



How public green space is valued by residents of high-rise buildings in Rotterdam

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P5 presentation

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&
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Stichting Hoogbouw: 'Goede hoogbouw levert een positieve, sociale impuls aan de stad'



Wonen in peperduur 'verticaal bos' in hartje Utrecht? 'Mensen smeken om op wachtlijst te komen'

Een architect met grote haast om steden te vergroenen

Voor Winy Maas, de Willy Wonka van de architectuur, is bouwen optimisme én oorlog.

Door Kirsten Hannema



Alle Haagse hoogterecords gaan sneuvelen

HIGH-RISE RESIDENTIAL BUILDINGS IN DUTCH CITIES

LIVEABILITY

PUBLIC
GREEN
SPACE
(PGS)



PROBLEM STATEMENT

- Mismatch
- Context dependent
- Quantification



The screenshot shows a news article from nrc.nl. The article title is 'Rotterdam na Corona: minder verstenen, meer vergroenen'. The author is Henk Licher, and the date is 3 september 2020. The article is categorized as an 'opinie' (opinion). The text of the article is partially visible, starting with 'De maatregelen tegen corona maken duidelijk dat Rotterdam verkeerd omgaat met woningbouw. De paauzeloze verdichting en verstening van de stad moet stoppen, zegt Henk Licher.'

To what extent have public green spaces (PGS) a determinant effect on the housing price of high-rise buildings in Rotterdam?

SUB-QUESTIONS

1. Why are public green spaces of importance for residents, municipalities and developers?
2. What factors of PGS could influence the housing price of high-rise buildings in Dutch cities?
3. How is the housing price of residential high-rise buildings in Rotterdam determined?



Schouwburgplein (AD, 2017)



Opknopbeurt voor Schouwburgplein (Bouw en Uitvoering, 2017)





LITERATURE REVIEW

02

HIGH-RISE BUILDINGS

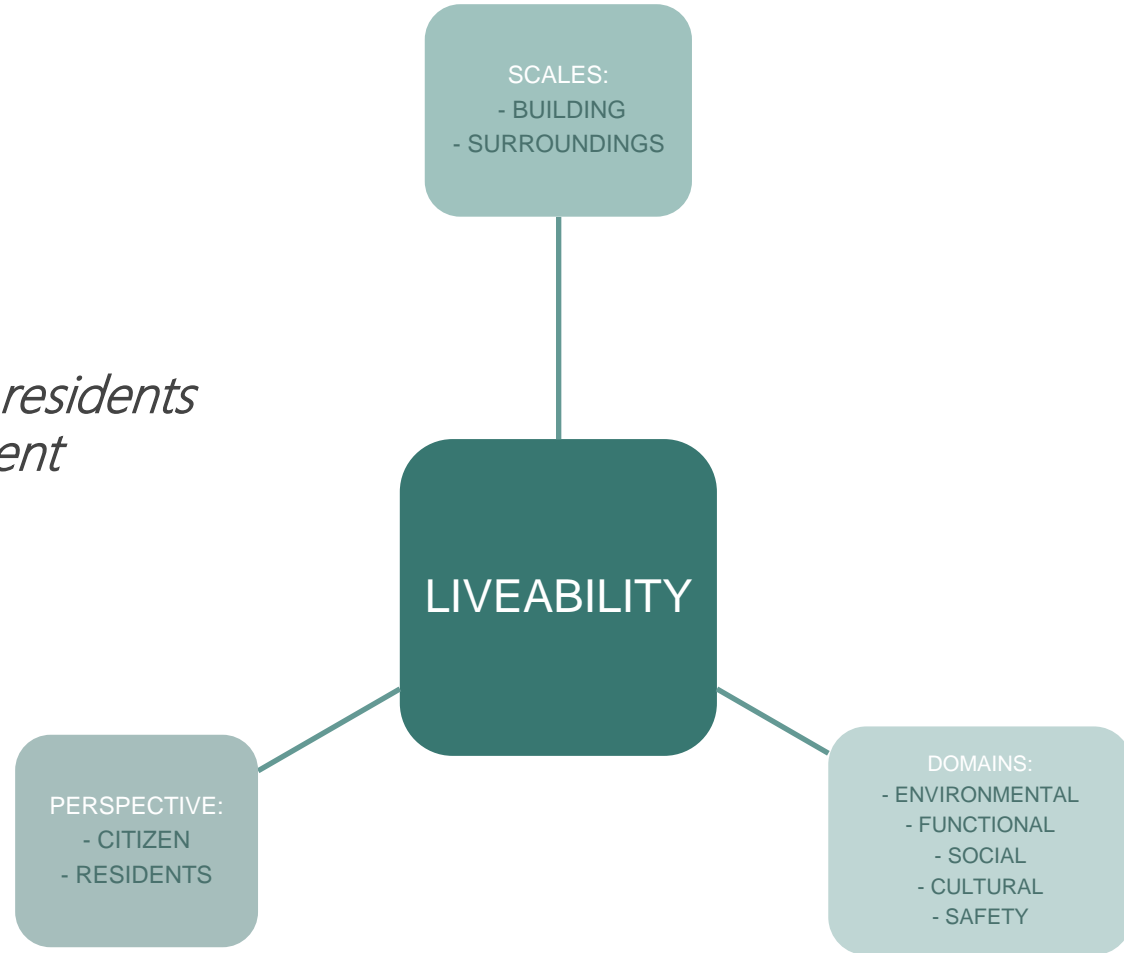
Residential towers with a minimum height of 70 meters



LITERATURE

LIVEABILITY

The quality of life and satisfaction of the residents and citizen in the urban environment



PUBLIC GREEN SPACE (PGS)

"Spaces that contain green elements that contribute to a better quality of life"
(Noor et al., 2015)

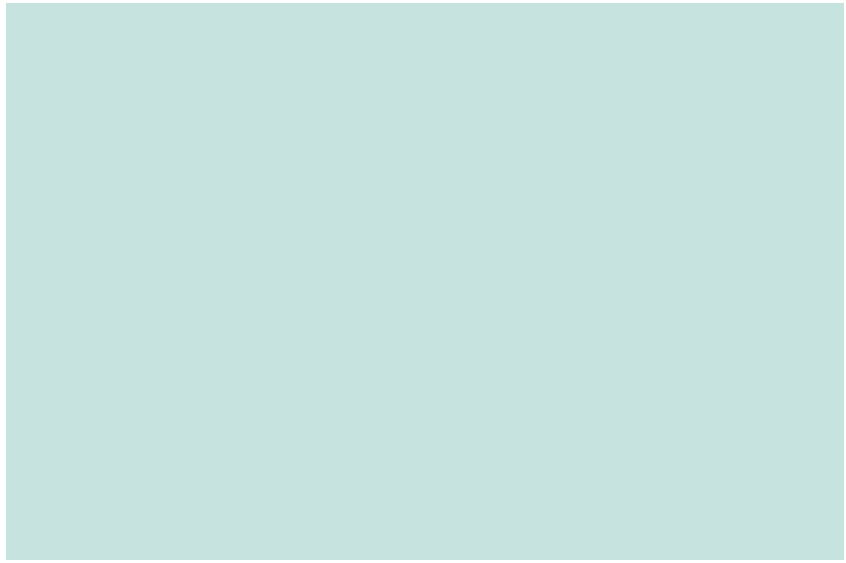
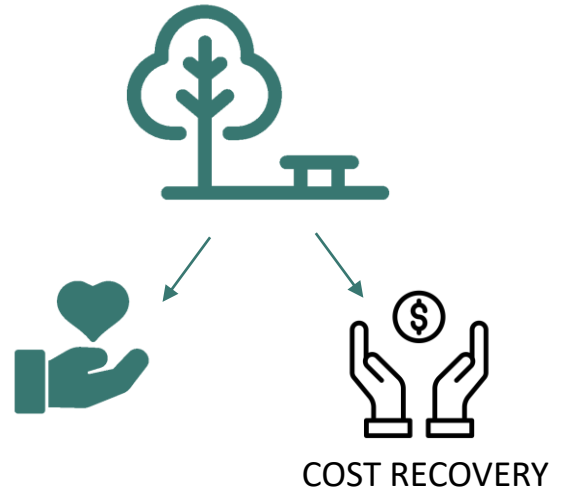


Kralingse Bos (City Rotterdam, 2018)



Public green roof Rotterdam (Gemeente Rotterdam, 2019)

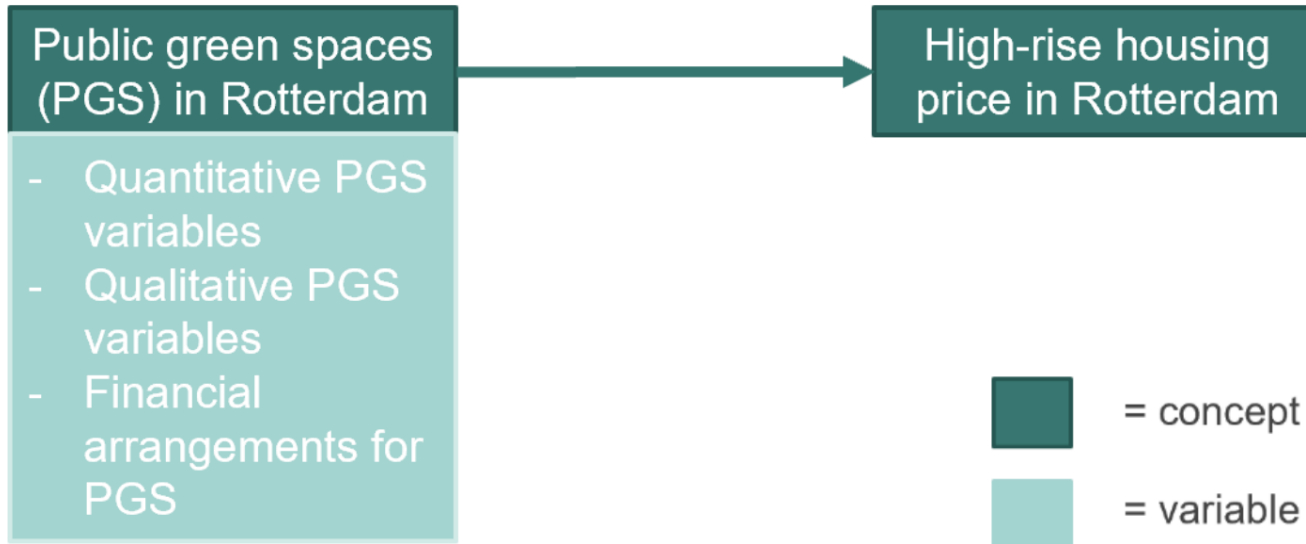
FUNDING PGS



STRUCTURE RESIDENTIAL HIGH-RISE PRICES



CONCEPTUAL FRAMEWORK



A photograph of a park featuring a winding pond, lush green trees, a paved path, and a metal railing in the foreground. The scene is bright and sunny.

RESEARCH METHOD

03

HYPOTHESIS

PGS have a positive determinant effect on the housing prices of high-rise buildings in Rotterdam



METHODS & DATA COLLECTION

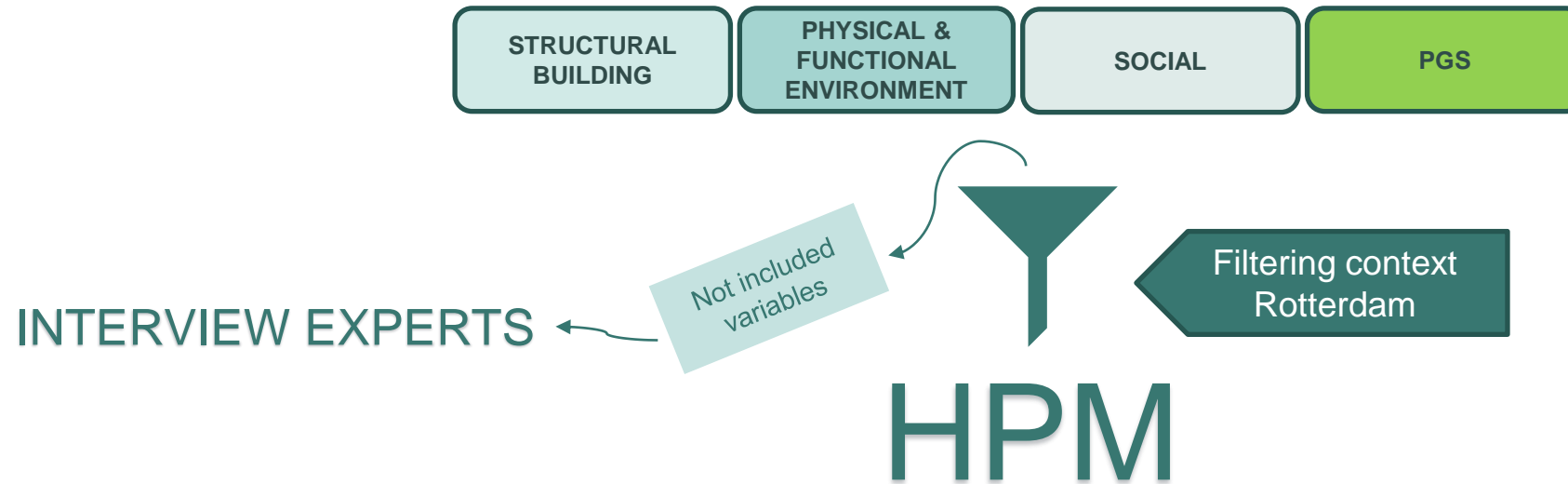
1. Literature review

2. Explorative survey

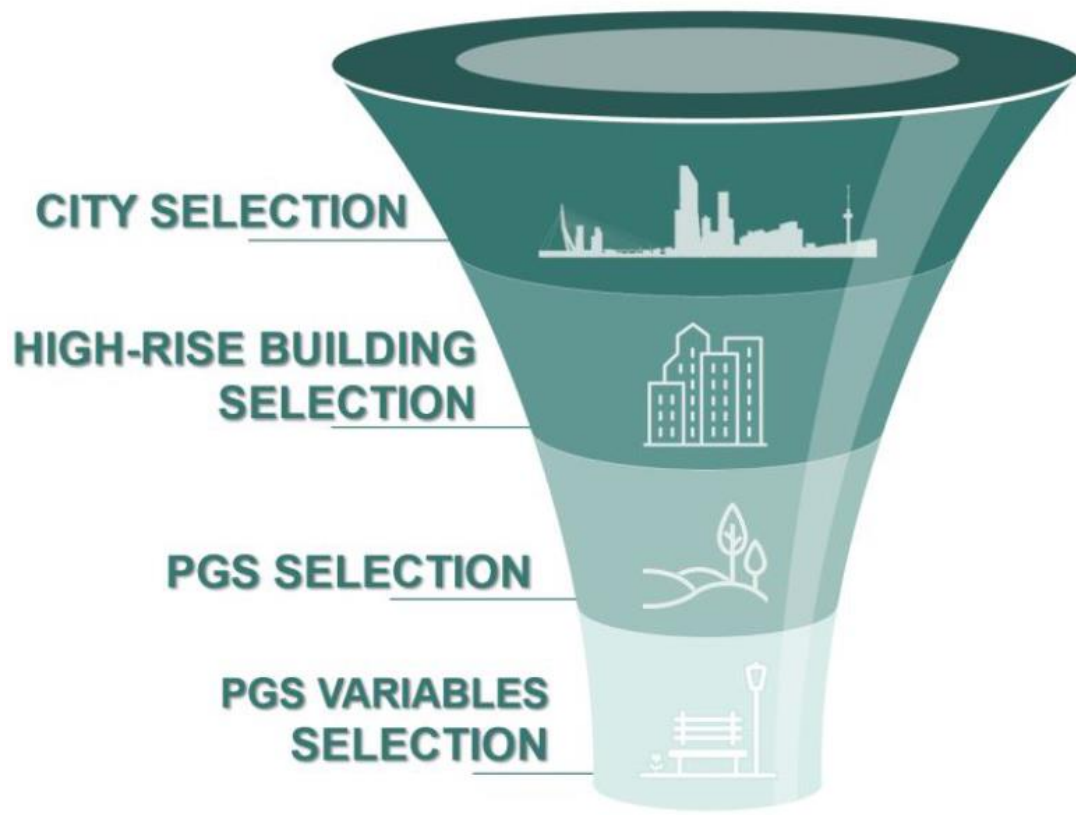
3. Statistical method by
cases studies in Rotterdam

4. Interview with experts

METHODS & ANALYSIS



SELECTION



Unit sampling sequence to collect data needed for the data analysis (Own figure)



RESEARCH OUTPUT

SELECTION – CITY

List of residential high-rise towers in Rotterdam (Fakton, 2020)

City	Total	Residential
Amsterdam	96	43
Rotterdam	115	59
Den Haag	88	57
Utrecht	35	14
Eindhoven	30	14



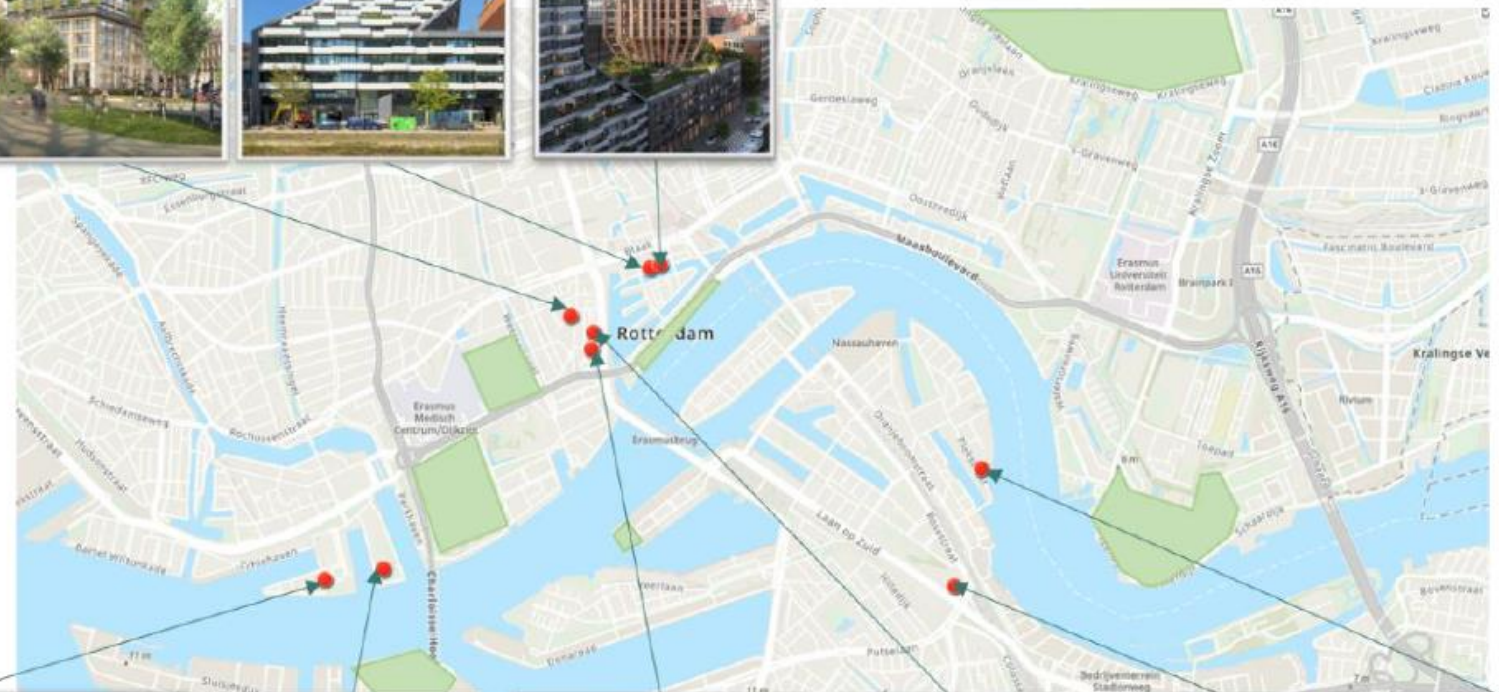
Map of chosen residential buildings in Rotterdam
(Dataset of ArcGIS, 2019)



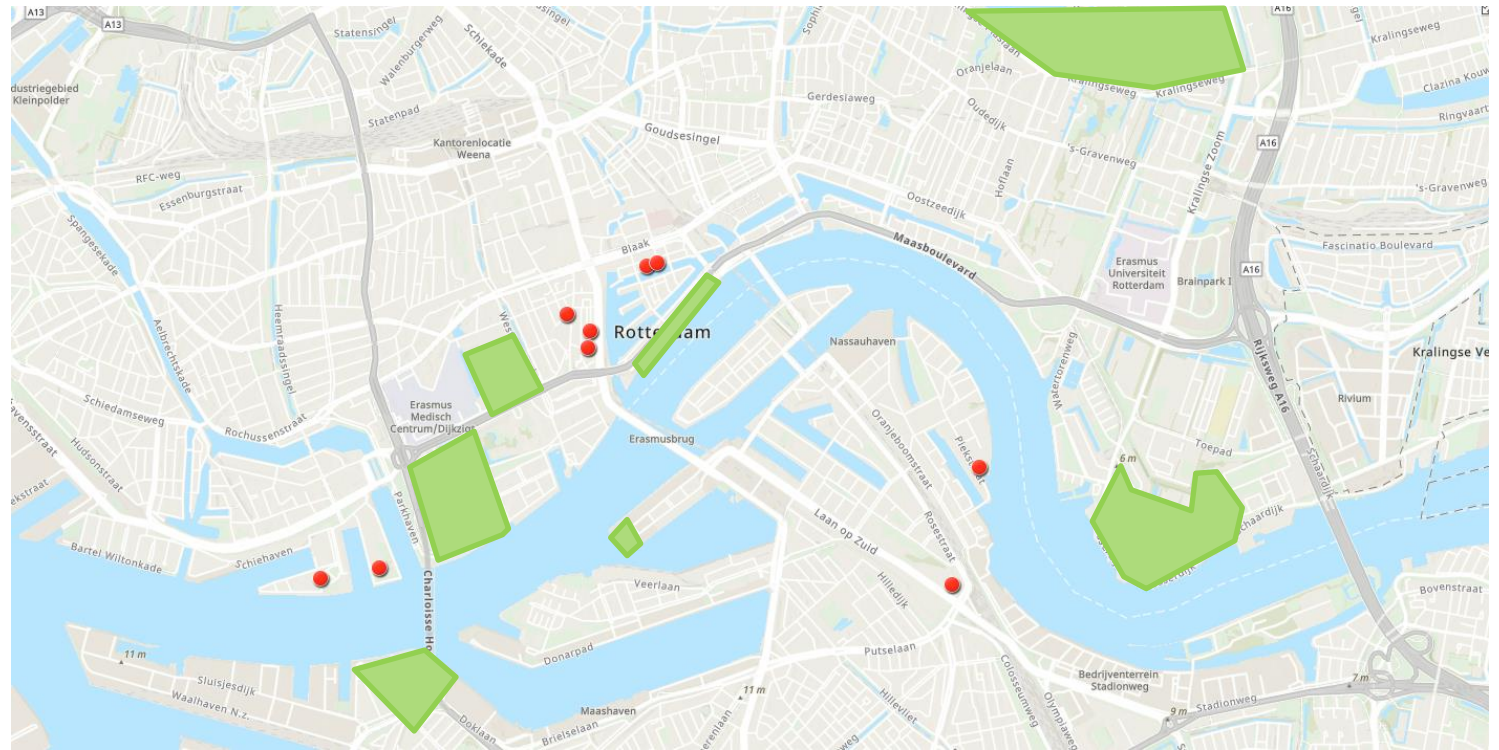
SELECTION BUILDINGS

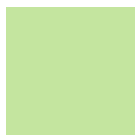
977 APARTMENTS

- Included parks
 - * Het Park
 - * Kralingse Bos
 - * Museum Park
 - * Dockhavenpark
 - * De Esch
 - * Boompjes
 - * Green roofs of the selected buildings



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ENVIRONMENTAL

Sustainability: sustainable measurements, mental & physical health



FUNCTIONAL

Distance and access to PGS, multifunctionality, access target groups



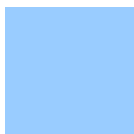
SOCIAL

Interaction with others in PGS, sense of belonging, enjoyment and comfort, place to meet with friends



CULTURAL

View from and on PGS, attractiveness PGS, cleanliness, green view, opportunity to undertake cultural activities



SAFETY

Feeling safe in and around PGS, crime rates in and around PGS, kids friendly, social security, street lighting

LITERATURE
VS.
SURVEY

THE IMPORTANCE OF PGS



Increase quality of life by all liveability domains

*The reason why I moved into this high-rise building is the view and its location –
Interviewee A
(Online interview, April 26, 2021)*

*Sometimes, residents are not aware of the positive effects of PGS
– Interviewee A
(Online interview, April 26, 2021)*

THE IMPORTANCE OF PGS



Indirectly increase quality of the development

*Aside from our own goals,
we want to provide a
positive contribution to the
city
– Interviewee B
(Online interview, April 22, 2021)*

THE IMPORTANCE OF PGS

*2.000 trees have been planted at the Nieuwe Binnenweg
- Interviewee D.
(Online interview, June 2, 2021)*



Contribute to attractive city

THE IMPORTANCE OF PGS



Increase quality of life by all liveability domains



Indirectly increase quality of the development

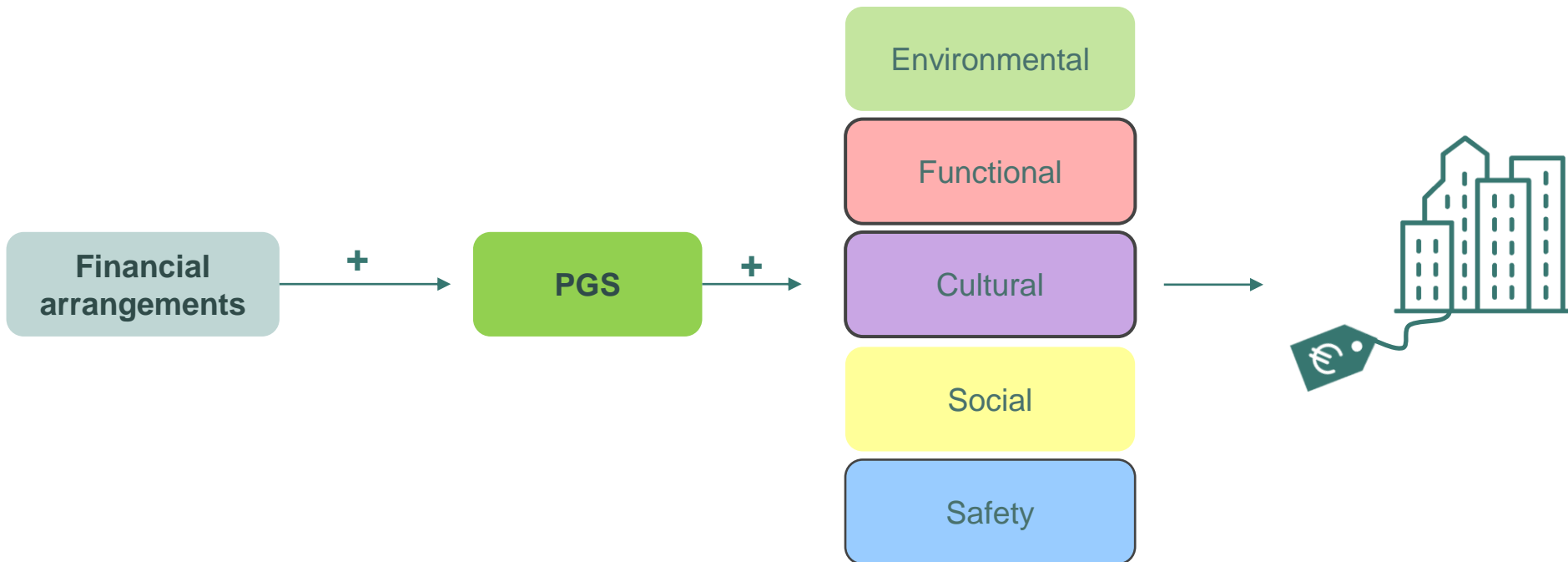


Gemeente
Rotterdam



Contribute to attractive city

PGS ASPECTS AFFECTING HOUSING PRICE



PGS ASPECTS AFFECTING HOUSING PRICE

Environmental

*Distance to parks and other facilities will be considered when pricing the apartments – Interviewee B
(Online interview, April 22, 2021)*

Functional

Cultural

*The view is an important feature, not only view on PGS but also on landmarks of Rotterdam – Interviewee B
(Online interview, April 22, 2021)*

Social

Safety

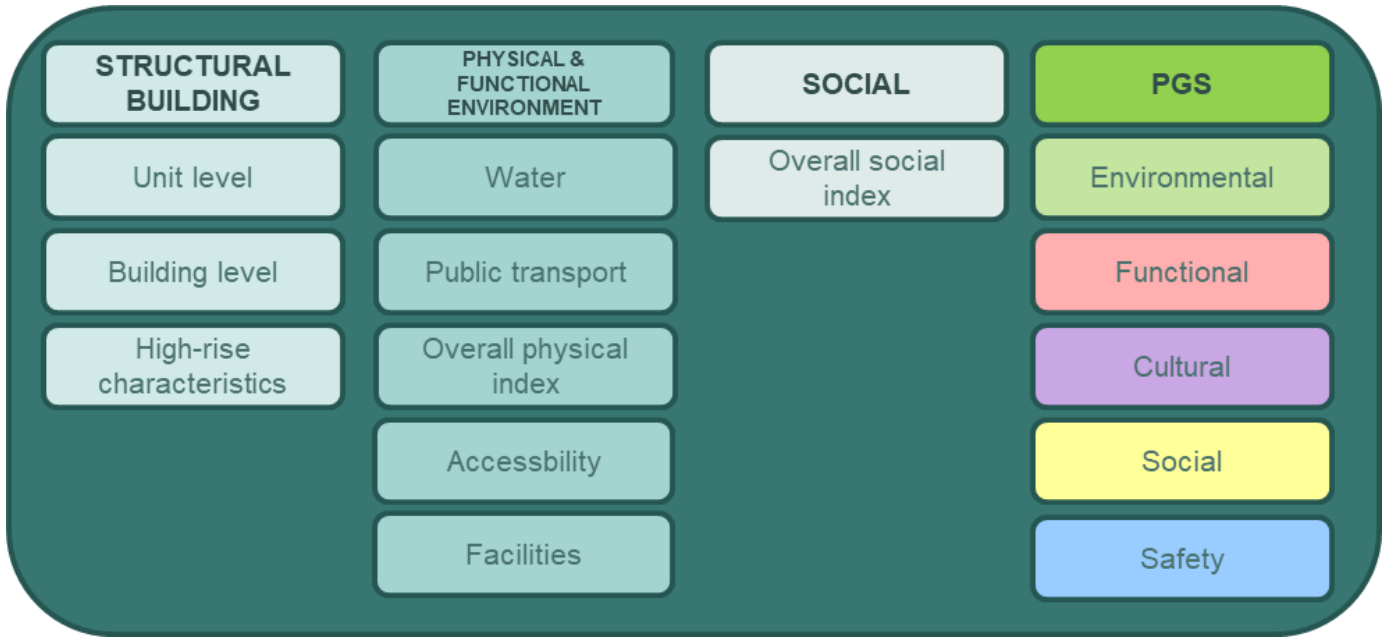
*Residents desire a feeling of safety – Interviewee A
(Online interview, April 26, 2021)*

VIEW EFFECTS



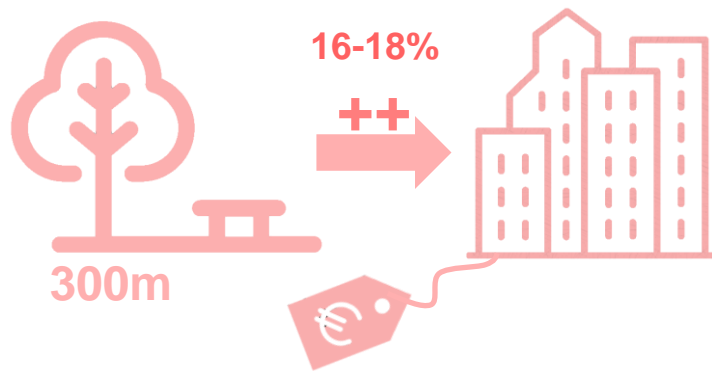
South-west view at 120m from the location of the Cooltower (Cooltower, n.d.)

DETERMINING HOUSING PRICE IN ROTTERDAM



PGS AFFECTING THE HOUSING PRICE

FUNCTIONAL DOMAIN



Presence park within 300m

Child friendly

16-18%

Dog friendly

6%

RESEARCH OUTPUT

Distance park



Parkhaven 010 (AD, 2020)

PGS AFFECTING THE HOUSING PRICE

FUNCTIONAL DOMAIN

- Higher percentages compared to study with ground-bounded dwellings
- Number of PGS important to wider context
- Percentage includes aspects of other domains

*PGS form a green routing throughout the City which creates pleasant walking routes
– Interviewee A
(Online interview, April 26, 2021)*

SEPARATED



COMBINED



+7.1%

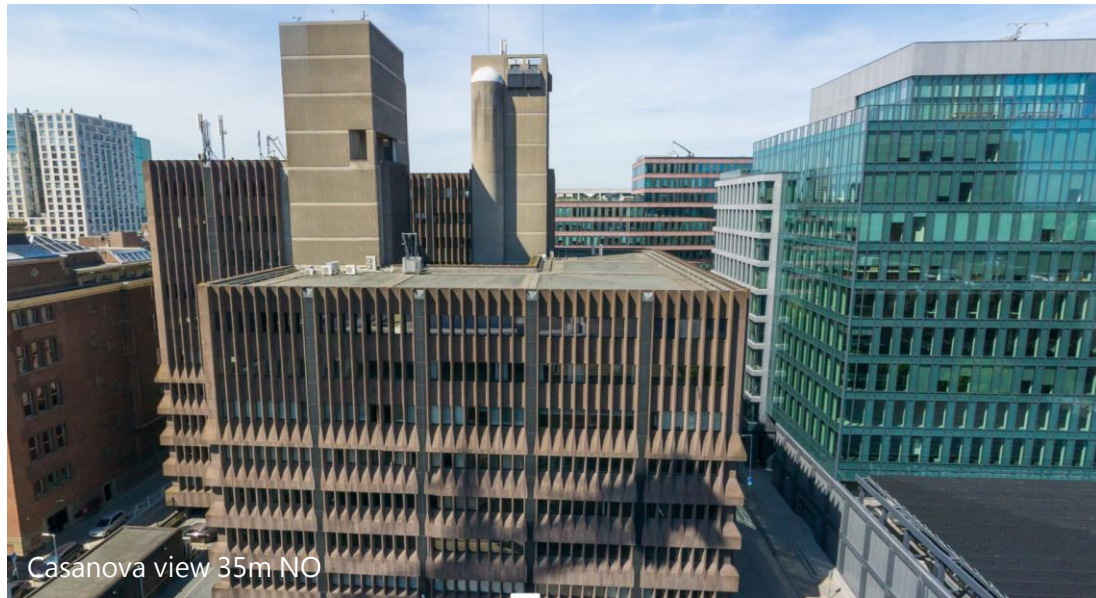
CULTURAL DOMAIN

- View variables: 2 approaches
- Other cultural variables hard to quantify due to overlap other domains



CULTURAL DOMAIN

- Coefficients of green views indicate the appreciation of having a “free view” - Interviewee B
- (Online interview, April 22, 2021)
- Sun orientation (South orientation 7.6% increase compared to North orientation)



CULTURAL DOMAIN

Collective garden, contradicting results HPM;

- Presence = -12.8 to -15.4%
- View = +5.5 to 6.7%
- Possible explanation: Monthly service costs

*Looking at a green roof instead of a normal roof is experienced as more pleasant – Interviewee B
(Online interview, April 22, 2021)*

*Having a collective garden would be a beneficial aspect, but you must take the monthly payments into account
– Interviewee A
(Online interview, April 26, 2021)*



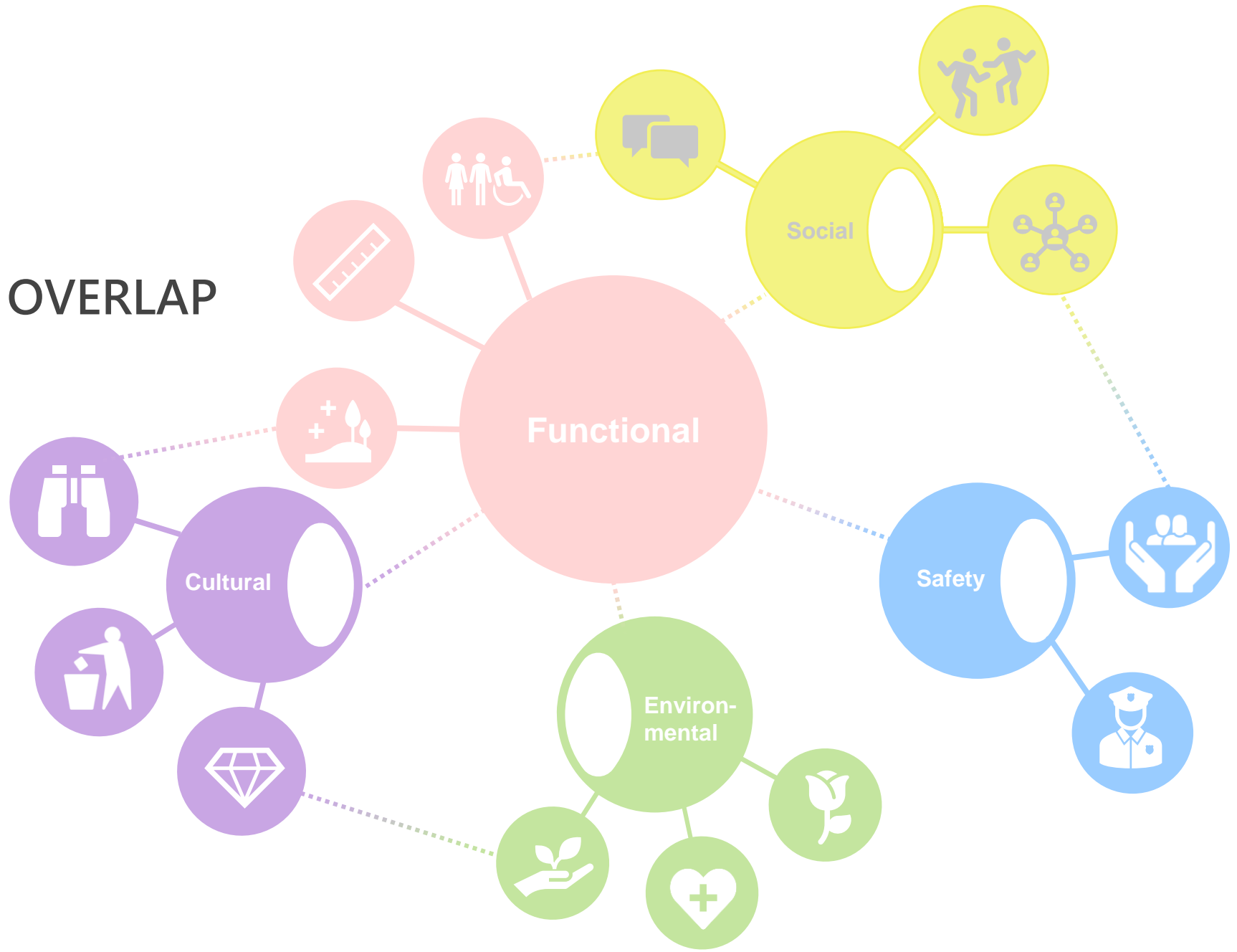
SOCIAL, SAFETY, ENVIRONMENTAL DOMAIN

- Assessed by:
- Index scores used as indicator
 - Embedded factors

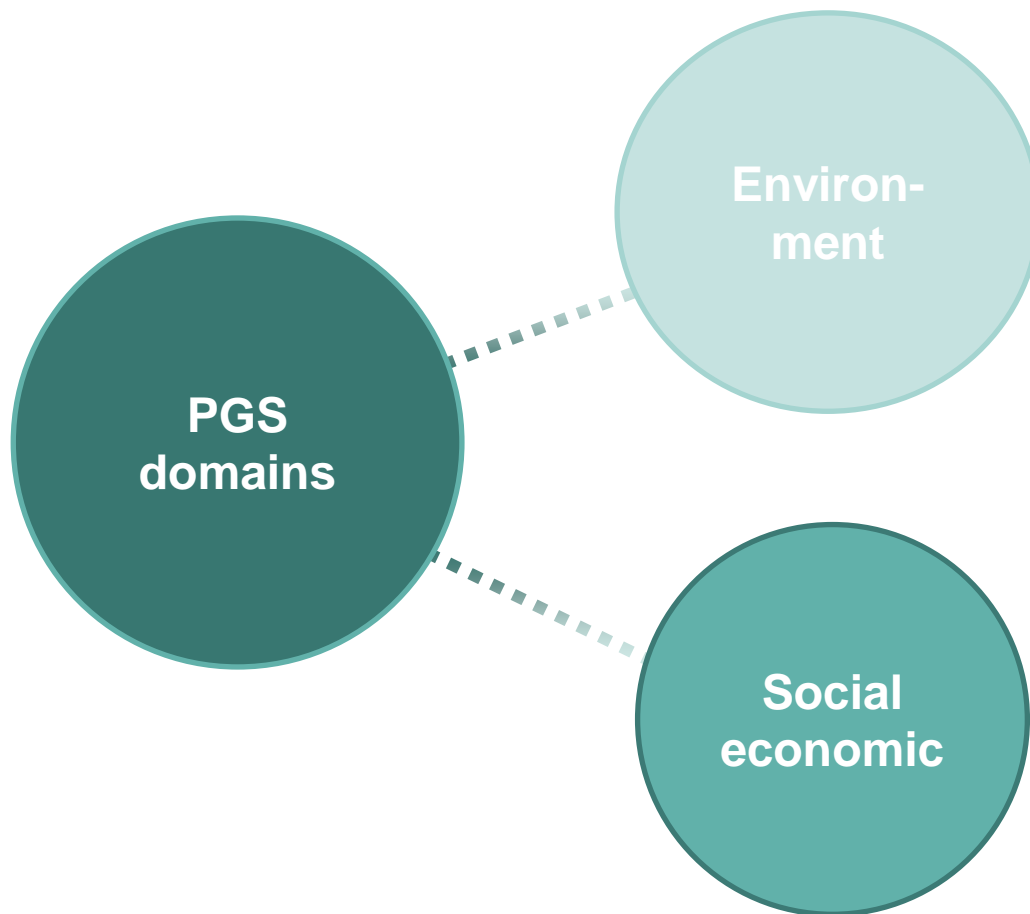
*Residents desire a feeling of safety
- Interviewee A
(Online interview, April 26, 2021)*

	Indicators	Test model 4 (physical)	Test model 5 (social)	Test model 6 (safety)
Physical index	Physicalindex3	0.225***	-	-
	Physicalindex4	0.144***	-	-
Social index	Socialindex3	-	0.176***	-
	Socialindex4	-	0.141***	-
Safety index	Safetyindex 4	-	-	0.153***

PGS DOMAINS OVERLAP



PGS DOMAINS OVERLAP

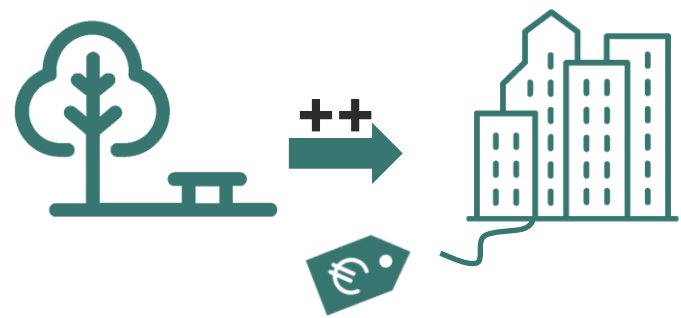


A scenic view of a park with a pond, trees, and a paved path. The pond is in the foreground, reflecting the surrounding greenery. A paved path runs along the edge of the pond, with a metal railing. In the background, there are many trees and a few people walking. The overall atmosphere is peaceful and natural.

CONCLUSIONS & DISCUSSION

CONCLUSIONS

Strong positive determinant effect of PGS on housing price of high-rise buildings in Rotterdam



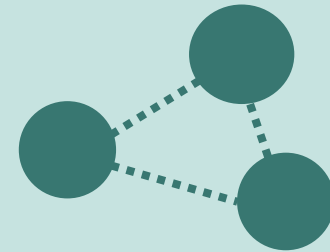
CONCLUSIONS



PGS highly appreciated by high-rise residents



PGS within distance of 300m strongest determinant effect



Overlap PGS domains

IMPLICATIONS

- Research as starting point to make PGS value more tangible
- Create awareness for the importance of PGS
- Better matching market analyses during developments of high-rise buildings and/or PGS

RECOMMENDATIONS

Further research

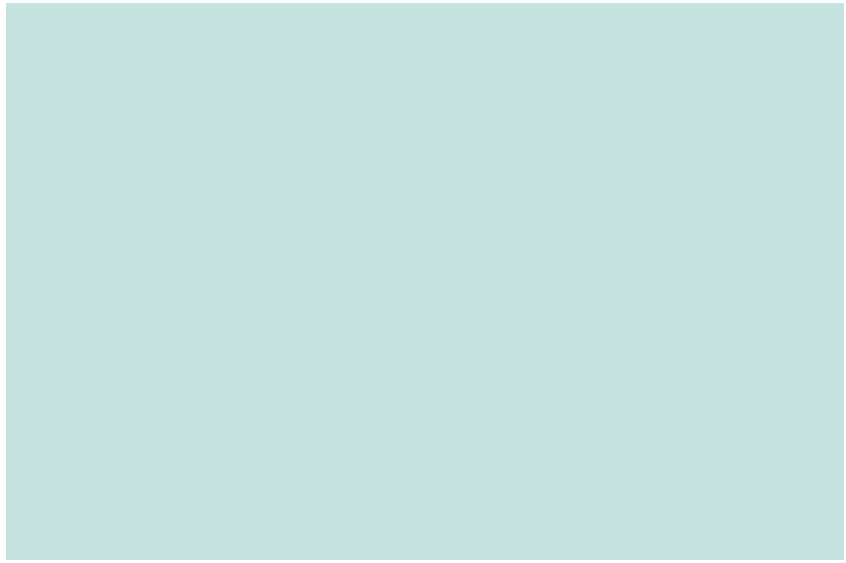
- Further research in PGS variables that were excluded from this research
- Comparison studies with other housing type
- Study in other cities



RECOMMENDATIONS

Residents

- Further exploration in (jurisdictional) consequences regarding absence PGS
- Becoming more aware of the value of PGS variables



RECOMMENDATIONS

Municipality

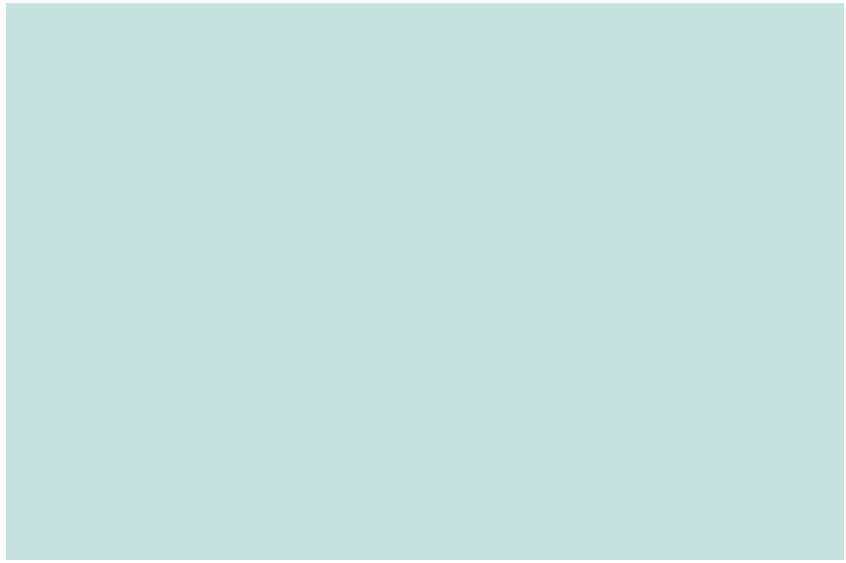
- Results and method used as background information during market analyses for urban development strategies
- Exploring more suitable financial arrangements
- Create PGS that better matches the desires of high-rise residents
- More transparency between developer and municipality



RECOMMENDATIONS

Developers

- Results and method used as background information during market pricing for residential high-rise developments in Rotterdam
- More transparency between developer and municipality







Thank you! Questions?

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