

FIG WORKING WEEK 2019

22-26 April, Hanoi, Vietnam

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"Geospatial Information for a Smarter Life
and Environmental Resilience"



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"Geospatial Information for a Smarter Life and Environmental Resilience"



Integrating Negotiations on Investments in Housing and Mobility *Geo-Based Gaming to Stimulate Land Use Transport Integration*

*Dr. Sander Lenferink
Radboud University Nijmegen
s.lenferink@fm.ru.nl*

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Research Project



Ministerie van Infrastructuur
en Waterstaat



provincie **HOLLAND**
ZUID



Ministerie van Binnenlandse Zaken en
Koninkrijksrelaties

Problem statement

- Land use transport integration (LUTI) could be improved in the Netherlands: suboptimal plans and investment decisions
- Sectoral divide: mobility vs. real estate
 - Financial sources: national funding vs. local business case
 - (level of) Decision-making: national vs. local
 - Between organisations and within organisations
- Currently effort to further integrate decision-making in new Environment and Planning Act (2021)
- However, unclear what the conditions for integrating decision-making on real estate and mobility are

Goal

“To explicate current decision-making on mobility and housing programming and investments, and to stimulate further integration of this decision-making”

- Simulate decision-making with a serious game:
 - It is real, not a game!
 - Different levels: local, regional, national
- Assess tradeoffs between land use and transport indicators
- Reveal argumentation for investment decisions

Research design: Serious Game

- Combine information on housing and mobility plans in province of Noord-Holland
- Build a game structure for programming investment decisions around 4 indicators
 1. Market balance: supply and demand of housing
 2. Accessibility: change to accessibility due to investments/plans
 3. Finances: sum of revenues (housing) and expenses (mobility)
 4. Spatial goals: degree to which TOD and redevelopment goals are reached

Case region of Zaanstreek- Waterland



Research design: Serious Game

- Combine information on housing and mobility in province of Noord-Holland
- Determine development program voor Zaanstreek-Waterland

But:

- No scripted players
 - Players are free to behave as they would like
- No fixed end goal or total score
 - Players can make their own tradeoffs of goals

Data

- QGIS with Python plugin: real estate and mobility models
- Based on:
 - Ministerial Long-range investment programs for transport infrastructure (until 2030)
 - Provincial mobility and infrastructure plans
 - Provincial inventory of housing development plans

Kaartnummer: 1329
Naam: HAARLEM - respectaal Achterland
Wandstatus: 44 potentiële locaties in vuse
Type plan: Functieverandering Bedrijven/Industrie
Straat: |

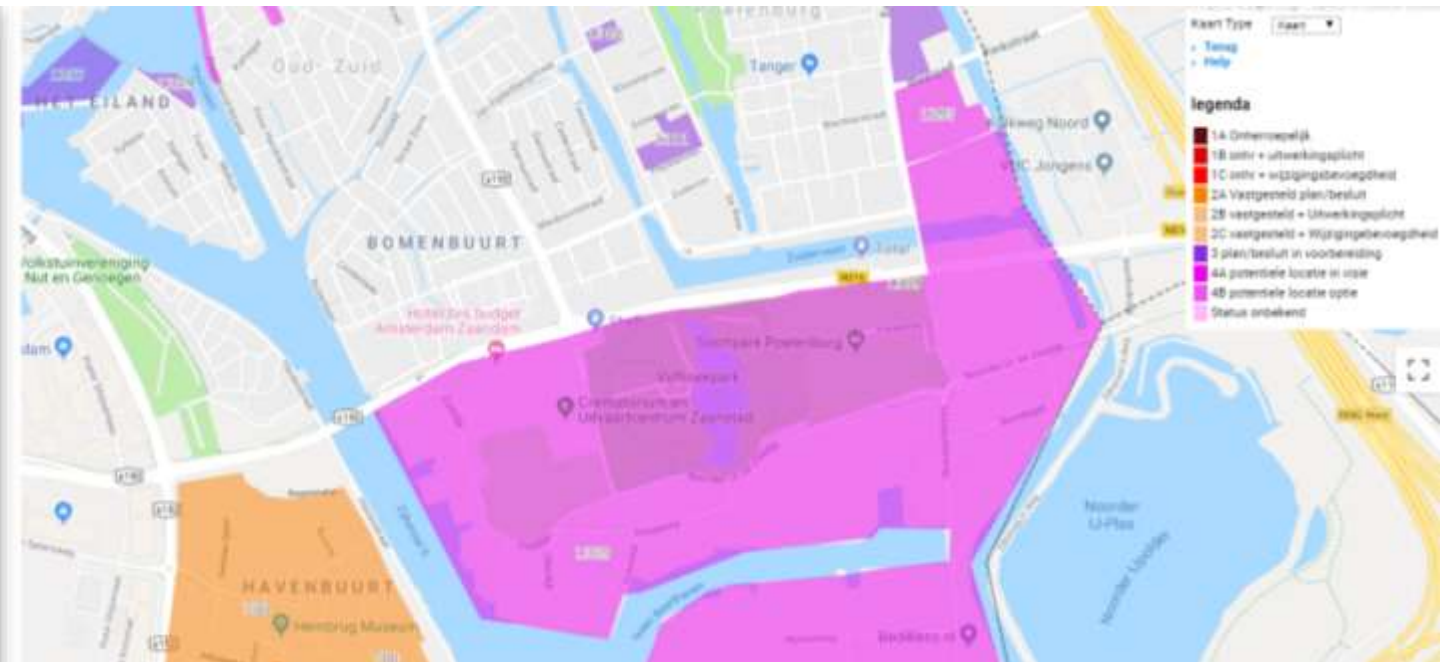
Faseering

Periode	Waarde
2019	0
2021 - 2024	300
2025 - 2028	2000
2030 - 2033	4000
2040 - 2050	0
Onbekend	0
Totaal	6300

Klaas / Huur

Klaas	Huur
Klaas I	0
Klaas II	0
Klaas III	0
Klaas IV	0
Klaas V	0
grip	0
onbekend	0
Totaal	0

Klaas/huur onbekend: 6300
Sloop: 0
Grondgebonden: 0
Appartementen: 0
Woningtype onbekend: 6300
Particulier of collectief contractueel: null/waarden



Game facilitation

- 2D Mappable
 - 6-8 participants
 - Direct and inclusive negotiations
 - Link arguments/reasoning to GIS features
- Policy-makers, politicians, mobility experts, real estate experts, developers, etcetera



User Interface



Regional Game Model Stad

Package Selection

Package
47 Packages
Package 1 - Noordzeever Noordkanal
Package 2 - Zaanen - Noord
Package 3 - Panneren: BSG of A7
Package 4 - Hoorn
Package 5 - Ring A30 oost - Waterland

Housing Plans

Housing Plan	BSG	TOD	MAX	%
Bergert en Oosterpolder	BSG	TOD	1750	100
Purmer Zuid-Zuid	not	not	1500	100
Konnetje A7	not	TOD	1500	100
Zuidvoorbeemster II	not	TOD	962	100
Prinsentichting	BSG	TOD	375	100
De Nieuwe Tuinderij oost	not	TOD	375	100

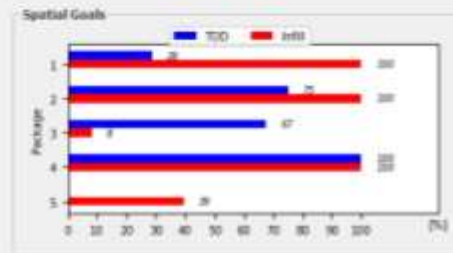
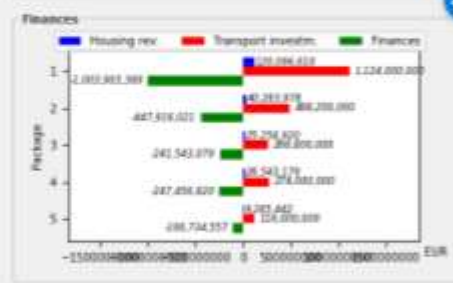
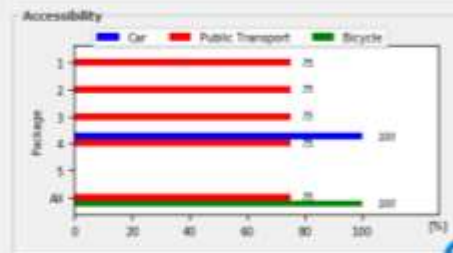
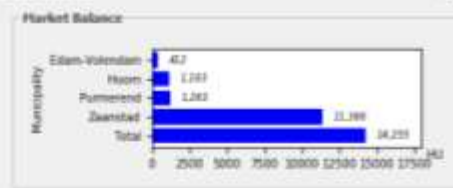
Percentage:

- Infrastructure Projects
- Snelreisroute Hoorn-Panneren
 - Snelreisroute Panneren-Zaandam
 - Oefening Achterstolpolder Oost
 - Churchillaan Oogstblikkers
 - HOV Panneren-Aden
 - KAD

Select an infrastructure project to get further information

Save changes and update indicators

Save



Preliminary results

Increases transparency of decision-making

- Mobility and housing in one overview
- Local and regional level
- Financial consequences of development decisions
 - Housing costs and revenues are more transparent than mobility
 - Raises the issue of compensation between municipalities

Preliminary results

- **Priorities of indicators**

- 1) Market balance (housing demand minus supply)
- 2) Accessibility
- 3) Finances
- 4) Spatial goals

- **Expert player vs. Decision-maker player**

- Data and indicators are interpreted in several ways

Lessons: Game design

- **How 'serious' can you make a game?**
 - Continuous change: new developments, new actors, new insights, new indicators, new plans
 - Find a balance or else games will be
 - obsolete for policy-making, because new developments are not taken into account
 - will never finish, because new developments have to keep being included in the game

Lessons: Game results

- **Tension between upscaling and implementation of game**
 - Transferring game to other spatial contexts requires generalizations in development (same structure, same information, same players)
 - Generalizations lead to loss of localized information and limits the 'seriousness' of a game
 - Strike a balance between locally grounded 'seriousness' and transferability of a game
- **Can game experiments really fail?**
 - It is not about the result of the game, but about the interaction between players
 - Participation indicates that organisations are willing to improve
 - But, how are lessons learned applied in daily practice?

Questions?

- Sander Lenferink
- s.lenferink@fm.ru.nl

- www.mobiele-stad.nl