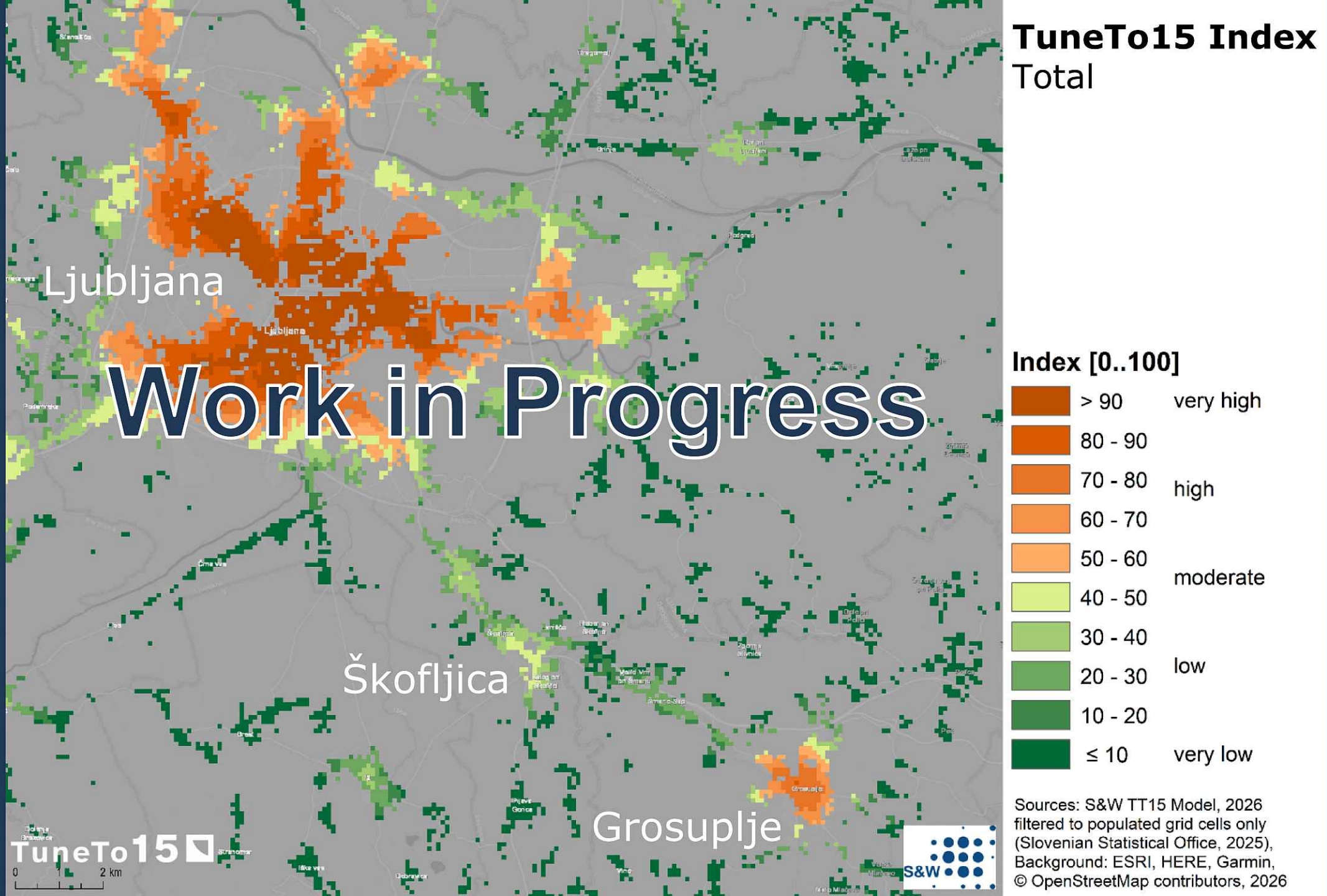
Work in Progress

Vienna



Work in Progress

5
Differences and disparities in 15mC qualities



TuneTo15 Index
Total

Index [0..100]

> 90	very high	
80 - 90		
70 - 80	high	
60 - 70		
50 - 60	moderate	
40 - 50		
30 - 40	low	
20 - 30		
10 - 20		
≤ 10	very low	

Sources: S&W TT15 Model, 2026
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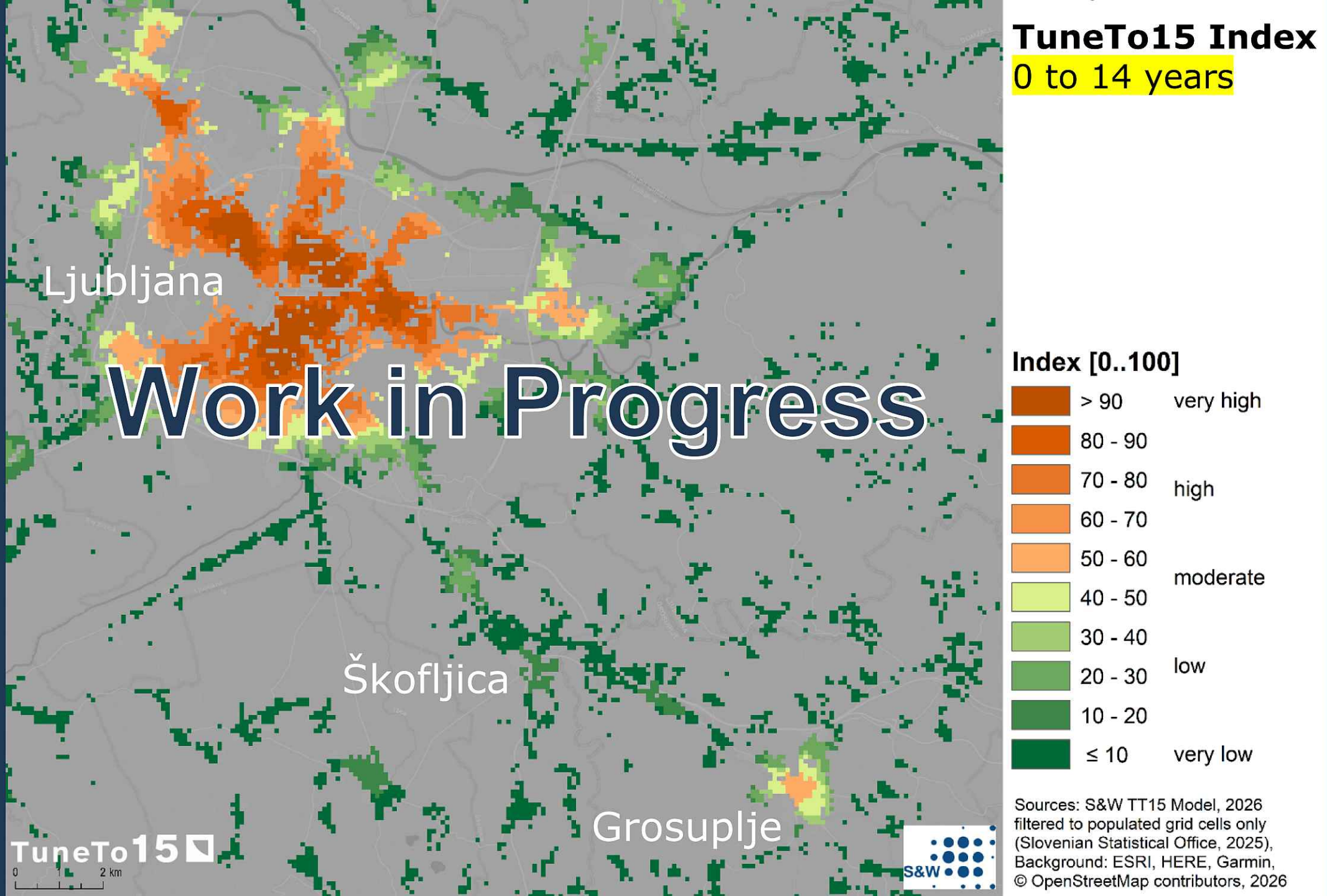

TuneTo15 Index
0 to 14 years

Index [0..100]

> 90	very high	
80 - 90		
70 - 80	high	
60 - 70		
50 - 60	moderate	
40 - 50		
30 - 40	low	
20 - 30		
10 - 20		
≤ 10	very low	

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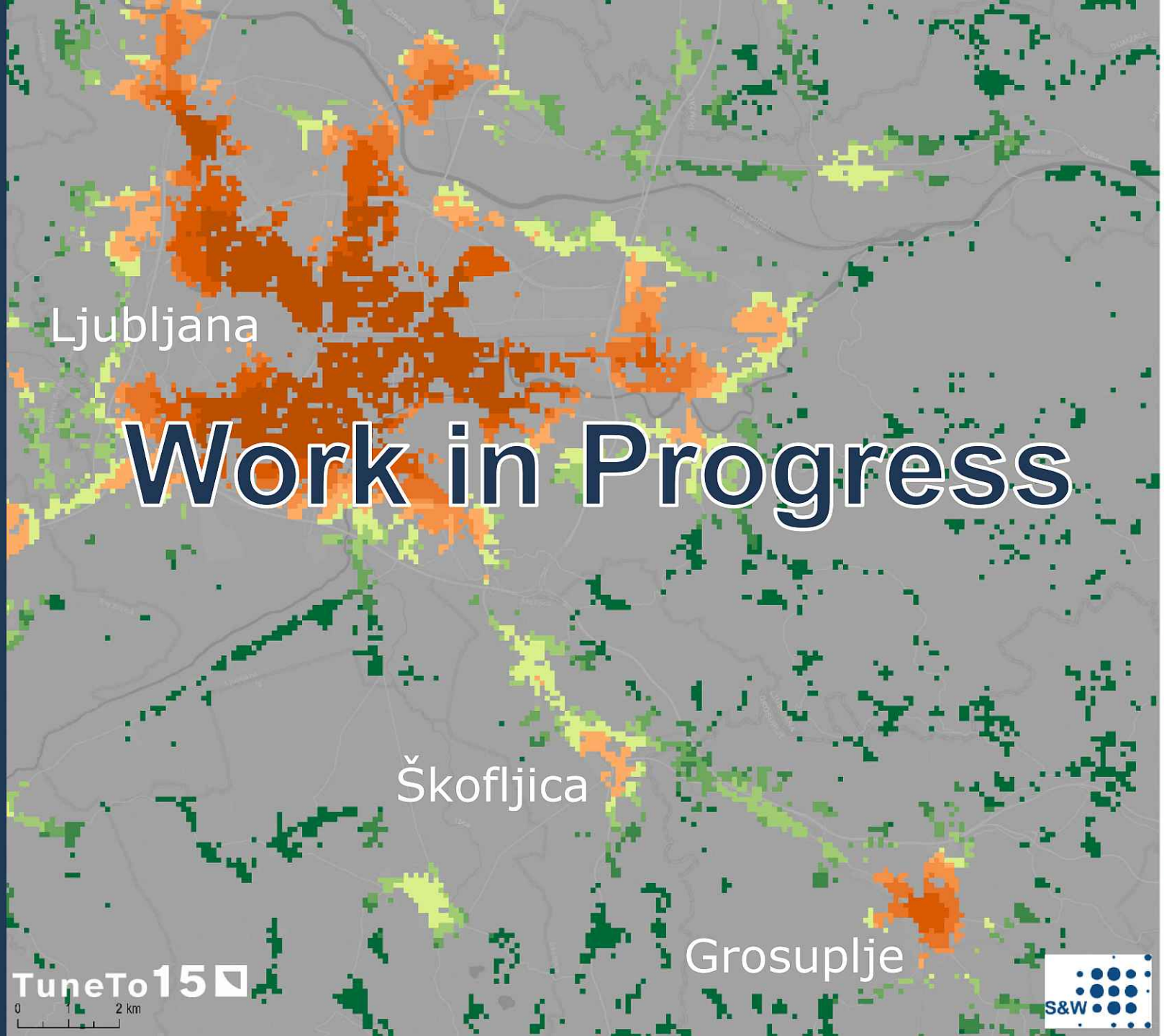

TuneTo15 Index
15 to 39 years

Index [0..100]

> 90	very high
80 - 90	
70 - 80	high
60 - 70	
50 - 60	moderate
40 - 50	
30 - 40	low
20 - 30	
10 - 20	
≤ 10	very low

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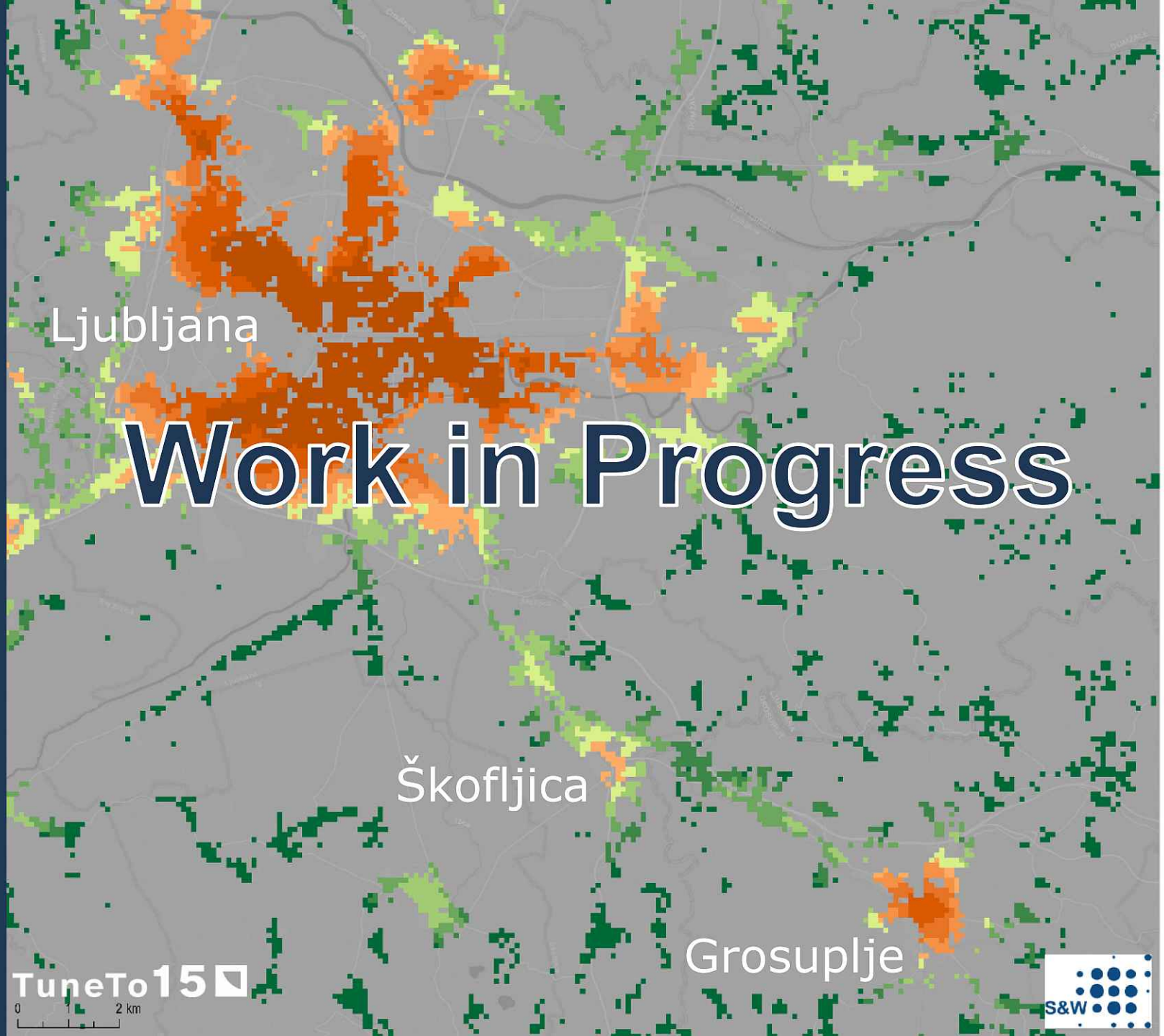

TuneTo15 Index
40 to 64 years

Index [0..100]

> 90	very high	
80 - 90		
70 - 80	high	
60 - 70		
50 - 60	moderate	
40 - 50		
30 - 40	low	
20 - 30		
10 - 20		
≤ 10	very low	

Sources: S&W TT15 Model, 2026
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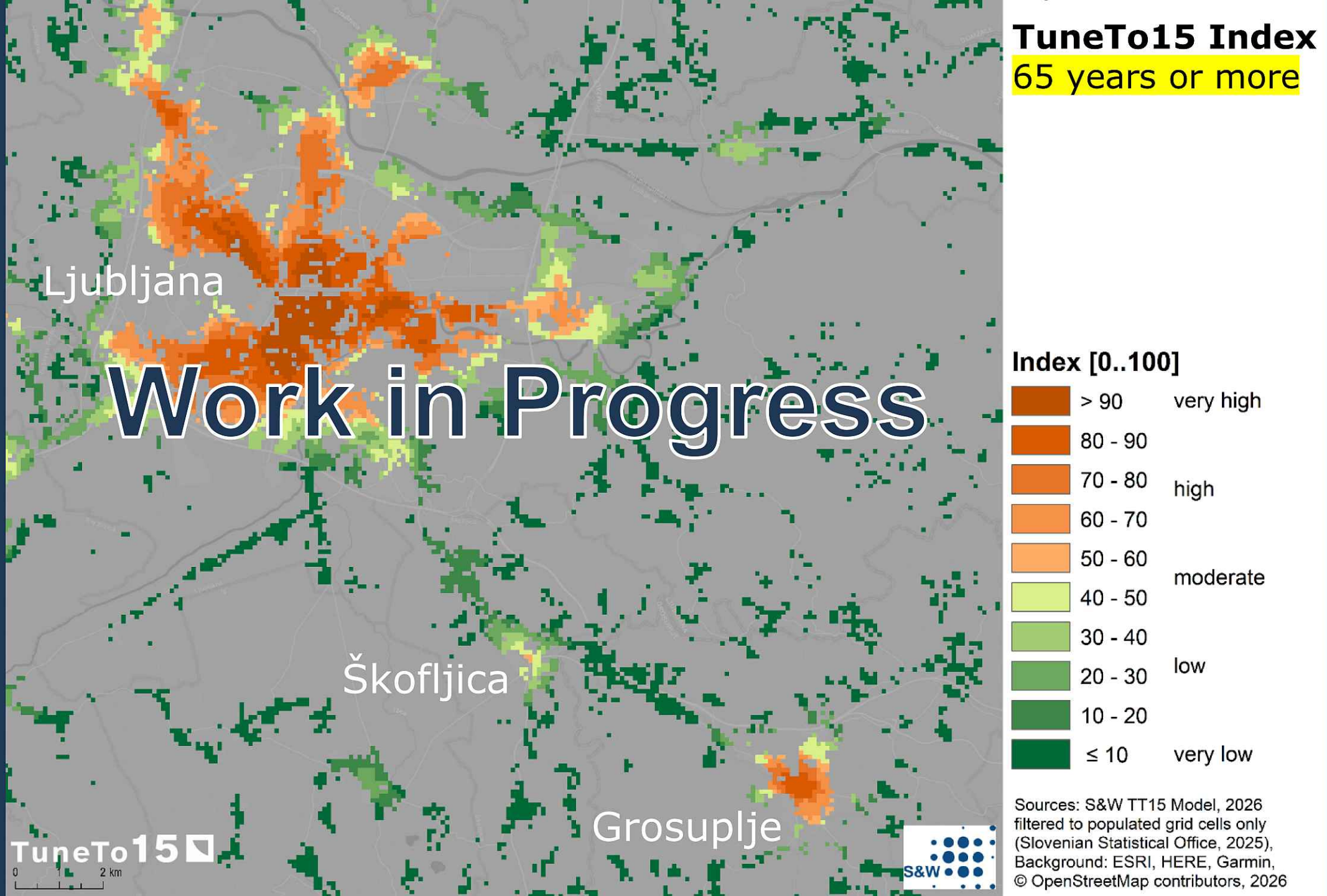

TuneTo15 Index

65 years or more

Index [0..100]

> 90	very high	
80 - 90		
70 - 80	high	
60 - 70		
50 - 60	moderate	
40 - 50		
30 - 40	low	
20 - 30		
10 - 20		
≤ 10	very low	

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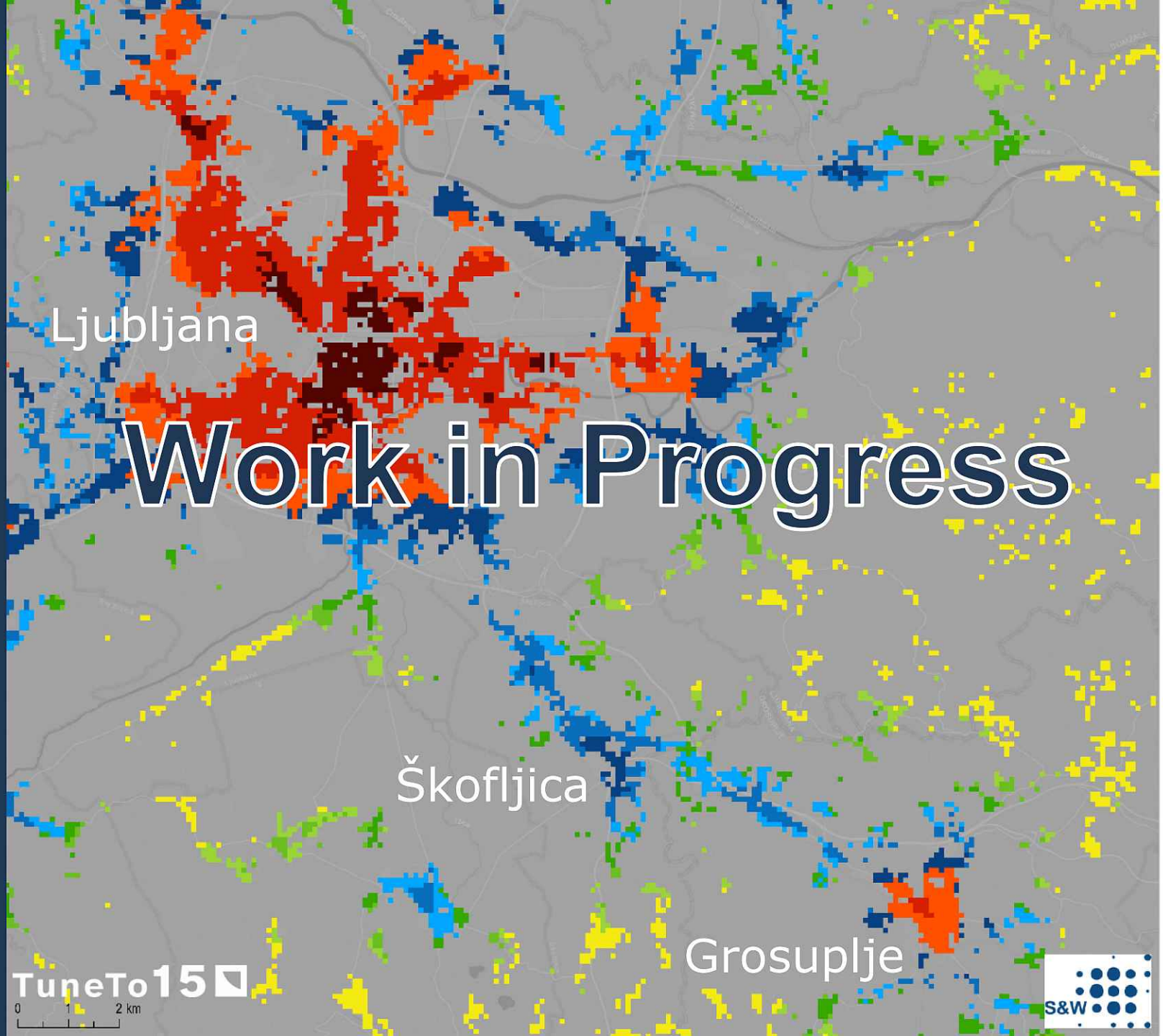
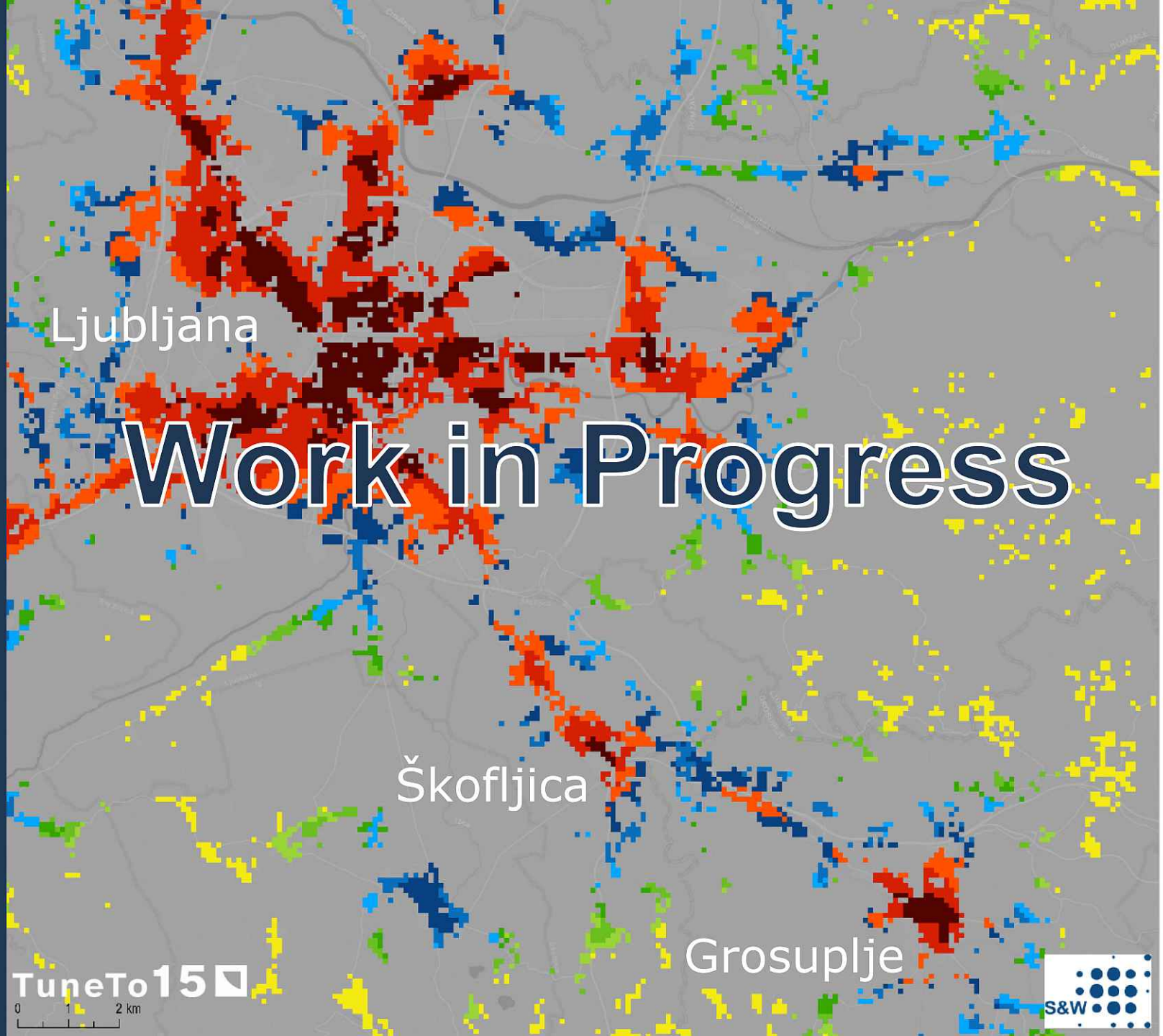


X-Minute City
Total

Weighted Average Travel Time [Minutes]

- ≤ 5 minutes
- 5 - 10 min.
- 10 - 15 min.
- 15 - 20 min.
- 20 - 25 min.
- 25 - 30 min.
- 30 - 35 min.
- 35 - 40 min.
- 40 - 45 min.
- > 45 min.

Sources: S&W TT15 Model, 2026 filtered to populated grid cells only (Slovenian Statistical Office, 2025), Background: ESRI, HERE, Garmin, © OpenStreetMap contributors, 2026



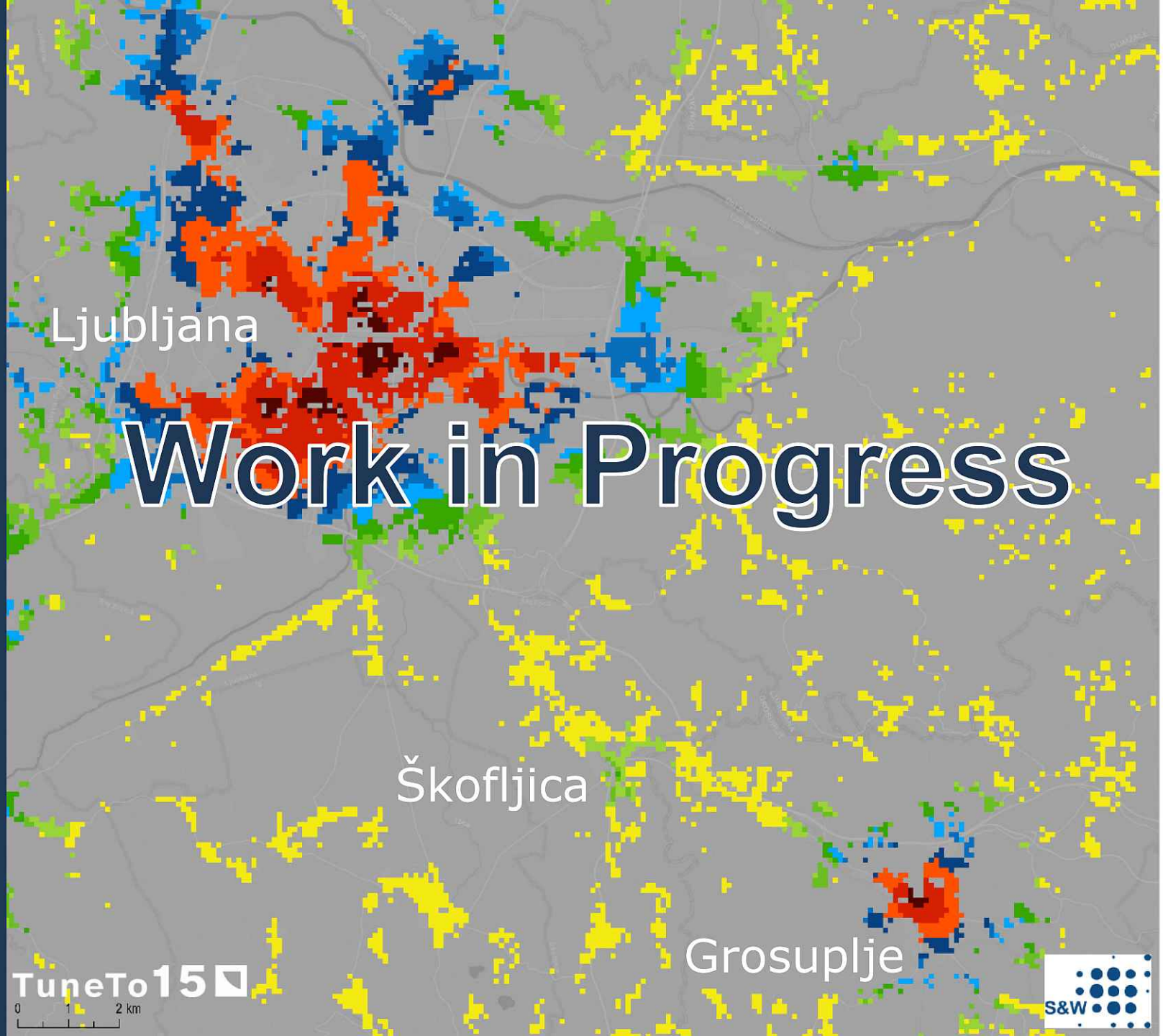
X-Minute City

Supply & Services

Weighted Average Travel Time [Minutes]

- ≤ 5 minutes
- 5 - 10 min.
- 10 - 15 min.
- 15 - 20 min.
- 20 - 25 min.
- 25 - 30 min.
- 30 - 35 min.
- 35 - 40 min.
- 40 - 45 min.
- > 45 min.

Sources: S&W TT15 Model, 2026 filtered to populated grid cells only (Slovenian Statistical Office, 2025), Background: ESRI, HERE, Garmin, © OpenStreetMap contributors, 2026



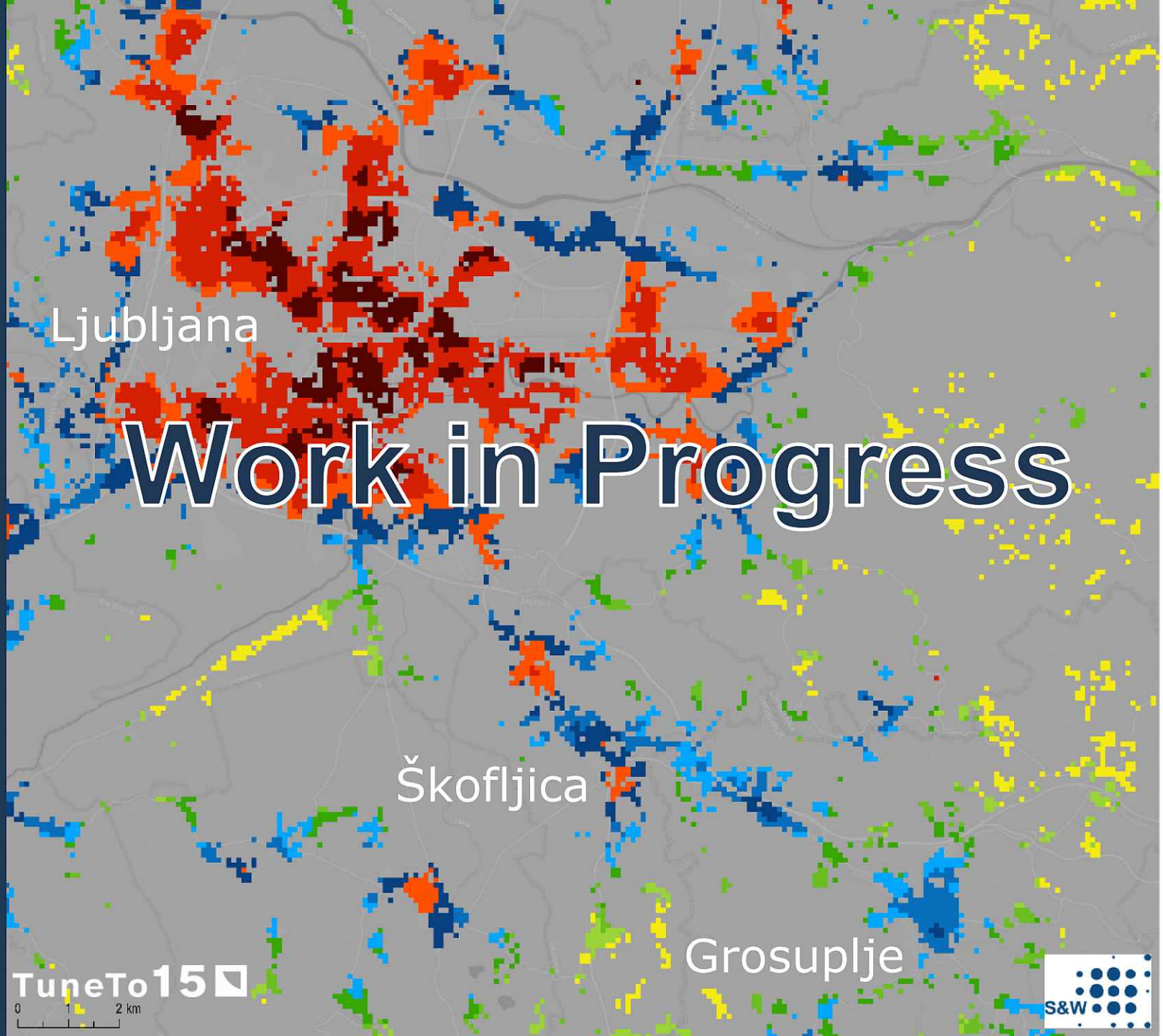
X-Minute City

Health

Weighted Average Travel Time [Minutes]

- ≤ 5 minutes
- 5 - 10 min.
- 10 - 15 min.
- 15 - 20 min.
- 20 - 25 min.
- 25 - 30 min.
- 30 - 35 min.
- 35 - 40 min.
- 40 - 45 min.
- > 45 min.

Sources: S&W TT15 Model, 2026 filtered to populated grid cells only (Slovenian Statistical Office, 2025), Background: ESRI, HERE, Garmin, © OpenStreetMap contributors, 2026

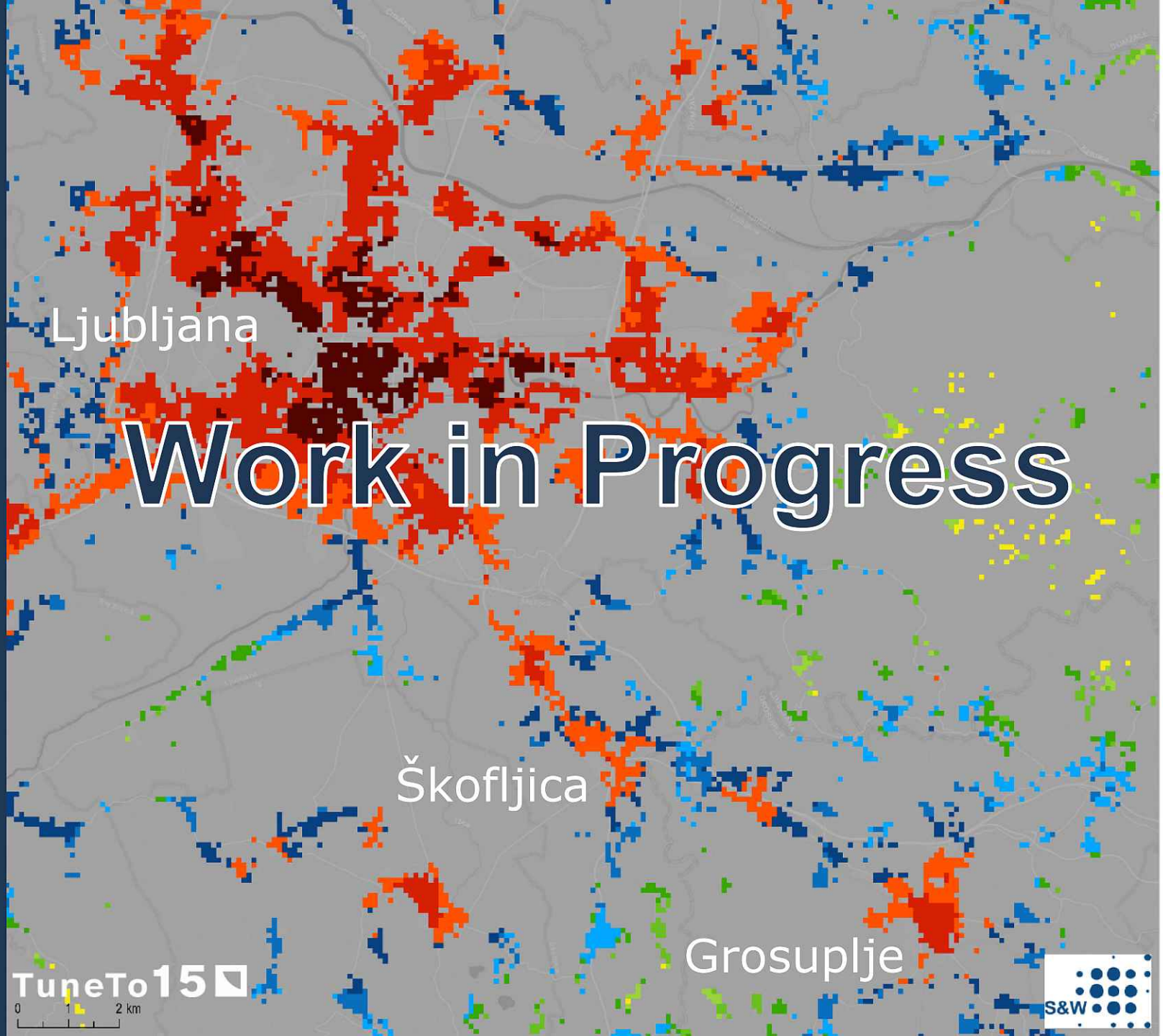


X-Minute City
Education

Weighted Average Travel Time [Minutes]

- ≤ 5 minutes
- 5 - 10 min.
- 10 - 15 min.
- 15 - 20 min.
- 20 - 25 min.
- 25 - 30 min.
- 30 - 35 min.
- 35 - 40 min.
- 40 - 45 min.
- > 45 min.

Sources: S&W TT15 Model, 2026 filtered to populated grid cells only (Slovenian Statistical Office, 2025), Background: ESRI, HERE, Garmin, © OpenStreetMap contributors, 2026



X-Minute City

Leisure

Weighted Average Travel Time [Minutes]

- ≤ 5 minutes
- 5 - 10 min.
- 10 - 15 min.
- 15 - 20 min.
- 20 - 25 min.
- 25 - 30 min.
- 30 - 35 min.
- 35 - 40 min.
- 40 - 45 min.
- > 45 min.

Sources: S&W TT15 Model, 2026 filtered to populated grid cells only (Slovenian Statistical Office, 2025), Background: ESRI, HERE, Garmin, © OpenStreetMap contributors, 2026

6
Car dependency in urban regions

Car dependency: different understandings

1. **as high levels of car ownership and car use**
   -> related to the outcome of being dependent on cars
2. **as a lack of other transport modes available**
   -> a lack of choice due to missing access to other modes
   -> structural car dependency
   -> represents a form of an accessibility gap between cars and other transport modes
3. **as subjective car dependency**
   -> includes behaviour aspects
   -> can be a matter of habit and a car-oriented lifestyle
   -> can be a perceived reliance on a car

Car dependency index

Malus system with several components:

-> non-acceptable walking time to amenities (work locations to be added)

-> non-acceptable cycling time to amenities (work locations to be added)

-> non-acceptable public transport time to amenities (w. l. t. b. a.)

-> lack of amenity choice options within 15 min. walk

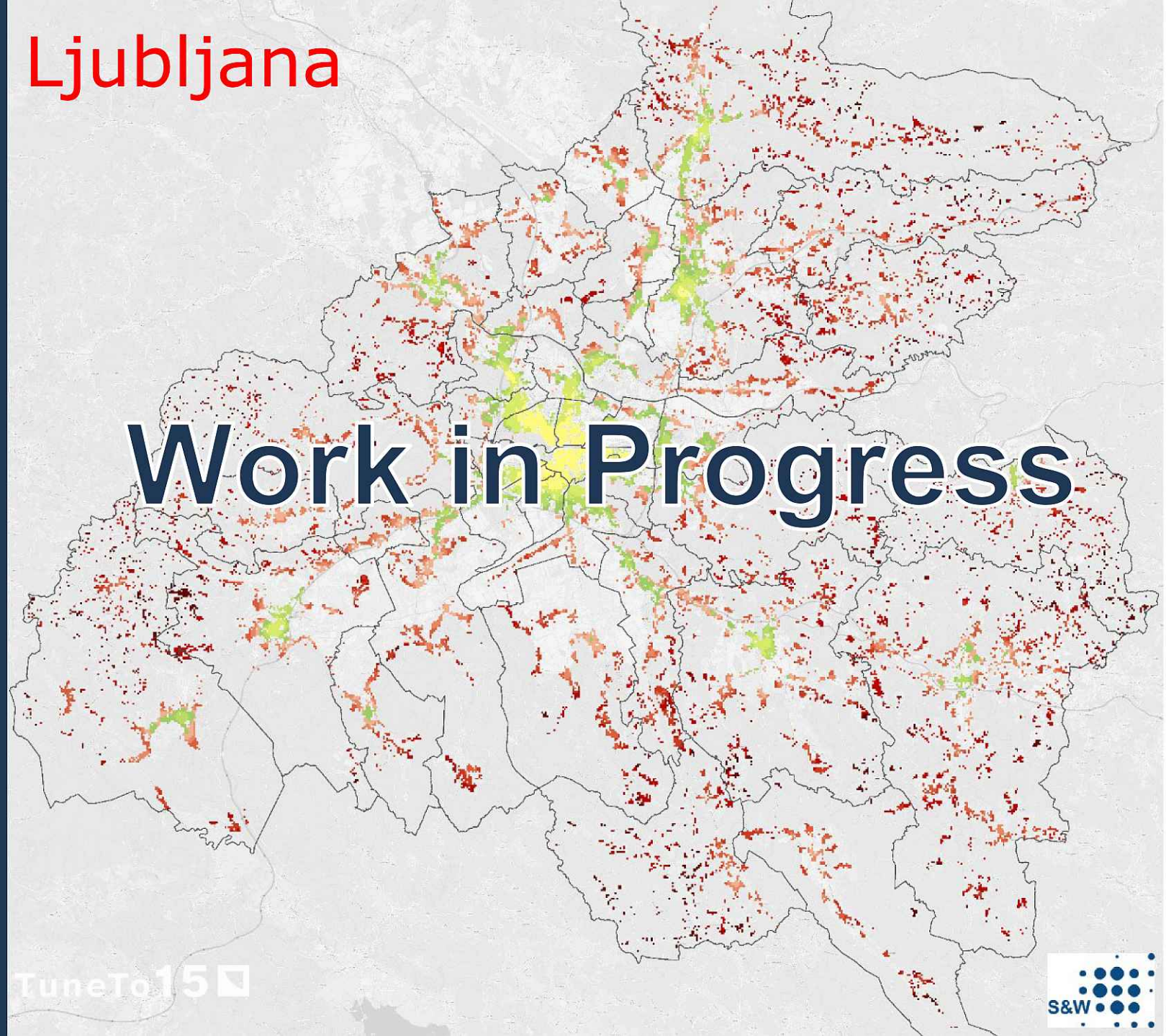
-> lack of amenity choice options within 15 min. biking

-> lack of amenity choice options within 15 min. by public transport

-> unfavourable cycling to car driving travel time ratio to amenities

-> unfavourable public transport to car driving travel time ratio to amenities

Ljubljana



Car Dependency
Total

Index [0..100]

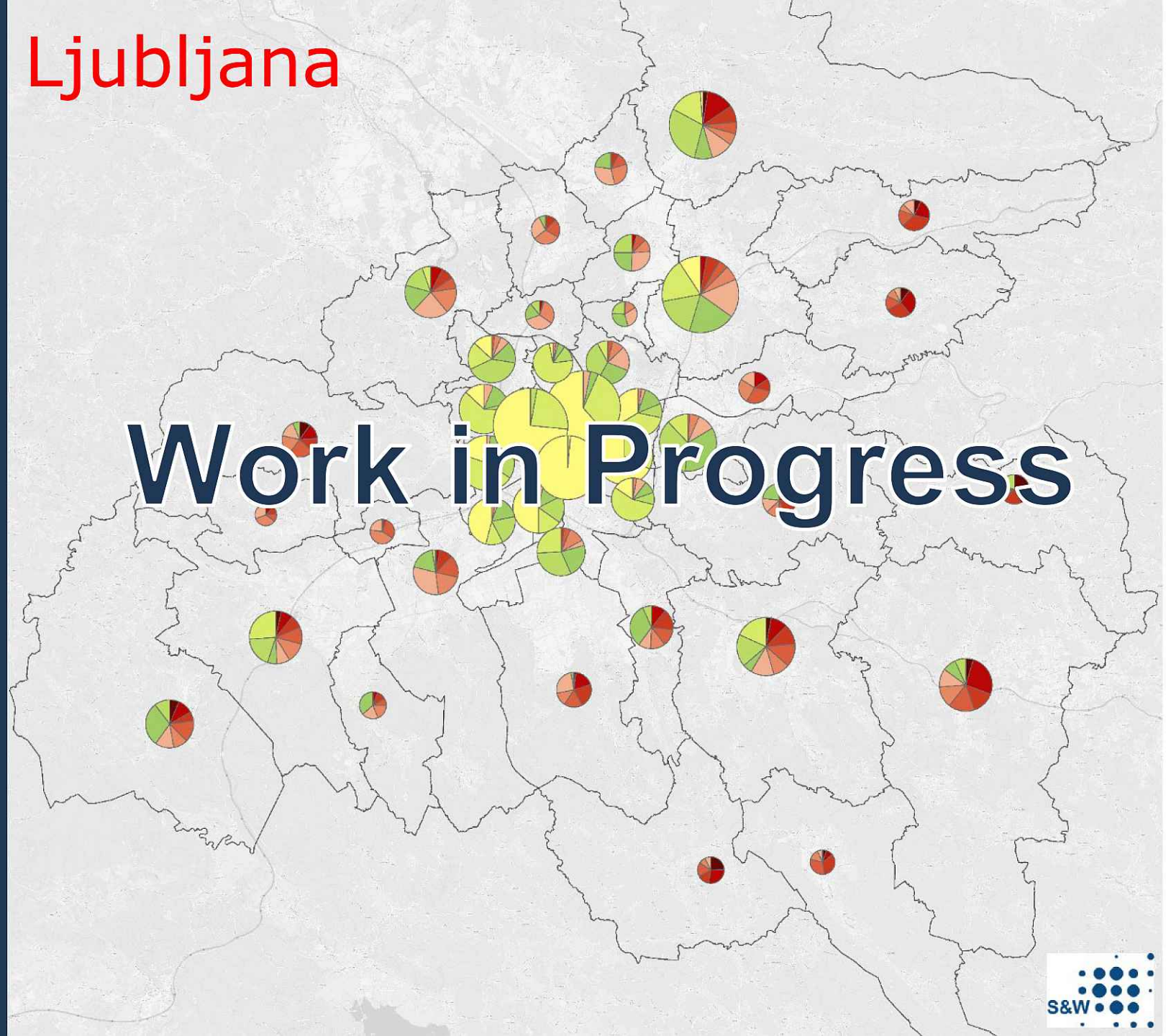
> 90	very high	
80 - 90		
70 - 80	high	
60 - 70		
50 - 60	moderate	
40 - 50		
30 - 40	low	
20 - 30		
10 - 20		
≤ 10	very low	

Sources: S&W TT15 Model, 2026
filtered to populated grid cells only
(Slovenian Statistical Office, 2025),
© OpenStreetMap contributors, 2026

TuneTo15

S&W

Ljubljana



Car Dependency
Total

Index [0..100]

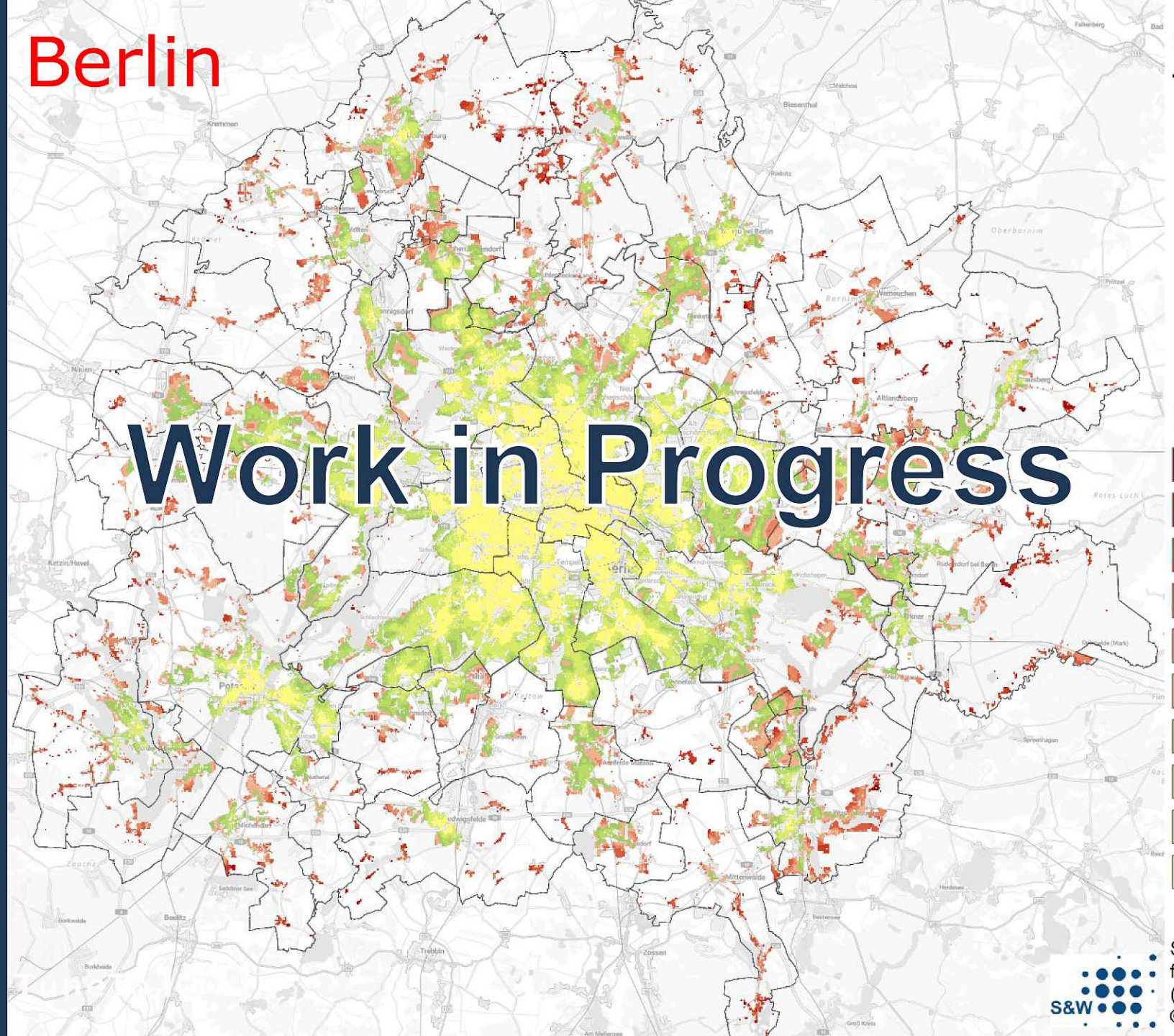
> 90	very high
80 - 90	
70 - 80	high
60 - 70	
50 - 60	moderate
40 - 50	
30 - 40	low
20 - 30	
10 - 20	
≤ 10	very low

Population

2,000
10,000
25,000

Sources: S&W TT15 Model, 2026
filtered to populated grid cells only
(Slovenian Statistical Office, 2025),
© OpenStreetMap contributors, 2026

Berlin



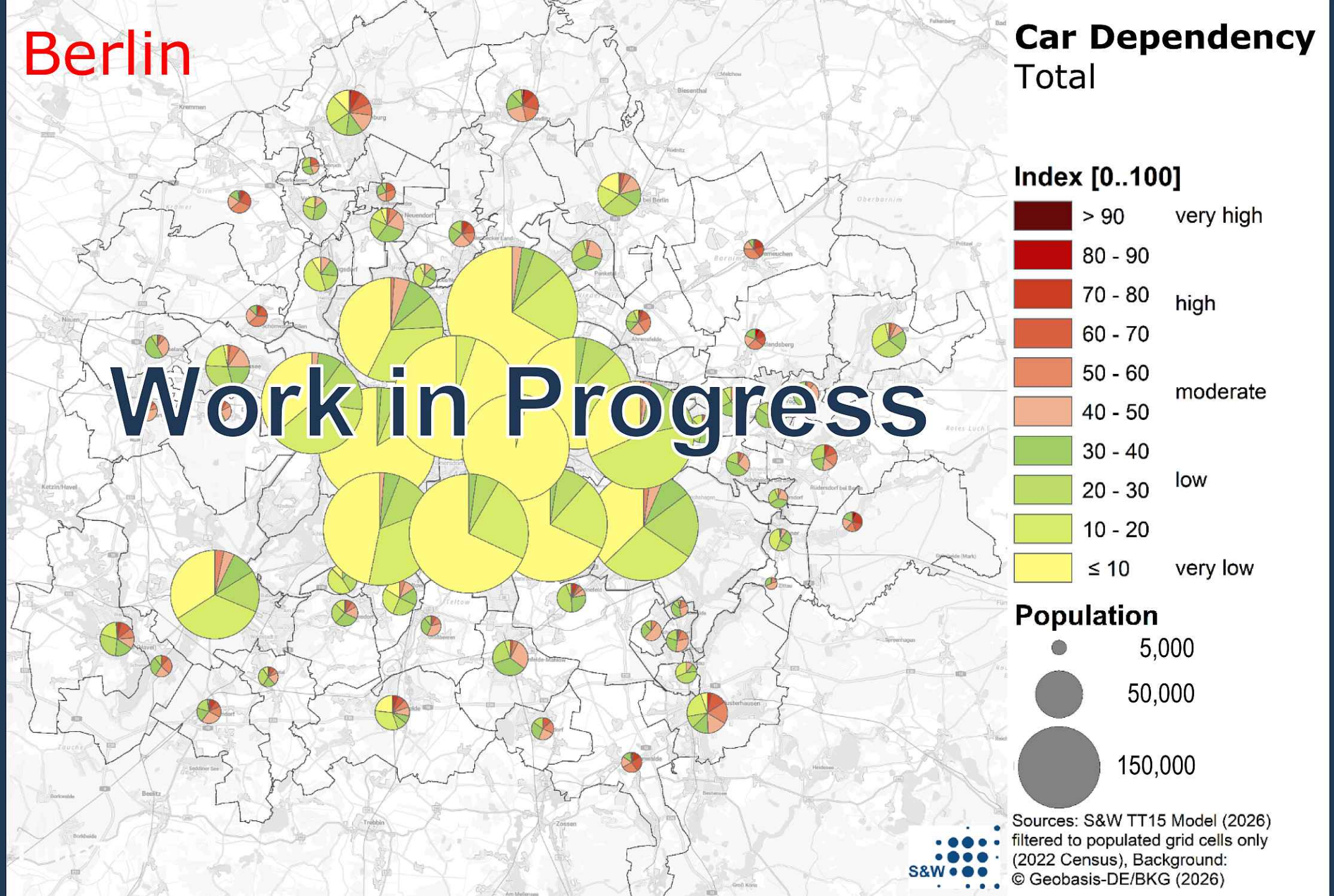
Car Dependency
Total

Index [0..100]

> 90	very high	
80 - 90		
70 - 80	high	
60 - 70		
50 - 60	moderate	
40 - 50		
30 - 40	low	
20 - 30		
10 - 20		
≤ 10	very low	

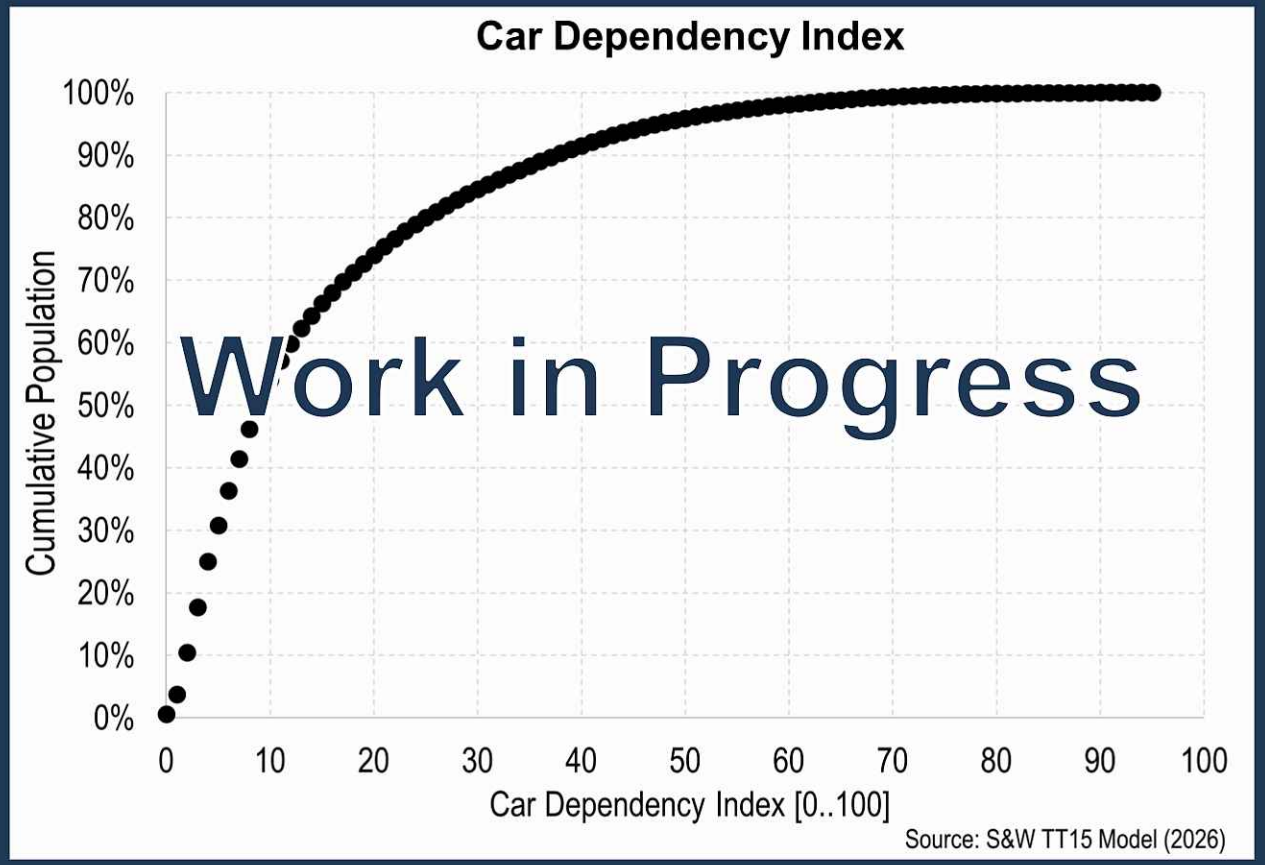
Sources: S&W TT15 Model (2026) filtered to populated grid cells only (2022 Census), Background: © Geobasis-DE/BKG (2026)

Berlin

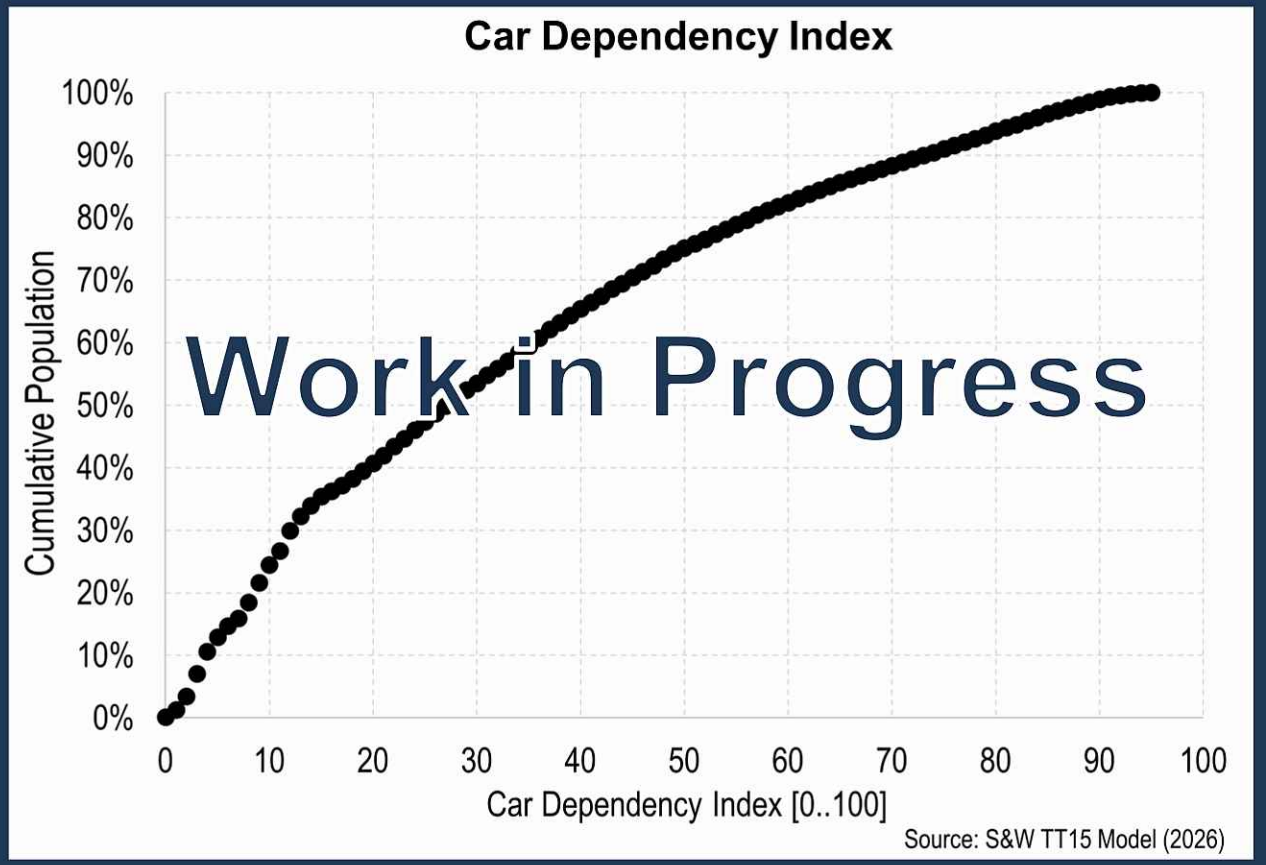

Work in Progress
Car Dependency
Total
Index [0..100]
> 90
very high
80 - 90
70 - 80
high
60 - 70
50 - 60
moderate
40 - 50
30 - 40
low
20 - 30
10 - 20
≤ 10
very low
Population
5,000
50,000
150,000
Sources: S&W TT15 Model (2026) filtered to populated grid cells only (2022 Census), Background: © Geobasis-DE/BKG (2026)
S&W

Cumulative population across Car Dependency

Berlin

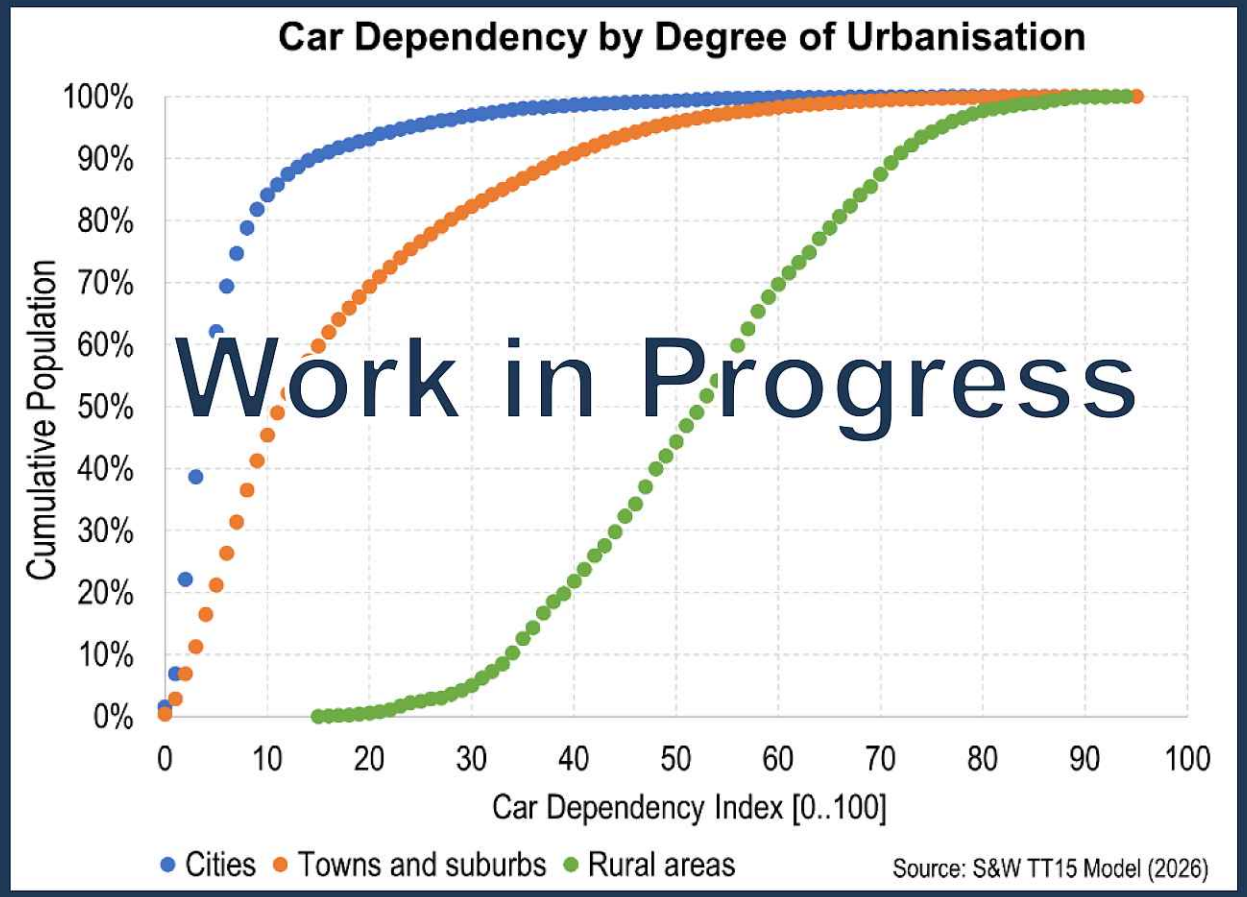


Ljubljana

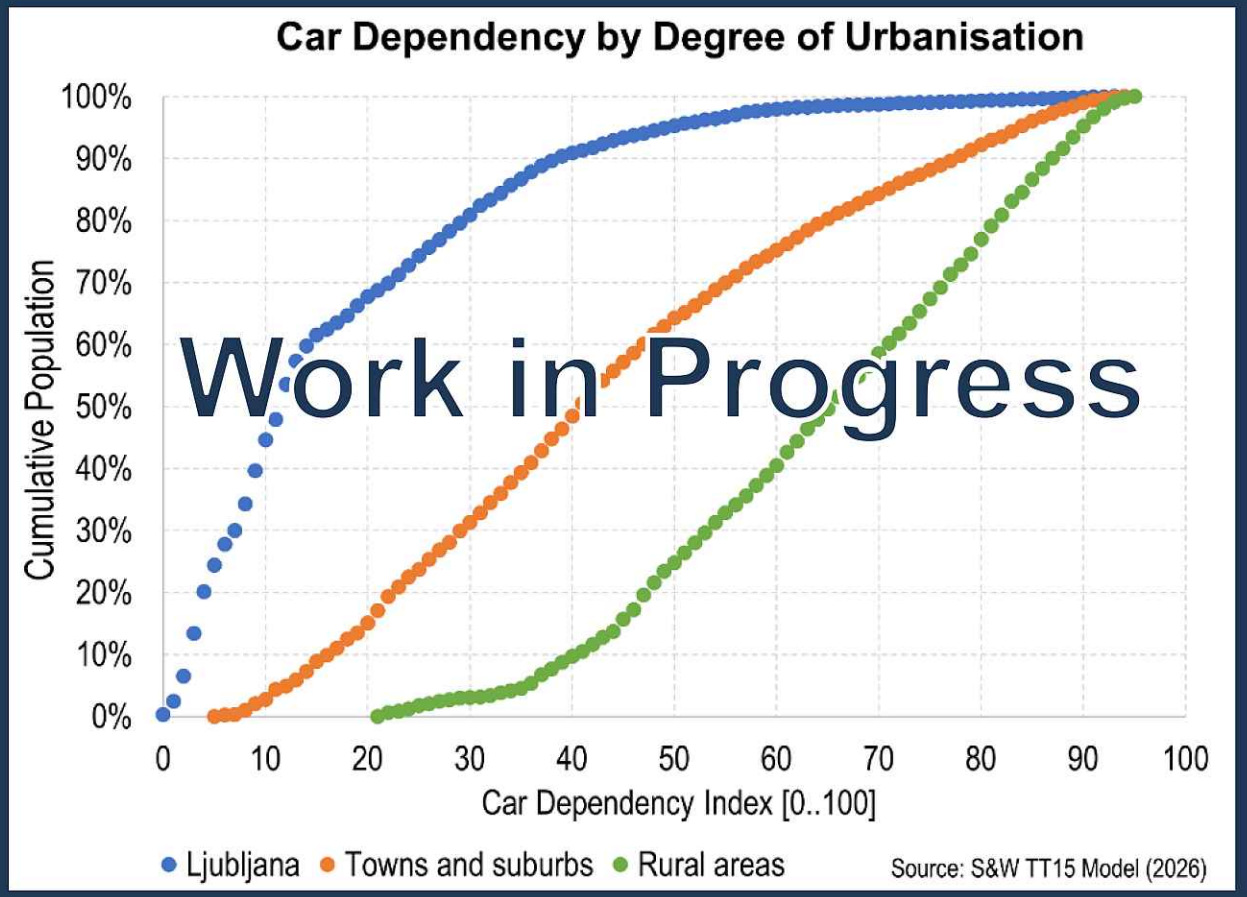


Car Dependency by Degree of Urbanisation

Berlin



Ljubljana



7
Conclusions

Conclusions

- **Areas with high 15mC quality** are much **more widespread than it is commonly expected**
- **Core cities**, but also **centres of smaller towns in the suburban** have highest level, rural areas are often falling aside
- In comparison, **Ljubljana urban region** has lower 15mC qualities and higher car dependency of the population than the other three cities, in the core city and in the countryside
- **Differences exist** between different age groups as well as between different dimensions of the 15mC
- High 15mC qualities are available for **all socio-economic population groups**
- **Car dependency** is in many parts of urban regions more a perceived problem than a fact

Conclusions

- Improvement of 15mC requires **both transport and land use measures**; accessibility monitoring can guide policy and investment decisions.
- **Public transport** should be integrated part of 15mC policies
- **Spatially differentiated strategies** are necessary:
  - **Areas with high 15-minute** city performance should be safeguarded and further enhanced through investments in walkability and cyclability
  - In **intermediate areas**, accessibility, particularly by bicycle and public transport, as well as the availability of amenities and services should be improved
  - **Rural areas** require improvements in accessibility, in particular by bike and through flexible forms of public transport, to reduce objective and subjective car dependency

Najlepša hvala!
Thank you!

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