

Strategic design for mobility and quality of urban spaces. A human-centered approach to urban users' behaviors and choices ...and the AI contribution.

Daniele Ronsivalle

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MOST – spoke 9 Urban Mobility



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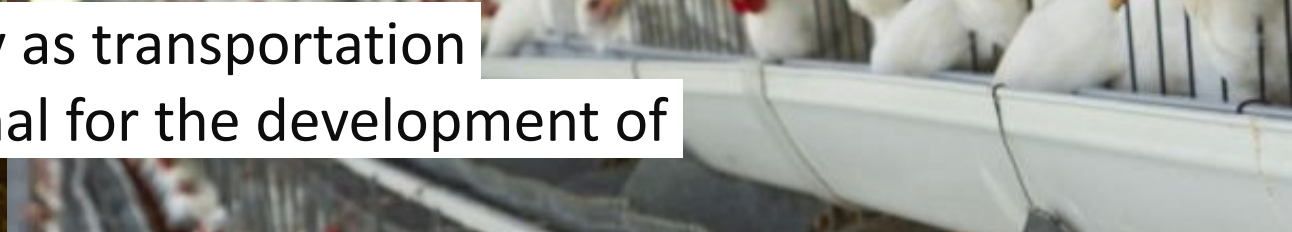
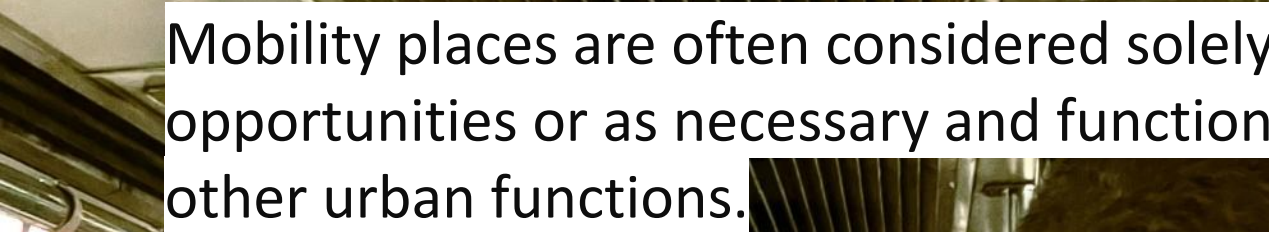
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The places of mobility as an opportunity for urban development

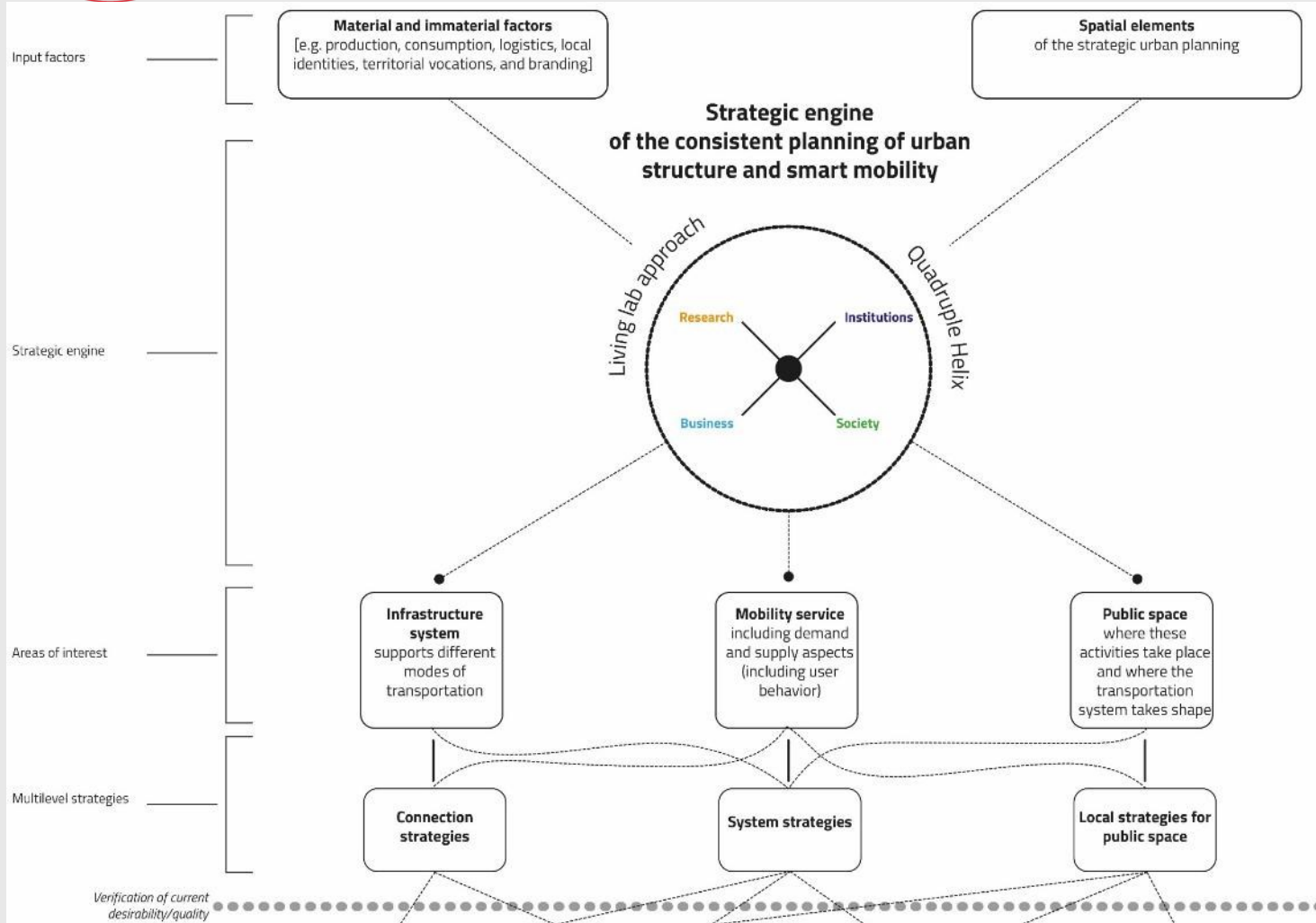
Mobility places are often considered solely as transportation opportunities or as necessary and functional for the development of other urban functions.

But are we sure that they are only this? Or perhaps are they also urban spaces?



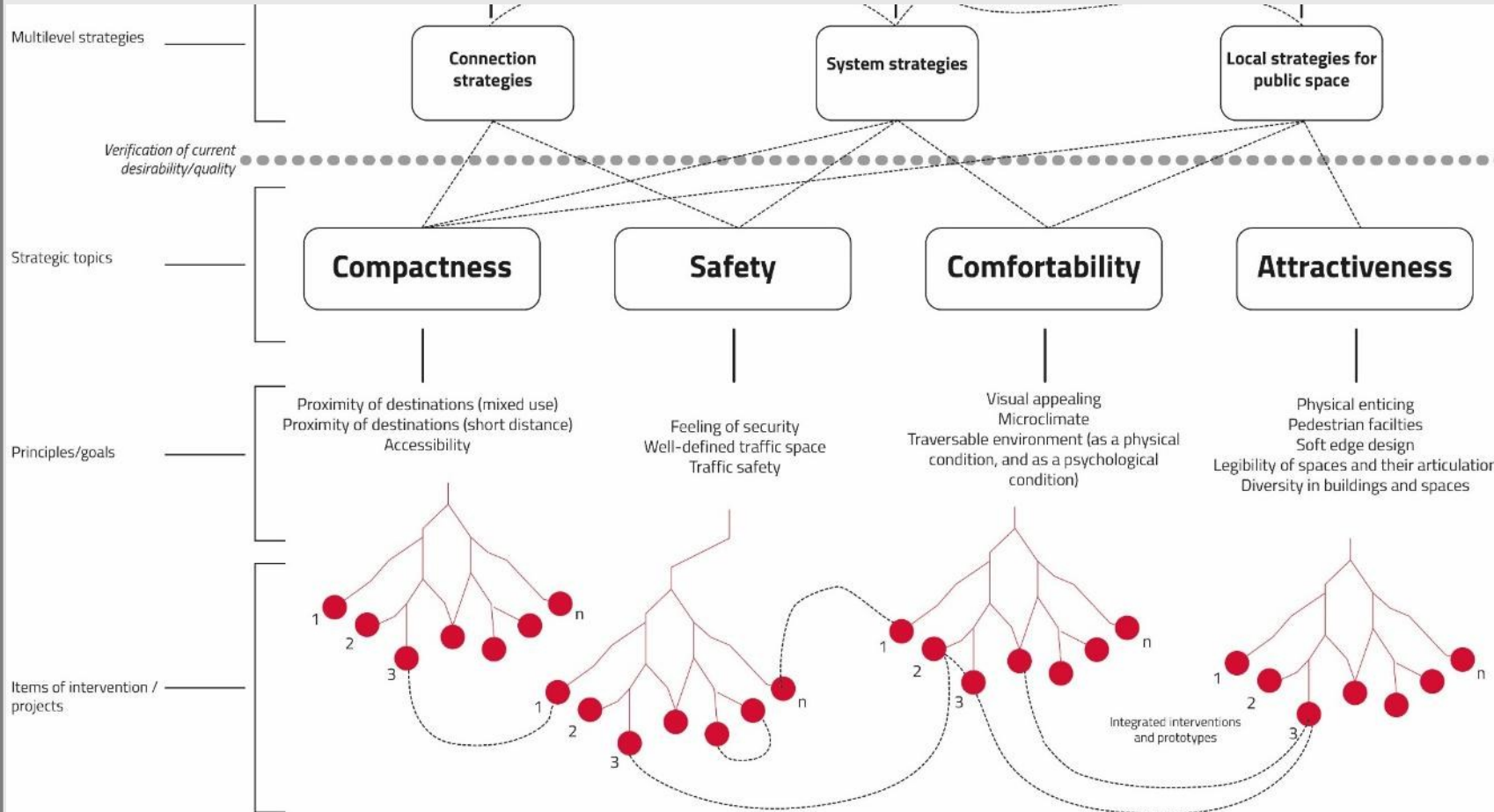
The HLD model for implementation of coherent mobility & urban strategies

Step 0 | A strategic approach (1/2) (Ronsivalle)



The HLD model for implementation of coherent mobility & urban strategies

Step 0 | A strategic approach (2/2) (Ronsivalle)

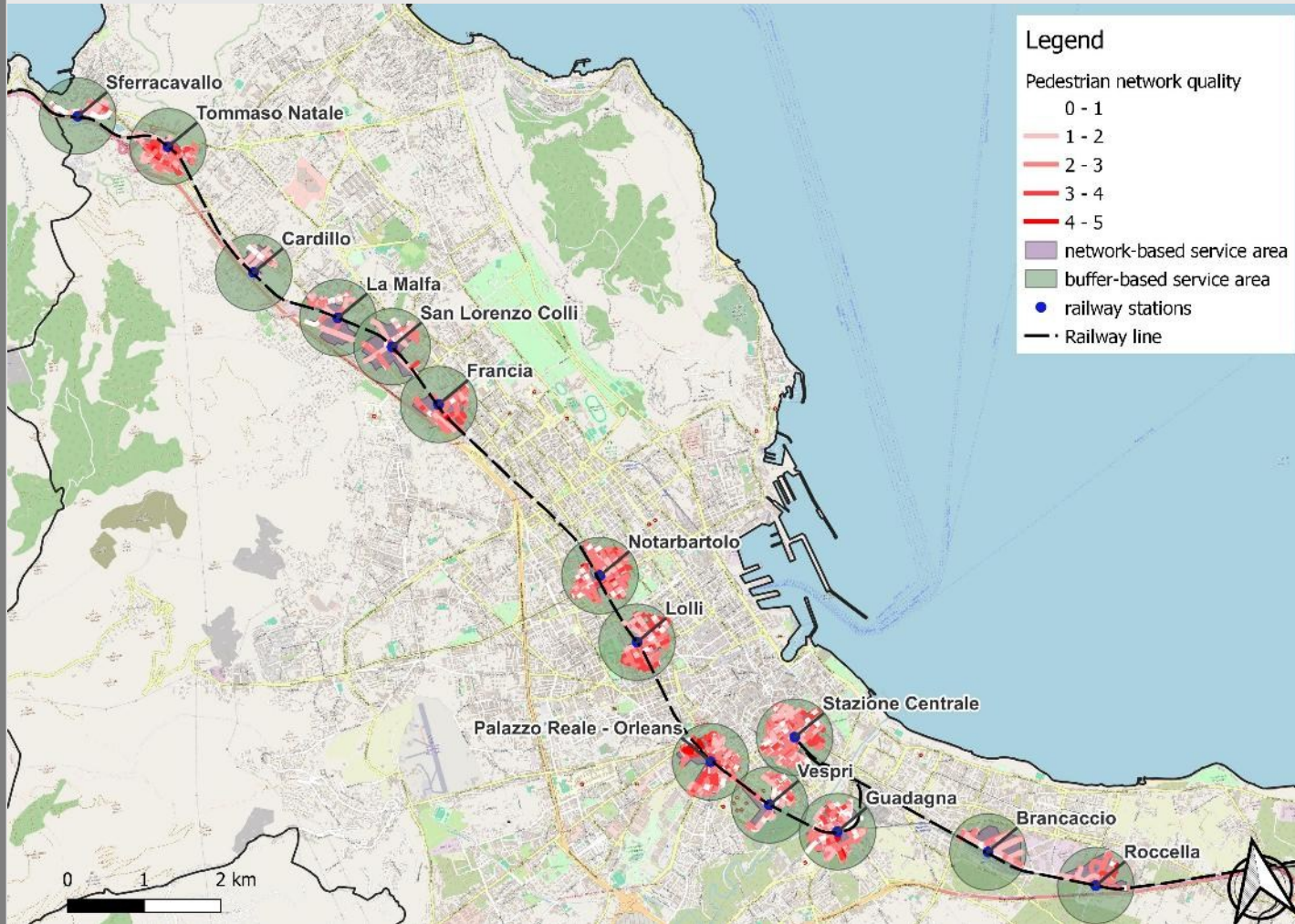


Author: Daniele Ronsivalle (MOST&UNIPA), 2023 | release 1.0

Analysis and assessment of the surrounding of urban rail stations in Palermo.

A multifaceted approach (accessibility, walkability, quality in urban design)

Step 1 | Quality of the pedestrian network (D'Orso, Yasir, Migliore)



Railway stations	0-1	1-2	2-3	3-4	4-5
Brancaccio	7.3	61.8	30.3	0.5	0.0
Cardillo	10.4	73.2	16.3	0.1	0.0
Francia	1.9	13.1	65.3	19.5	0.3
Guadagna	18.0	18.8	45.0	14.4	3.7
La Malfa	4.6	50.1	38.0	7.3	0.0
L'olli	1.6	6.8	32.1	58.0	1.5
Notarbartolo	1.8	8.9	47.2	35.7	6.3
Palazzo Reale - Orleans	7.3	18.2	42.0	22.7	9.9
Roccella	5.1	19.0	60.7	11.8	3.5
San Lorenzo Colli	6.9	49.6	37.5	5.9	0.1
Sferracavallo	21.0	57.8	17.2	4.0	0.0
Stazione Centrale	9.1	22.9	42.0	24.4	1.7
Tommaso Natale	1.2	38.1	33.3	19.9	7.5
Vespri	12.2	31.5	45.6	10.6	0.0

Percentage of km of pedestrian network within the network-defined service area having a quality index falling within a given range

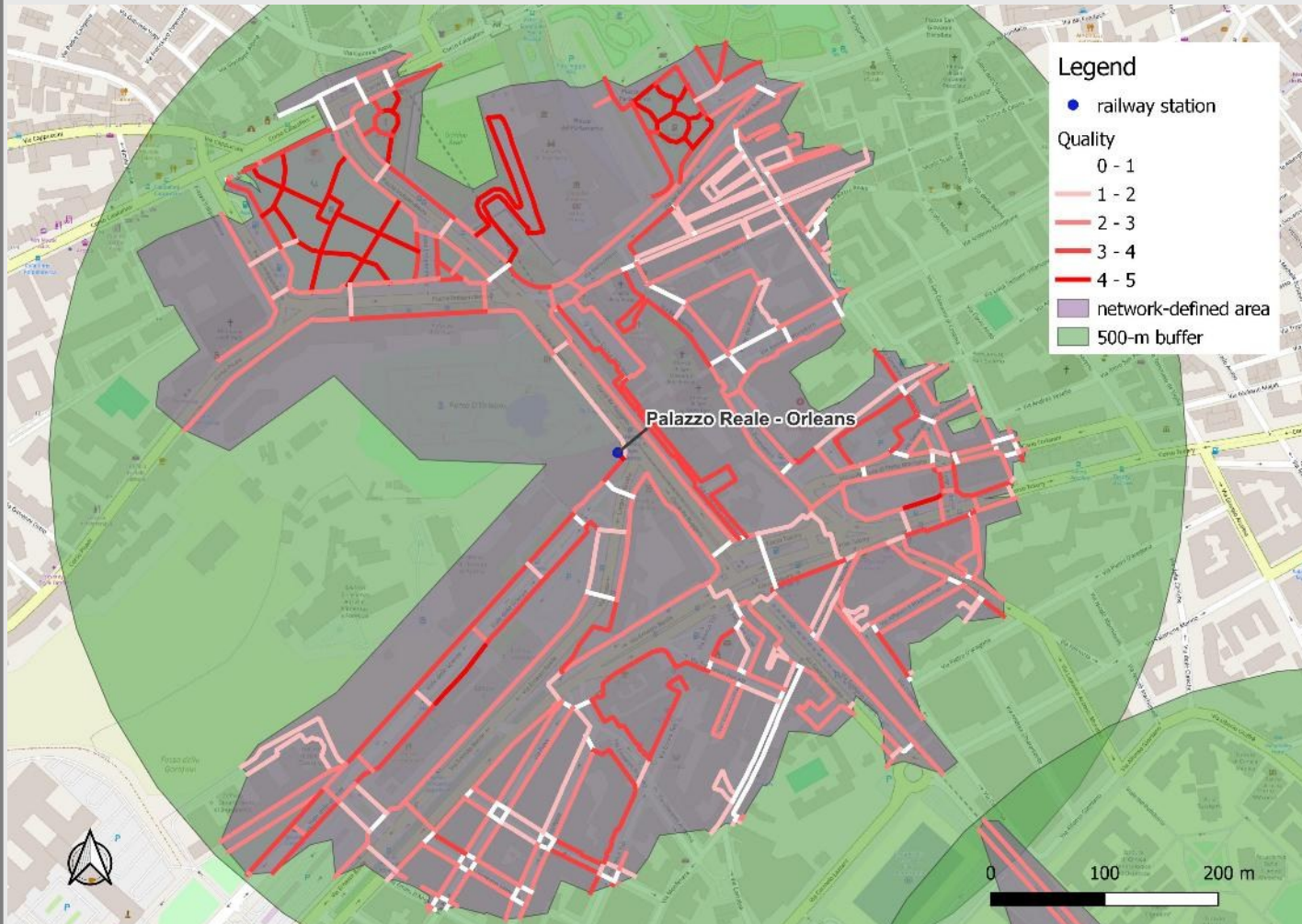
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Step 2 | Functions and facilities in the catchment area of Notarbartolo Station: a quali-quantitative assessment (Igreja)



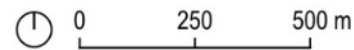
Key urban functions

- Law enforcement / Military
- Government
- Sports facility
- High school
- Public park
- Entertainment

Key services

- 1 Juvenile detention center
- 2 Military barracks
- 3 D. Almeyda high school
- 4 Gonzaga campus
- 5 Parco di Villa Trabia
- 6 Golden theatre

- Station area
- Buildings
- Train station
- Rail line (Passante)



The Notarbartolo station was chosen due to

- its primary role as a multimodal interchange node of the city's mobility network that includes both public transportation (rail, tram and bus) and other active travel modes (free floating electric bikes and scooters), and shared mobility (taxi, car and bike sharing).
- its particular emphasis on street quality, and characterization of the area in terms of density, functional diversity, mobility, and social diversity.

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Step 3 | What about people's feelings? (Ronsivalle, Di Dio, Inzerillo, Morvillo and the relevant support of FSI)

Developing a multifaceted action plan
(i.e., urban background and communities)

What are the users' feelings? Can they be useful in understanding the level of quality of the urban space they inhabit?



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A six-step method for sharing people's sentiments

1. Context analysis
2. On-site observation
3. Proto-personas
4. Interview guidelines and surveys
5. Personas and profiles
6. Validation



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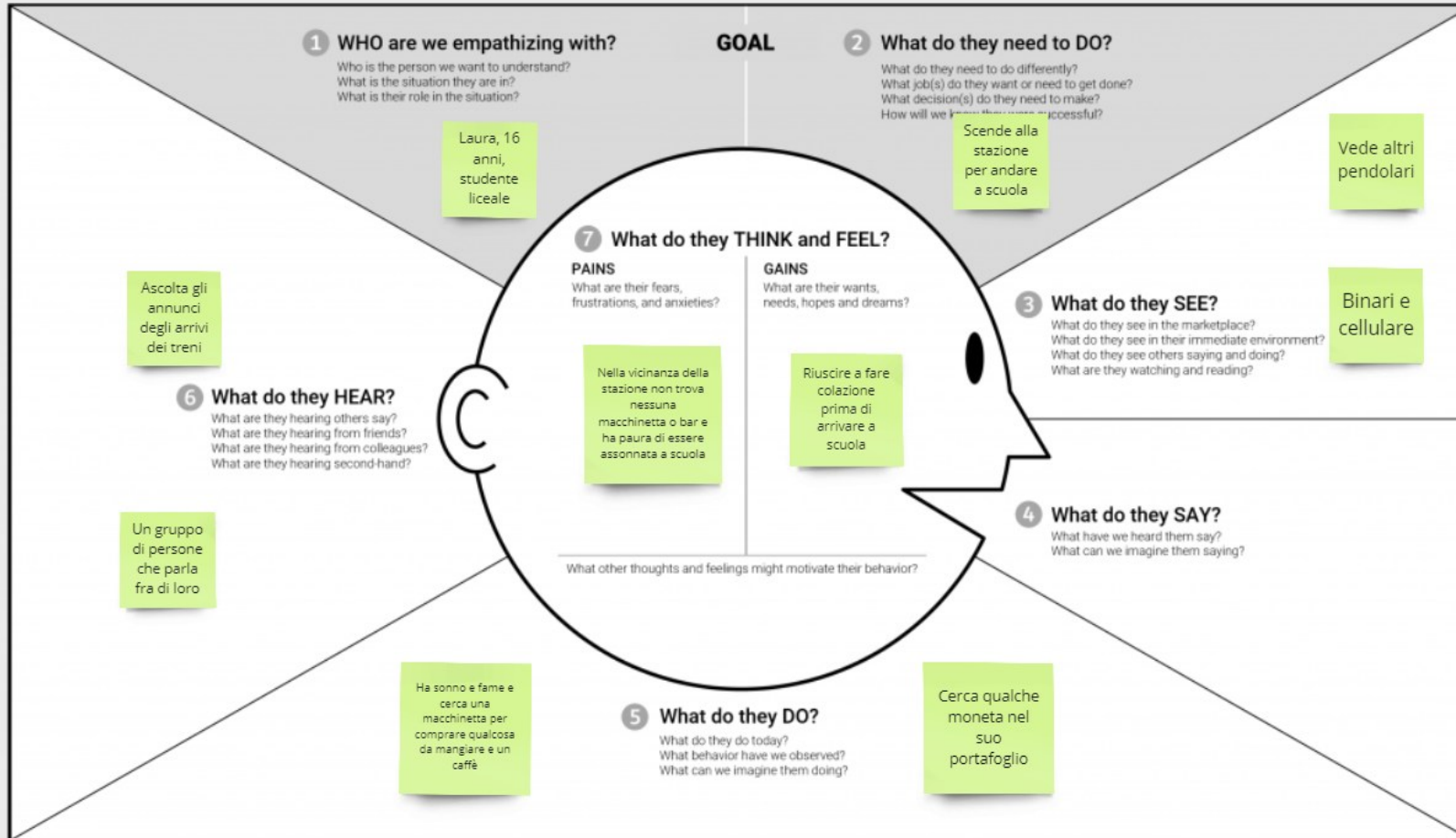
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Empathy Map Canvas

Designed for: _____ Designed by: _____ Date: _____ Version: _____



Step 3 | What about people's feelings? (Ronsivalle, Di Dio, Inzerillo, Morvillo and the relevant support of FSI)

Last updated on 16 July 2017. Download a copy of this canvas at <http://gamestorming.com/empathy-map/>

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Step 3 | What about people's feelings? (Ronsivalle, Di Dio, Inzerillo, Morvillo and the relevant support of FSI)

USER PICTURE	USER NAME	USER AGE	USER PROFESSION	SCENARIO			
	Laura	16	Studente liceale	Scende alla stazione per andare a scuola			
<p>WHAT DOES/DO HE/SHE/THEY SEE?</p> <p>5 4 3 2 1</p> <p>Telefono Persone che scendono dal treno Binari</p> <p>Write down what they see.</p> <p>In a scale from 1 to 5, how dominant is this sense in the experience the user has just lived?</p> <p>Sketch an emoji that represents their status.</p>	<p>WHAT DOES/DO HE/SHE/THEY TOUCH?</p> <p>5 4 3 2 1</p> <p>Monete Telefono</p> <p>Write down what they touch.</p> <p>In a scale from 1 to 5, how dominant is this sense in the experience the user has just lived?</p> <p>Sketch an emoji that represents their status.</p>	<p>WHAT DOES/DO HE/SHE/THEY HEAR?</p> <p>5 4 3 2 1</p> <p>Persone che parlano Annunci di servizio</p> <p>Write down what they hear.</p> <p>In a scale from 1 to 5, how dominant is this sense in the experience the user has just lived?</p> <p>Sketch an emoji that represents their status.</p>	<p>WHAT DOES/DO HE/SHE/THEY SMELL?</p> <p>5 4 3 2 1</p> <p>Odore di binari</p> <p>Write down what they smell.</p> <p>In a scale from 1 to 5, how dominant is this sense in the experience the user has just lived?</p> <p>Sketch an emoji that represents their status.</p>	<p>WHAT DOES/DO HE/SHE/THEY TASTE?</p> <p>5 4 3 2 1</p> <p>Write down what they taste.</p> <p>In a scale from 1 to 5, how dominant is this sense in the experience the user has just lived?</p> <p>Sketch an emoji that represents their status.</p>			
<p>THINK & FEEL </p> <p>Vorrebbe una merendina o un caffè per svegliarsi e fare colazione</p> <p>What really counts Major preoccupation Worries & aspirations</p>		<p>SAY & DO </p> <p>Cerca una macchinetta o un bar nella zona</p> <p>Attitude in public Appearance Behavior towards others</p>		<p>GAIN </p> <p>Riuscire a fare colazione prima di arrivare a scuola</p> <p>Wants/needs Measures of success Obstacles</p>		<p>PAIN </p> <p>Nella vicinanza della stazione non trova nessuna macchinetta o bar e ha paura di essere assonnata a scuola</p> <p>Fears Frustrations Obstacles</p>	



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Dati
(nome, età, ruolo, reddito, residente)

Comportamenti e abitudini
(hobbies, cosa le piace, cosa odia)

Punti dolenti e frustrazioni
(problematiche)

Bisogni e goals
(desideri, speranze)

Dati
(nome, età, ruolo, reddito, residente)

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UX experience.

Some critical issues in the urban planning framework

The user experience (or rather, of each individual) is extremely important because it offers the opportunity to approach urban design differently and better address solutions. However, we run the risk of responding to individual immediate needs and deviating from the public interest when we get too close to the interests of individuals, even when they are the majority and all express the same opinion.

For this reason, the project (including that of the tactical phase) must be **oriented towards an integrated, incremental, and adaptive model.** And this way, UX assumes an integrated role in the project, **building demand and verifying results.**

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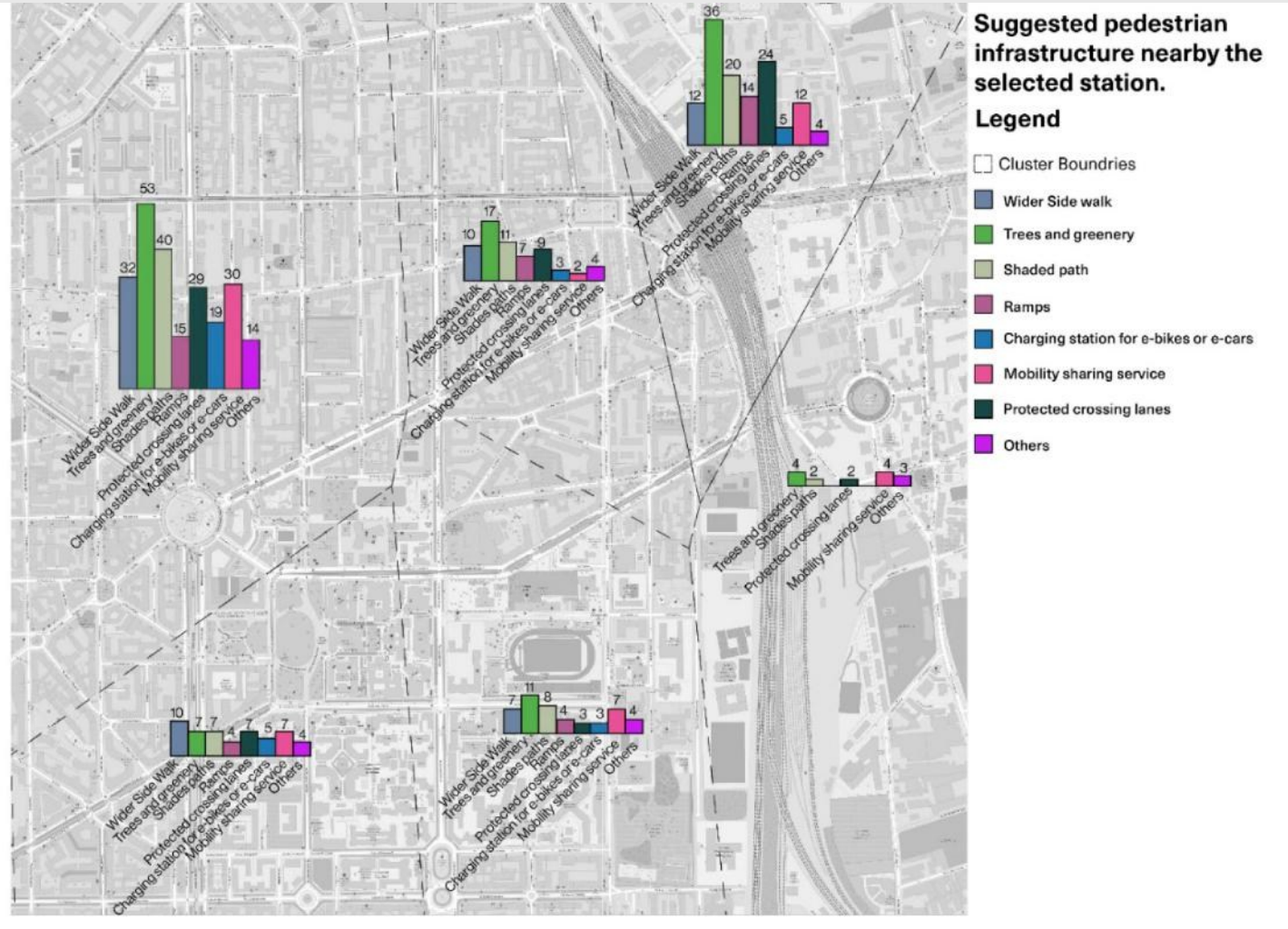
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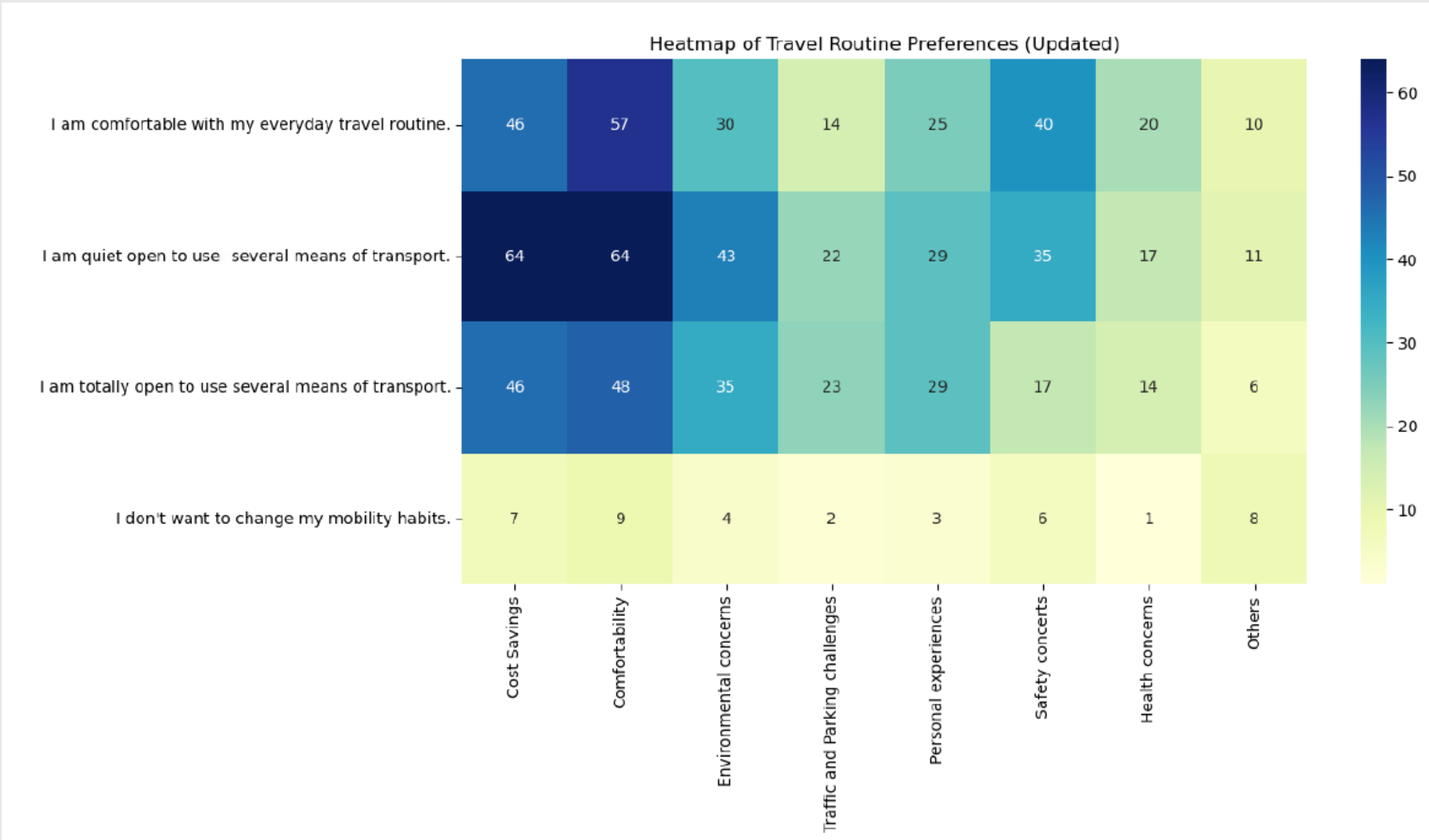
Step 4 | How to engage people?
(Pucci, Lanza, Galbiati, Elgohary)



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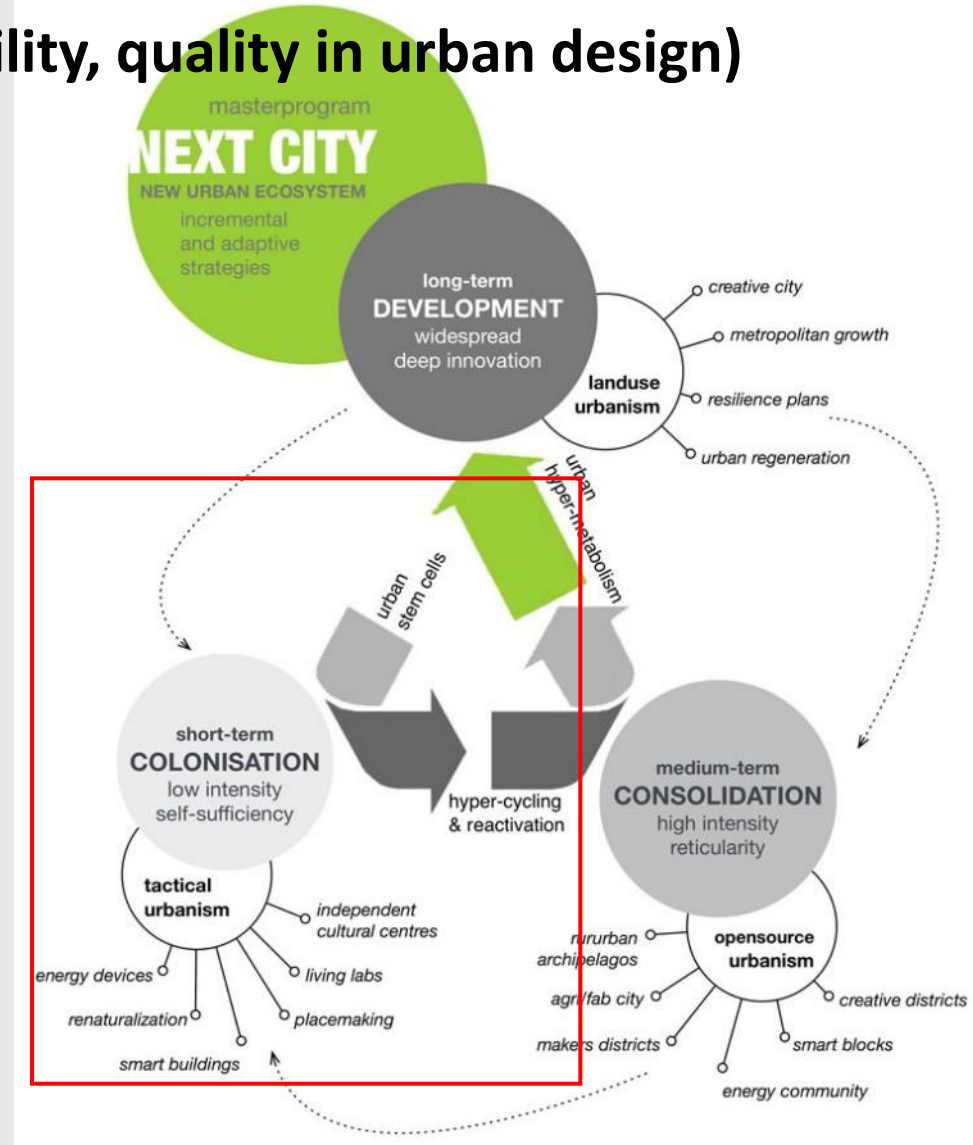
Step 5 | How to embrace the challenge? (Ronsivalle)

An incremental and adaptive planning model

To avoid the conditions outlined above, it is necessary to adopt incremental and adaptive urban planning processes, in order to give the right meaning to tactics.

The model we propose is the "Cityforming Protocol"

Now let's focus on the tactical phase of "colonization"



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Step 5 | How to embrace the challenge? (Ronsivalle with Accardi, Benedetti, Giambruno, Pizzimenti)



IDEA DI PROGETTO

(quali sono le idee derivate dalle soluzioni immediate)

Prime ipotesi di...

- Area di sosta con spazi verdi e sedute ergonomiche.
- Installare delle piccoli alberi odorosi in vaso per ovviare i cattivi odori della città.
- Creare una zona per la socializzazione.
- Prevedere un'illuminazione adeguata per la sicurezza del percorso anche in tarda serata.

Tattiche di breve termine

Strategie di lungo termine

- Riqualficazione della Ex Fabbrica Conserve Alimentari Pensabene.
- Zona pedonale e zona dedicata alla pista ciclabile con pannelli fonoassorbenti.
- Installazione di dossi artificiali rallentatori per l'attraversamento pedonale.
- Installazione di semafori per aumentare la sicurezza per i passaggi pedonali in prossimità della Stazione.

PUNTI DI RITOCOCCO

LEGENDA

- Azioni sulla segnaletica stradale
- Aree urbane da rigenerare
- Strutture già edificate

DOSSI RALLENTATORI VICINO AI PASSAGGI PEDONALI

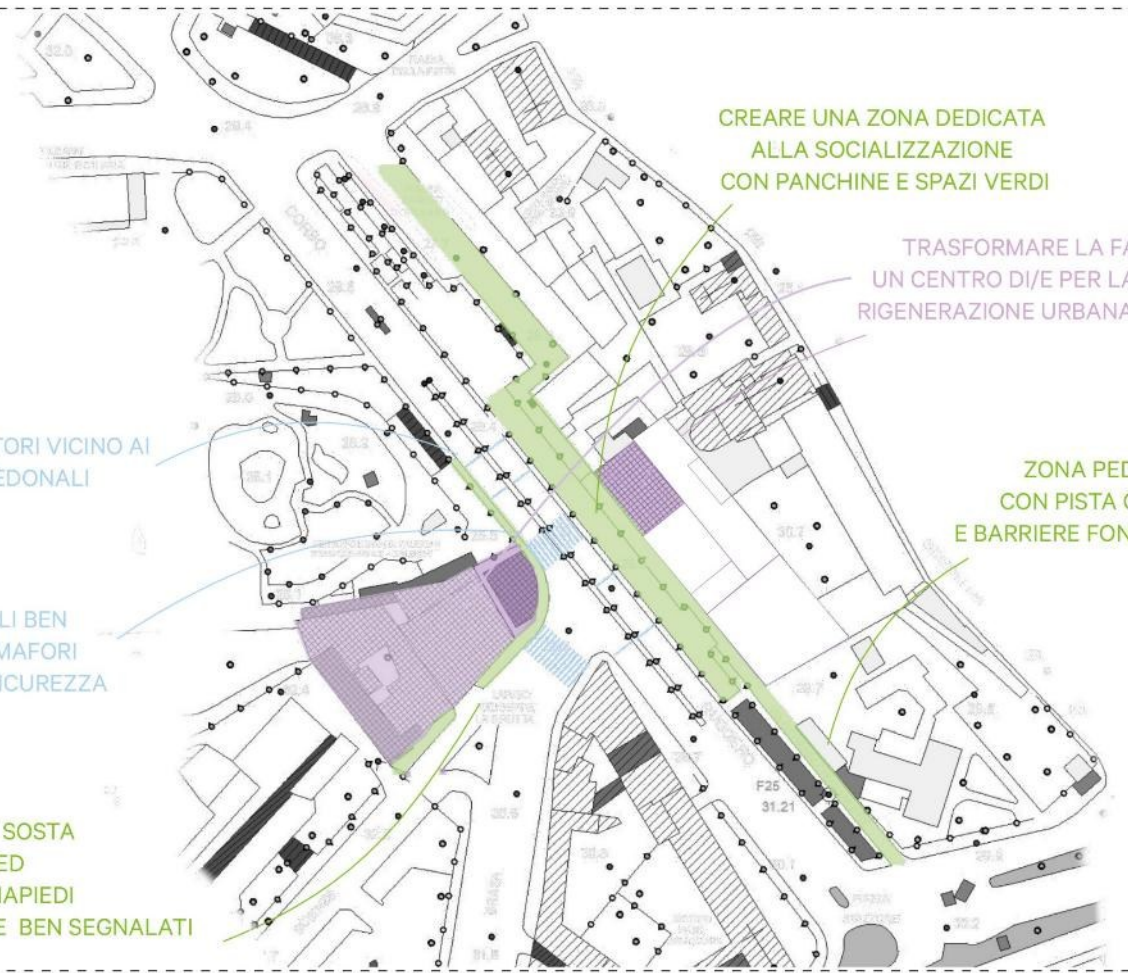
PASSAGGI PEDONALI BEN SEGNALATI CON SEMAFORI PER AUMENTARE LA SICUREZZA

CREARE UN'AREA DI SOSTA IN SICUREZZA ED ALLARGARE I MARCIAPIEDI RENDENDOLI BEN ILLUMINATI E BEN SEGNALATI

CREARE UNA ZONA DEDICATA ALLA SOCIALIZZAZIONE CON PANCHINE E SPAZI VERDI

TRASFORMARE LA FABBRICA IN UN CENTRO DI/E PER LA COMUNITÀ - RIGENERAZIONE URBANA (DELLA ZONA)

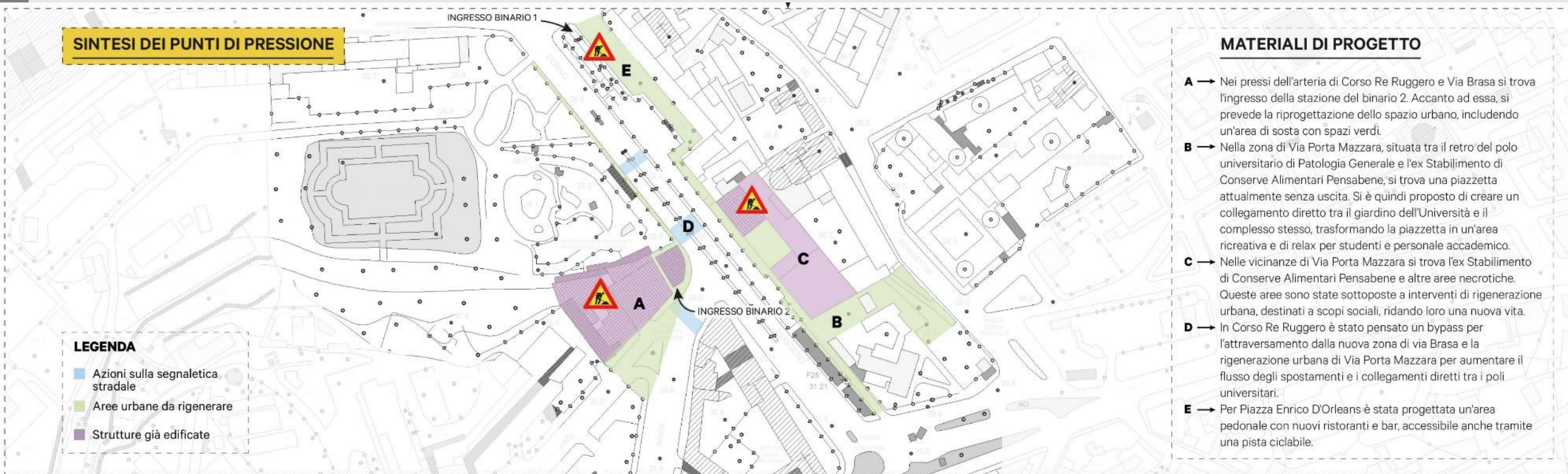
ZONA PEDONALE CON PISTA CICLABILE E BARRIERE FONOASSORBENTI



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Step 5 | How to embrace the challenge? (Ronsivalle with Accardi, Benedetti, Giambruno, Pizzimenti)





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Step 5 | How to embrace the challenge?
(Ronsivalle with Accardi, Benedetti, Giambruno, Pizzimenti)

MATERIALI DI PROGETTO

- Riconferma dell'uso pubblico e della funzione di quartiere e di quartiere di quartiere.
- Riconferma dell'uso pubblico e della funzione di quartiere e di quartiere di quartiere.
- Riconferma dell'uso pubblico e della funzione di quartiere e di quartiere di quartiere.

ZONA 1

ZONA 2

ZONA 3

INQUADRAMENTO URBANISTICO

COLONIZZAZIONE

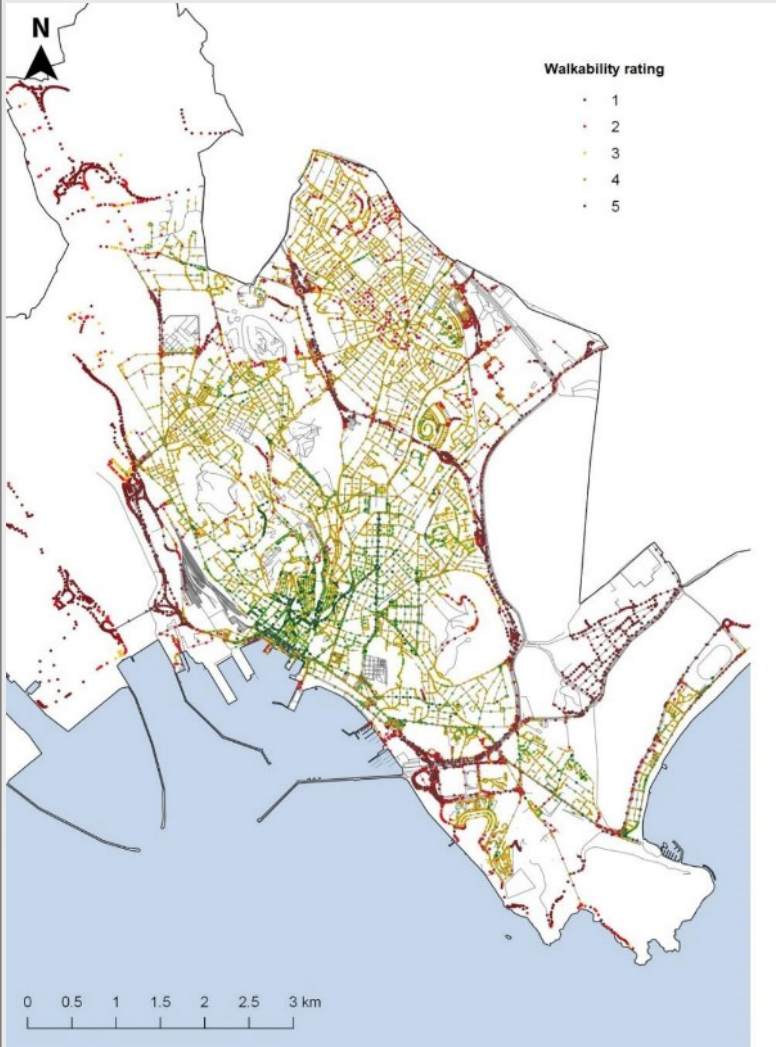
CONSOLIDAMENTO

SVILUPPO





Next (and on-going) steps: a massive urban environment analysis to move steps forward in the project



The joint work develops in three main phases, which we are about to undertake:

- A. The **replication of the machine learning** application and subsequent evaluation of walkability/cyclability within a 1 km radius from the Palermo bypass and railway ring, and its urban stations.
- B. **Preparation of a set of possible intervention models** (tables? Guidelines? Brief evaluation texts to be written by AI as LLaVA comments oriented towards the project?)
- C. Evaluation of possible interventions with the **collection of preferences and perceptions** from users involved in the survey on different hypothetical design scenarios.



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Thank you for your attention!

Daniele Ronsivalle is affiliated at
National Sustainable Mobility Center (Centro Nazionale per la Mobilità Sostenibile—CNMS)

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