Cocreating age-friendly cities: the Age-Friendly Neighbourhood Index and its application in urban planning

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SUSTAINABLE PLACES 2023

Creating age friendly cities is an URGENT policy challenge…

urbanage
Grant Agreement n. 101004590

Presenting unique challenges around health, mobility, and the physical environment

URBANAGE project

URBANAGE is a European Horizon 2020 project that investigates how digital technology can address the **needs of older people in the urban environment**.

Helsinki (FI)

Santander (ES)

Flanders (B)

In **2050** 16% of the world population will be **over 65 years old**, joined to the fact that the 68% of the world population will be **living in cities**
(from the United Nations data)

Co-creation for identification of challenges, user requirements and potential solutions/3 workshops 3 pilots

CC1 OLDER CITIZENS

Identify needs and challenges experienced by older adults related to ageing in cities

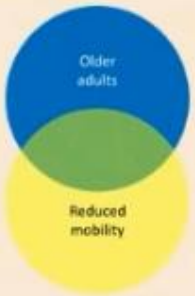
CC2 CIVIL SERVANTS

Identify their current way of working and barriers encountered with respect to new technologies and data + validate relevant WHO indicators for age-friendly cities

CC3 CIVIL SERVANTS & OLDER CITIZENS

Creation of user journeys to prioritize user requirements based on importance and technical feasibility.

What have we done?

	HELSINKI	SANTANDER	FLANDERS
DEVELOPMENTS	Participatory data collection tool	Age-friendly route planner	Green comfort index
	Physical data collection tool		
	Tool/data to assist planning	Simulation tool for long-term urban planning	 City services for older people

SANTANDER PILOT – Simulation tool for long-term urban planning

D1: Outdoor spaces and buildings

T1.1:Neighbourhood walkability	24	6,04	T1.2: Accessibility of public spaces and buil	22	5,54	T1.3: Public safety	22	5,54	T1.4: Environmental conditions	32	8,05
1.1.1.Rest places	17	1,03	1.2.2.Accessible public buildings	36	2,01	1.3.1. Rate of crimes against older peopl	40	2,20	1.4.1. Location of public green and wate	20	4,03
1.1.2.Benches	15	0,91	1.2.1.Accessible public spaces	35	1,93	1.3.2. Phyisical incidents in public space	60	3,34	1.5.1. Temperature	21	1,03
1.1.3.Public toilets	21	1,27	1.2.3.Accessible open space	29	1,59				1.5.2. Light areas	21	1,04
1.1.5.Walkways	23	1,39							1.5.3. "Quiet" zones	16	0,80
1.1.6.Sheltered zones	13	0,79							1.5.4. Clean air	23	1,15
1.1.4.Crosswalks	11	0,66									

D2: Transport and mobility

T2.1. Access to public transport stops	32	5,23	T2.2. Access to priority vehicle parking	18	2,99	T2.3. Urban accessibility solutions	32	5,26	T2.4. Traffic levels	17	2,74
2.1.1. Housing and public transportati	65	3,40	2.2.1. Priority parking in public buildings	38	1,14	2.3.1. Urban accessibility solutions' sche	60	3,16	2.4.1. Safe biking infraestructure	52	1,42
2.1.2. Bus shelters	35	1,83	2.2.2. Special parking permits	38	1,14	2.3.2. Short time parking lots	40	2,10	2.4.2. Traffic volume	48	1,31
			2.2.3. Maintenance in winter	24	0,72						

D3: Housing

T3.1. Availability and affordability of housing	62	21,25	T3.2. Accessible housing	38	13,03
3.1.1. Public housing options	57	12,11	3.2.1. Accessible housing	100	13,03
3.1.2. Protected flats for older people	43	9,14			

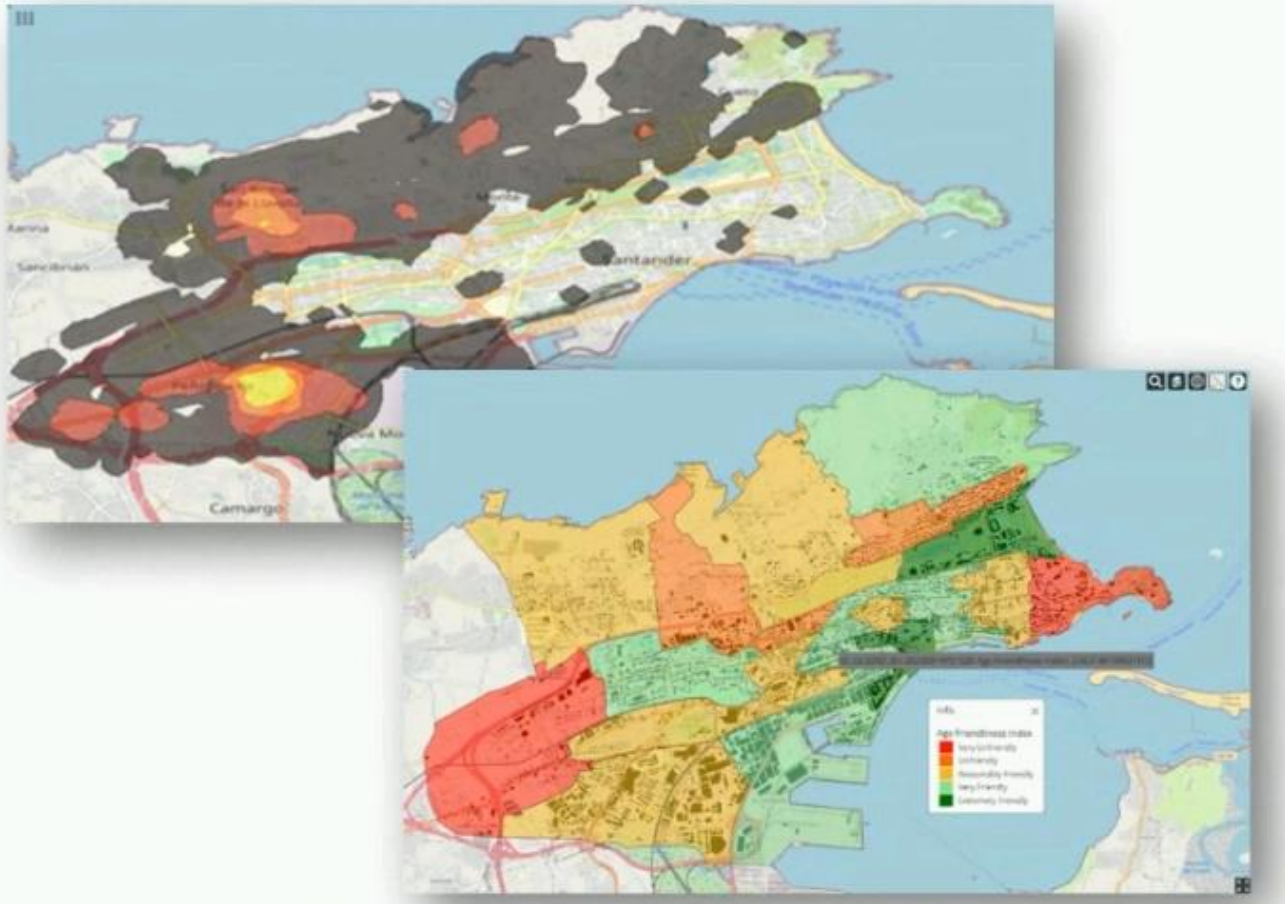
D4: Social participation and communication

T4.1. Accessibility of participation opportunities	53	12,89	T4.2. Internet access	47	11,44
Access to community-based activities	22	2,84	4.2.1. Internet access	100	11,44
Access to community centers	18	2,32			
Access to convenience stores	14	1,81			
Access to leisure services	14	1,81			
Access to health services	14	1,81			
Access to cultural and educational fac	10	1,29			
Access to sites of worship	8	1,03			

DOMAIN	Points	%
D1: Outdoor spaces and buildings	25,17	25%
D2: Transport	16,22	16%
D3: Housing	34,28	34%
D4: Social participation and communi	24,33	24%
Total	*100*	

Age-Friendliness Neighbourhood Index (AFNI)

SANTANDER PILOT – Simulation tool for long-term urban planning



WHAT?

- Provide a **tool for urban planning** focused on age friendliness
- Develop an **Age-Friendliness Neighbourhood Index (AFNI)** which integrates:
  - Urban accessibility
  - Access to urban services
  - Public and private infrastructures for older adults
  - Amenities available in the urban space
- Multicriteria calculation of AFNI
- **Identify priority** areas
- Simulate **future scenarios**: cost- benefit analysis

SANTANDER PILOT – Simulation tool for long-term urban planning

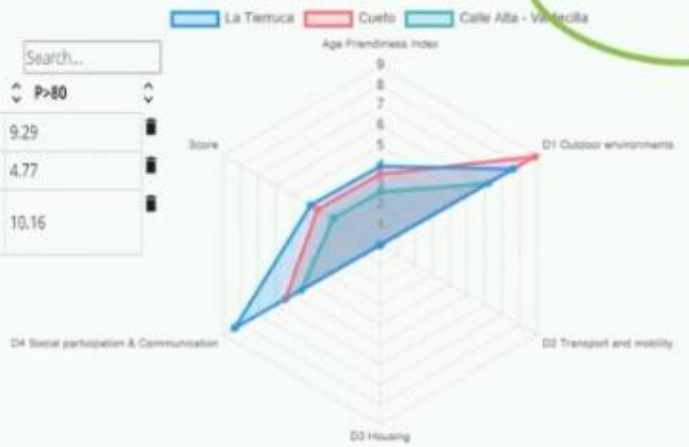
HOW?

DIGITAL TWIN

- Mapping the city information and generating the Digital Twin
- Generating a portfolio of solutions
- AFIS communication
  1. Potentially, create AFIS scenario with domain priorities
  2. Ask AFIS for evaluation and optimal location
     - Visualizing in chart and GIS Map

Search...

Neighborhood	AgeFriendlinessIndex	score	P>65	P>80
La Tierruca	3.95	3.99	26.4	9.29
Cueto	3.55	3.58	17.13	4.77
Calle Alta - Valdecilla	2.66	2.68	28.08	10.16



AFIS (Age-Friendliness Index Simulator)

1. **Setup**, currently fixed priorities from expert criteria
   - Loading map setup: addresses, neighbourhood, services, city graph
   - Creating **simulation configuration**: Weights, conveying or banned streets
2. **Simulation**
   - Compute isochrones (once per simulation)
   - Evaluate amenities within reach, then evaluating AFNI
   - Compute Isochrone Overlapping for optimal service placement
   - Visualize manual indicator changes simulation in visor

SANTANDER PILOT – SIMULATION TOOL FOR LONG-TERM URBAN PLANNING

FOR WHOM?

- 2 target group :
  - **Decision-makers**: have a diagnosis of the age friendliness of the different neighbourhoods of the city in order to **make informed decisions**.
  - **Civil servants** : urban planners and technicians will use the simulation tool to be able to identify in which parts of the city older people face more barriers and in which domains, and to **simulate** beforehand which would be the **impact of the implementation** of different solutions.

Name : Francisco

Age : 59

Job : Urban planning councillor

Lives in : Santander, Spain

Hobbies : Being involved in social and cultural activities and associations. To spend time with his family

Challenges:

- He uses a wheelchair to move and knows well **the barriers a person with mobility issues can find** at city level.
- He wants to know **how to adapt** the city of Santander to the **needs of the older citizens**
- He wants to make **informed decisions** when he decides how to spend the **municipal budget**.

FRANCISCO

Name : Antonio

Age : 58

Job : Urbanism director

Lives in : Santander, Spain

Hobbies : Biking, trekking, and meeting with friends

Challenges:

- He want to guarantee that **all the citizens** (including the older ones) **participate** in the definition of the City General Urban Plan.
- How to **translate people´s needs into urban planning**?
- He would like to **simulate** how different **interventions** at neighbourhood level would **improve its age friendliness**.

Santander UC2: Simulation tool for long-term urban planning [TEC]

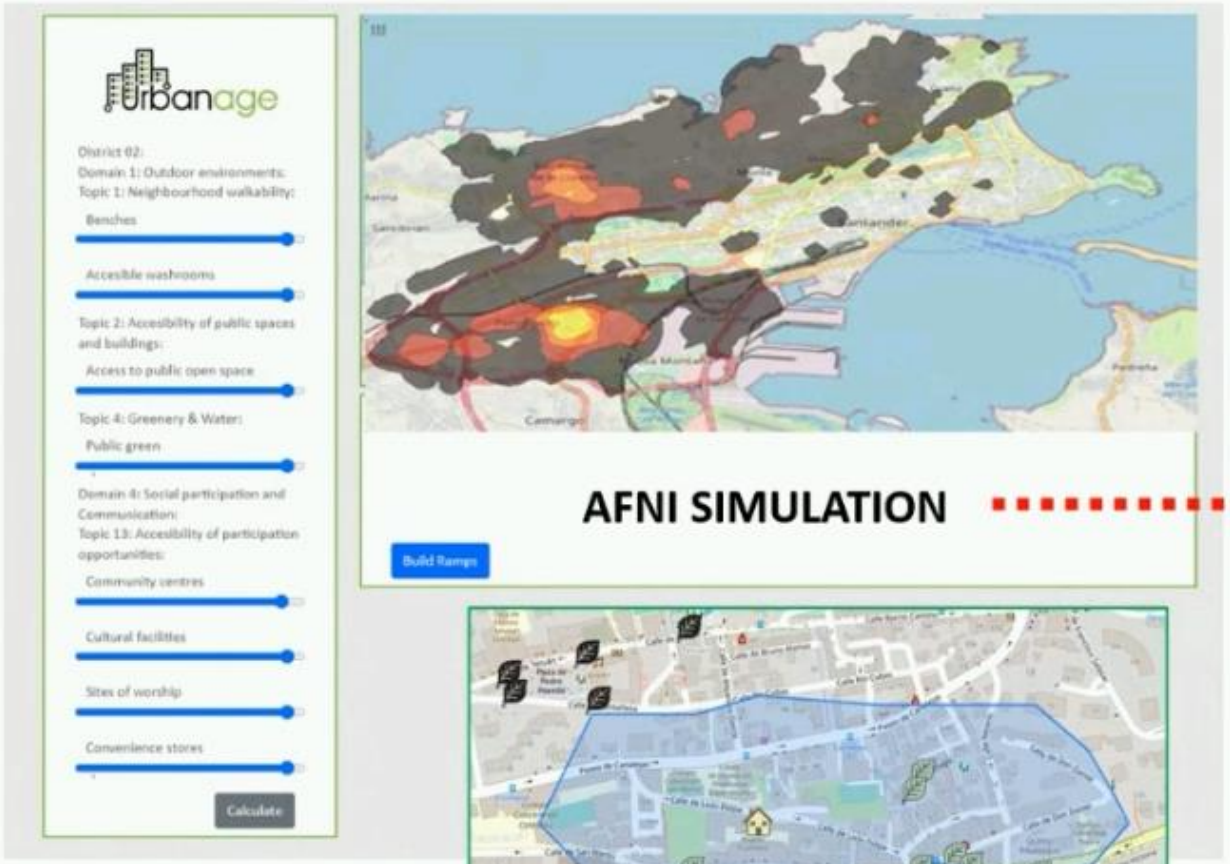
Francisco is **urban planning councillor** in the city of Santander .

He is aware of the **demographic change** and the **challenges** it represents for the **city** of Santander and to its capacity to offer the best to its citizens.

He wants to make **informed decisions** when he decides how to spend the **municipal budget**.

With that objective he would like to know which are the less age friendly in order to improve them. **How age friendly are the city´s neighbourhoods?**

Age Friendliness Index



AFNI SIMULATION → **AFNI VISUALIZATION**

Age Friendliness Neighbourhood Index (AFNI) SIMULATION

Age Friendliness Index

NEIGHBOURHOOD LEVEL ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▶ **BUILDING LEVEL**

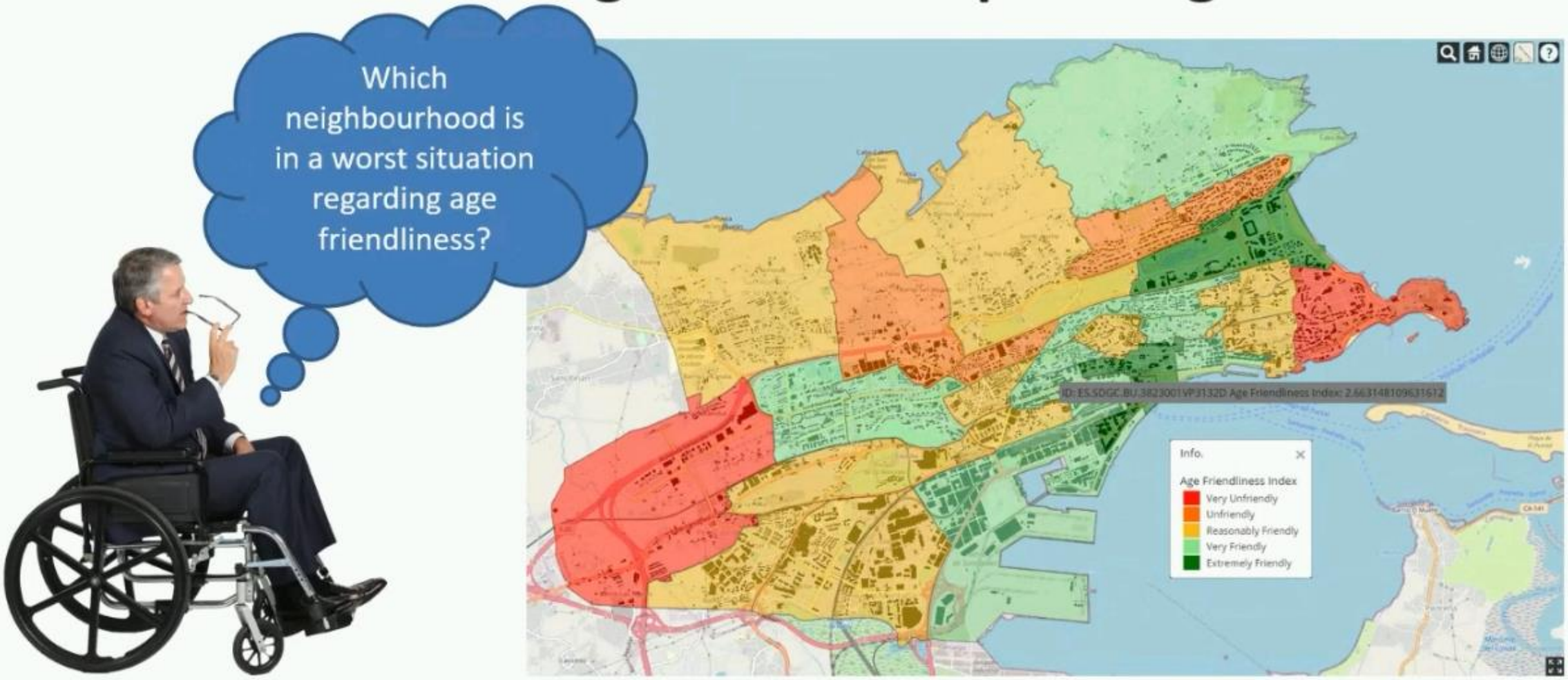
Search...

Neighborhood	AgeFriendlinessIndex	Outdoor environments (D1)	Transport and mobility (D2)	Housing (D3)	Social participation & Communication (D4)	score
La Tierruca	3.95	7.62	0	0	8.34	NaN
Castilla - Hermida - Pesquero	3.67	5.88	0	0	9.02	NaN
Ciudad Jardín - Florida - Cuatro Caminos	2.09	4.64	0	0	3.79	NaN
Peñacastillo - Ortega y Gasset	2.12	5.84	0	0	2.67	NaN
Cueto	3.55	8.87	0	0	5.44	NaN
San Francisco - Prosilio	1.81	4.03	0	0	3.28	NaN
Estaciones - Catedral	4.47	6.44	0	0	11.71	NaN
San Fernando	3.97	6.31	0	0	9.77	NaN
El Sardinero	5.96	21.69	0	0	2.07	NaN
Calle Alta - Valdecilla	2.66	6.19	0	0	4.54	NaN

1 2 3 4

Age Friendliness Neighbourhood Index (AFNI)

Simulation tool for long-term urban planning

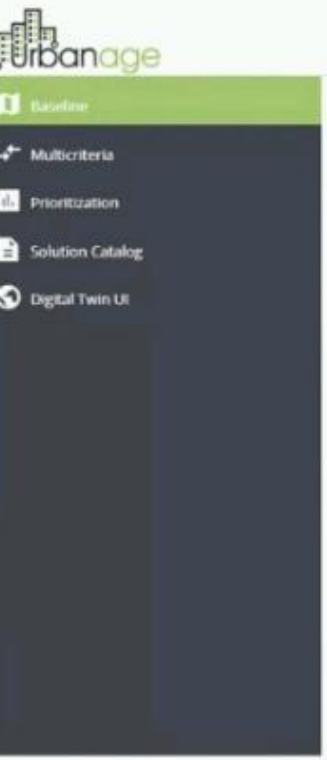


DIGITAL TWIN

Identification of Priority Areas

Francisco has a meeting with Antonio , Urbanism director , and they discuss where they can improve and how.

US8: Identification of Priority Areas



Baseline

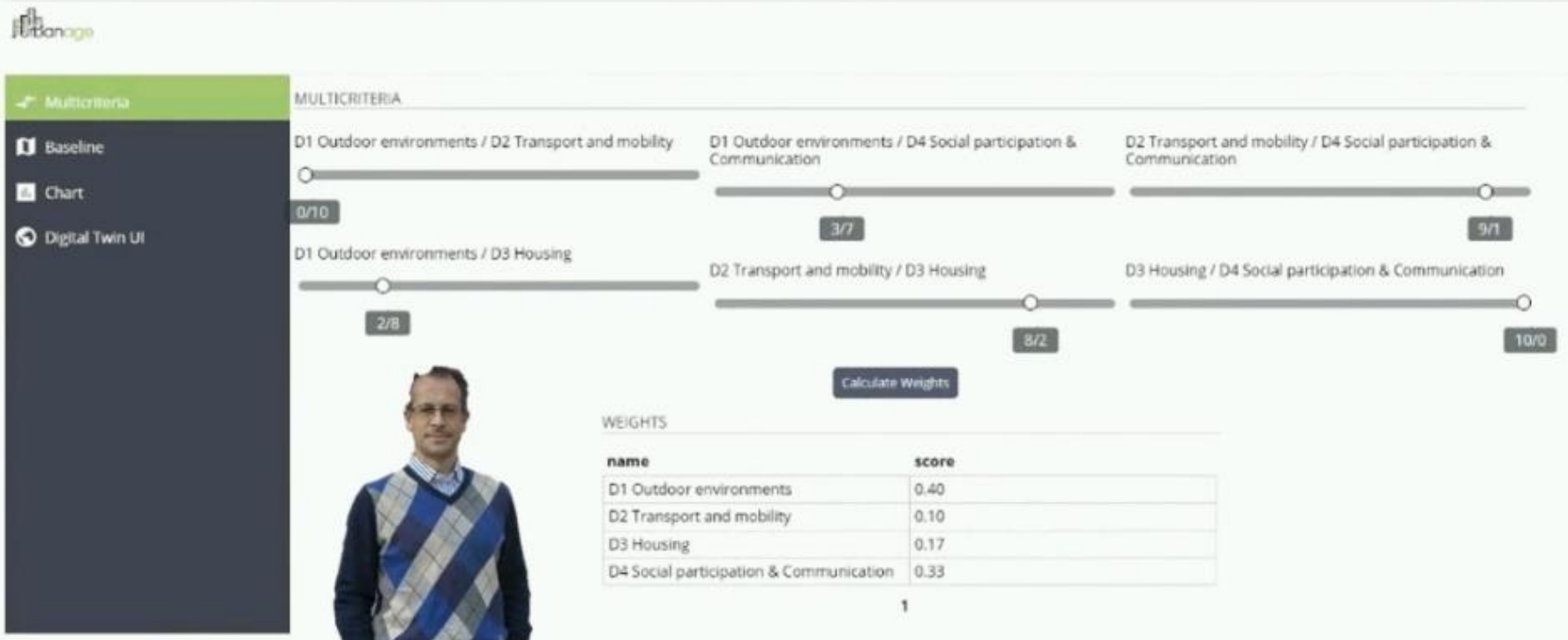
Neighborhood	AgeFriendlinessIndex	Outdoor environments (D1)	Transport and mobility (D2)	Housing (D3)	Social partic... Communicat...	
La Tierruca	3.95	7.62	0	0		
Cueto	3.55	8.87	0	0		
Calle Alta - Valdecilla	2.66	6.19	0	0		
S-20 - La Torre	1.06	4.18	0	0		
San Román de La Llanilla	2.62	6.61	0	0		
Valdenoja	1.21	4.53	0	0		3.09
El Alta - Conservatorio - Altamira	3.9	6.34	0	0		6.33
Menéndez Pelayo	2.12	5.24	0	0		4.23
La Albericia	1.86	4.6	0	0		3.71
Paseo Pereda - Puertochico	3.1	6.37	0	0		5.62

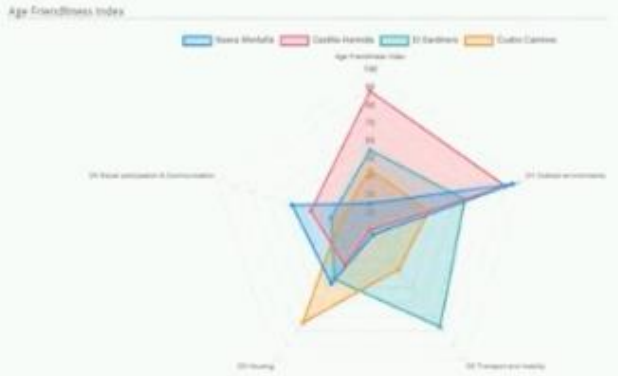
1 2 3 4

In the objectives of the municipality during this year we want to improve the public spaces…which neighbourhood would improve age-friendliness most by improving public spaces ?

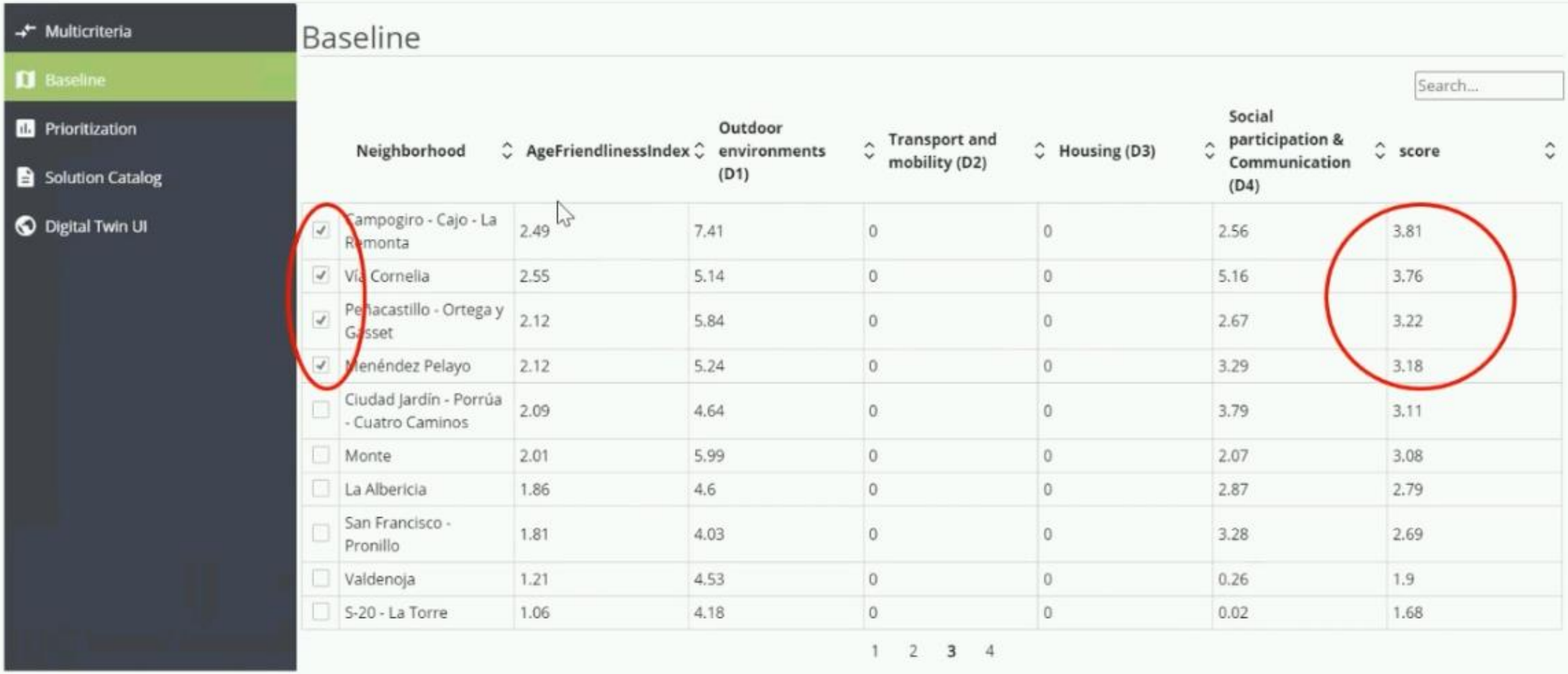
MULTICRITERIA ANALYSIS

US7: Multicriteria Analysis





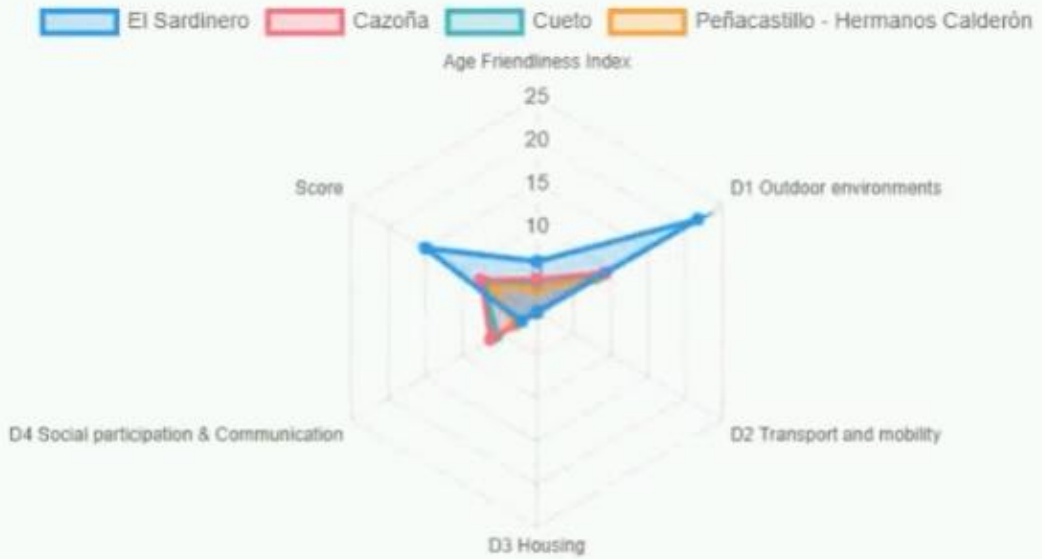
US7: Multicriteria Analysis



Multicriteria Analysis for the Identification of Priority Areas

Urbanage

Prioritization



Search...

Neighborhood	AgeFriendlinessIndex	score	P>65	P>80
El Sardinero	5.96	14.3	30.9	10.54
Cazoña	3.84	7.55	28.45	7.17
Cueto	3.55	7.14	17.13	4.77
Peñacastillo - Hermanos Calderón	2.71	5.96	13.19	3.37

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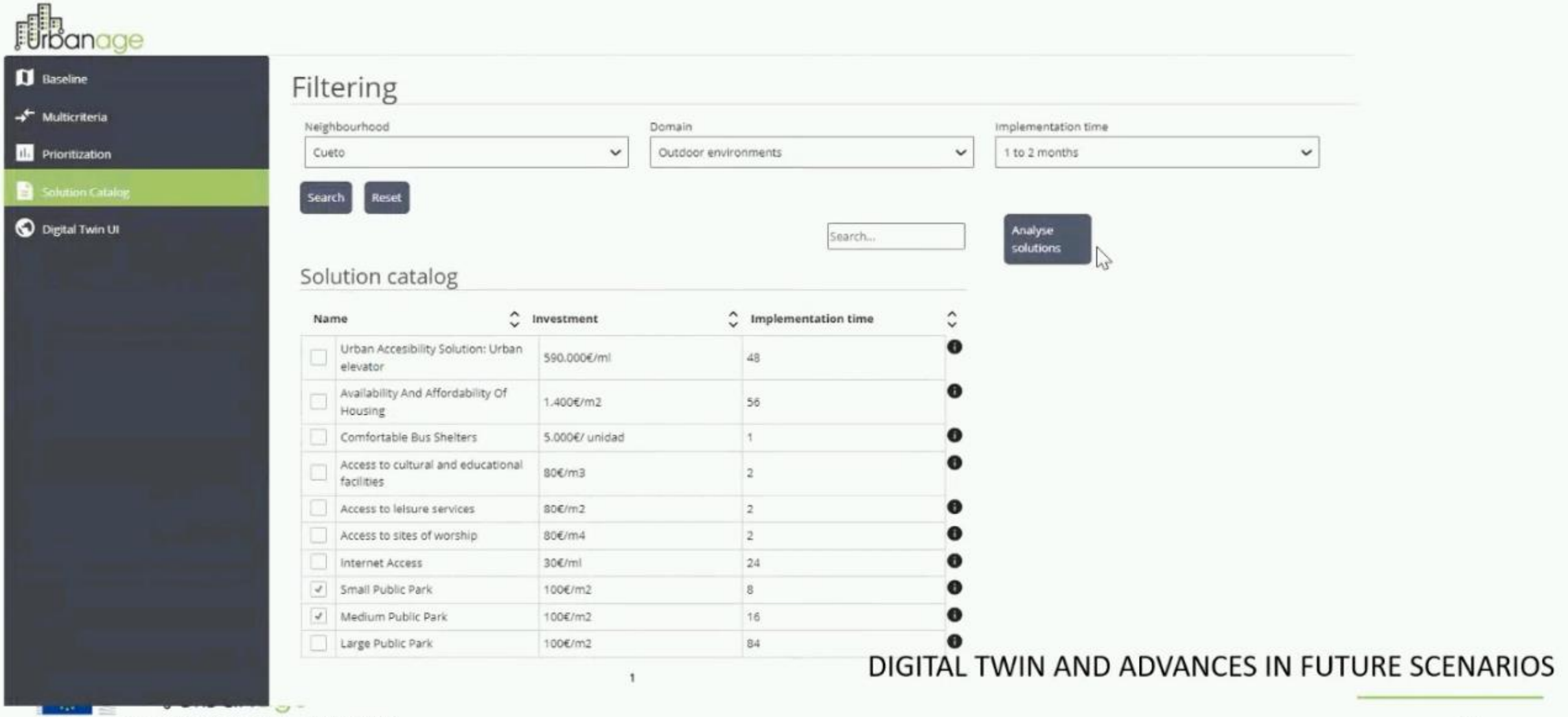
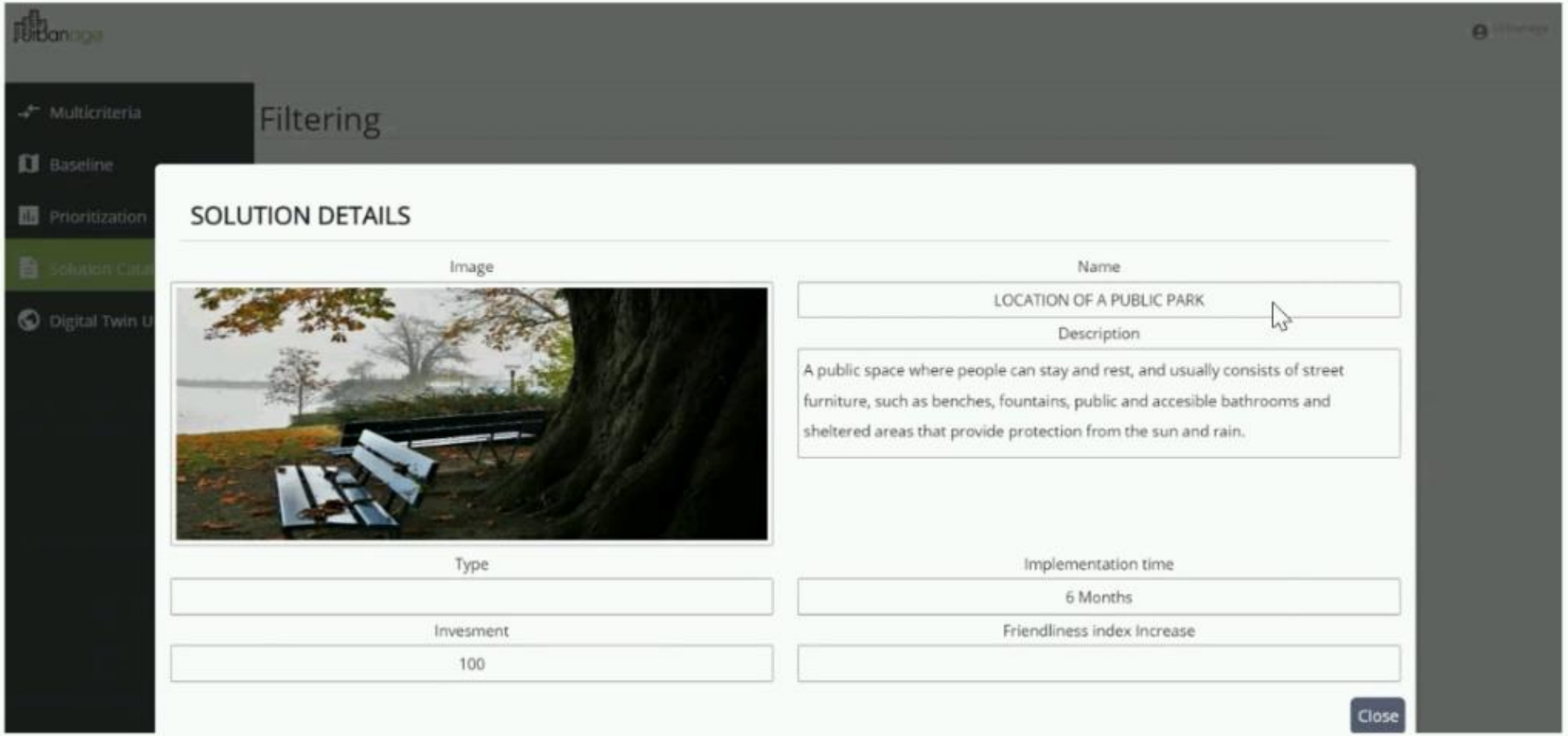
Simulate Future Scenarios (First Steps)

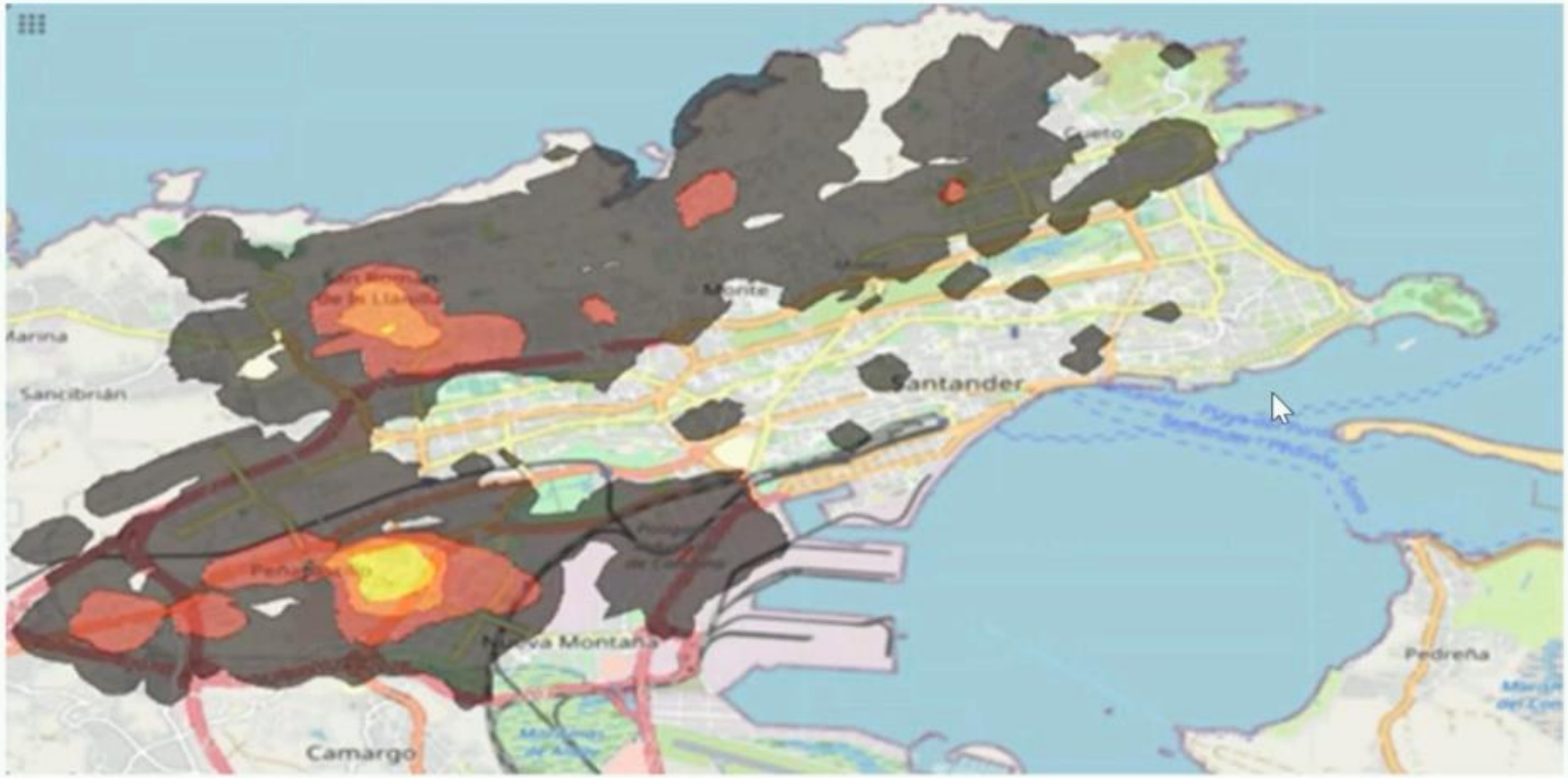


DIGITAL TWIN AND ADVANCES IN FUTURE SCENARIOS

Simulate Future Scenarios (First Steps)



Santander UC2: Simulation tool for long-term urban planning



AGE FRIENDLY INDEX SIMULATION

Thank you for your attention

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