Serious Game
Sustainable Urban Planning and Underground Development

Game Manual

RO² III

StrateGis
Groep

Content

1 Game objectives and Target groups

The overall objectives of the game are:

- Make options and limitations of underground development visual and inspire stakeholders to understand and use underground options when developing cities and formulating goals for sustainable urban development.
- The game combines different functions above and below ground in order to improve the knowledge of integrated urban development planning of all stakeholders involved.
- By indicating possible costs and benefits of different measures that can be taken by urban stakeholders the outcome for people, planet and profit can be simulated. Stakeholders will gain insight in sustainable trade-offs to be made and spatial development strategies can be taken by considering these effects.
- All stakeholders are given a level playing field in order to learn how to co-operate with each other in order to achieve the best possible outcome in a integrated and collaborative matter, both in terms of above ground as well as underground development
- Players will get more knowlegde about the potential use of sustainable resources in relation to urban development.

The primary targetgroup are urban professionals that are involved in urban planning, decision making, sustainable development, real estate development of private and public institutions. A secondary target group are students and citizens to enhance their understanding of integrated planning and the complexity of sustainable and underground development.

2 Game description

2.1 Objective of the game

This game is a so-called 'Multiplayer Network Game'. The game simulates the challenges different stakeholders face when making decisions about urban development in a virtual city called "Examplia". The players of the game are divided in 4 teams that will jointly play the role of one of the stakeholders in Examplia. Each team is dedicated to a network computer and will receive a handout with information about the objectives of the stakeholder and the possible measures that can be taken. There are 4 stakeholders: the municipal government, the housing corporation HomeSweetHome, energy company NOXXO and water company Watera. The city has 12 plots for possible development. Each stakeholder can influence the development of each plot by taking measures. Measures that will be taken by the different stakeholders have an impact on the development of the city. The effects will be shown through scores on People, Planet, Energy, Water and Housing. Each stakeholder will also see the impact of the chosen measures on his or her own budget/profit.

During the game measures can be taken for different soil layers within the available plots. Certain measures can influence other measures in the same plot. There are also measures that can only take effect if they are combined with measures by other stakeholders or in other soil layers. The overall goal of the game is for each stakeholders to maximise the scores related tot heir objective by taking measures as well as collaborating with other stakeholders and sharing information, investements and negotiating deals.

2.2 Set up of the game

The game is played in a two to four hour facilitated workshop. The game is introduced by the facilitator and then played by using network computers in a class room. There are 4 stakeholdercomputers and 1 facilitator computer and beamer.
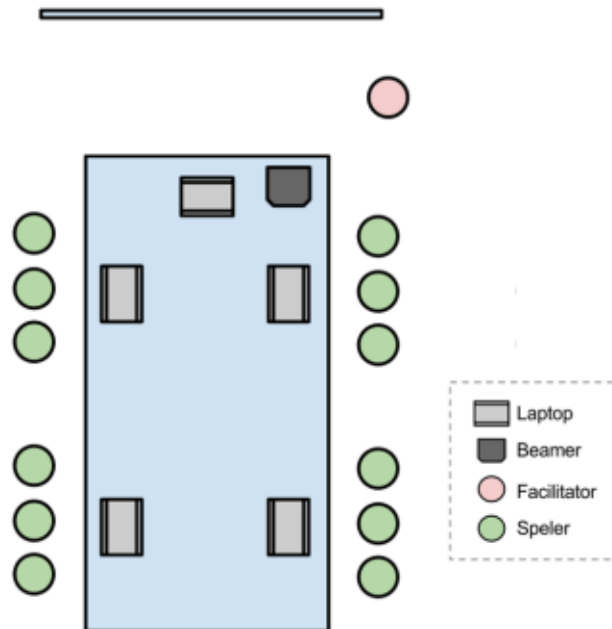
Figuur 1: Setup of the workshop.

2.3 Gamesession

Fase 1: Welcome and introduction

The facilitator introduces the game and divides the participants in teams.

Fase 2: Digitale introduction of the game

The facilitator will explain the game interface and the participants will have time to familiarize themselves with the interface. The teams are given the instructions for each stakeholder and can real the gamehandout. In the handout information is given about the specific objectives of each stakeholder.

Fase 3: First round

During the first round the players can start trying to take measures and make a first attempt to improve the scores related to the objective. The main objective of the first round is to find out what measures can be taken by the stakeholder and how this influences the different scores on the indicators.

Fase 4: Second round
Each stakeholder team will evaluate the outcome of the first round and can determine what kind of collaboration/negotiation is needed with the other stakeholders to improve the outcome. Stakeholders are invited to start negotiating and share information with other stakeholders.

Fase 5: Third round
The outcome of the second round will be discussed with the facilitator and conclusions can be made about the results of the negotiations and possible improvements. Then their is one final round in which the stakeholders can make changes tot heir measures and renegotiate with the other stakeholders to achieve their optimal solution.

Fase 6: Evaluation
At the end the game is evaluated by looking at the overall outcome of the stakeholders, reflecting on the development process and trying to understand the dynamics of the game. Then lessons can be drawn from this simulated case to the real world and conclusions can be taken in relation to the usefulness of this knowlegde for urban sustainable development in practice.

3 Contactpersons and colofon

The Serious game Sustainable Urban Planning and Underground is developed by RO2 and StrateGis, in co-operation with the City of Rotterdam and SKB.

Contact persons:
StrateGis: Marco van Hoek
E-mail: marco.van.hoek@strategis.nl
StrateGis: Richard Hartkamp
E-mail: richard.hartkamp@strategis.nl

Company Website:
www.strategisinternational.nl
http://www.strategisgroep.nl/en

Website Serious game ondergrond:
www.strategisinternational.nl/software/serious-gaming/

Colofon:
Design: *Christian Paping (RO2)*
Gamedescription: *Marco van Hoek en Richard Hartkamp (StrateGis)*
Geoinformation and 3d map: *Martijn Vonk (StrateGis)*
3d modelling: *Jesse Heida (StrateGis)*
Concept/idea: *Ignace van Campenhout (Ingenieursbureau Gemeente Rotterdam) en David van den Burg (Ambient)*

Participating Consortium:
Ignace van Campenhout (Ingenieursbureau Gemeente Rotterdam)
Ans Bekkering (Provincie Groningen)
Henk van den Berg (Gemeente Utrecht)
Geiske Bouma (SKB)
Basten Colthof (TNO)
Jan Fokkens (SBNS)
Peter Ramakers (Provincie Noord-Brabant)
Ingrid van Reijsen (SKB)
Alex Scheper (Provincie Drenthe)

Consultant and testing team:
Pui Mee Chan (Ambient)
Sonja Kooiman (Ambient)
Petra van de Werf (RO2)