Sustainable spatial innovations

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3D FOR ENVIRONMENTAL MODELING

Data
Models
Visualization
Act
Tools
Stakeholders
MOVE PEOPLE TO ACT

- Create awareness

- Inform stakeholders
  + Select data to target audience
  + Choose models based on knowledge level
  + Visualize in an attractive way
    - Serious gaming

- Bring stakeholders and ideas together
WHY CHILDREN AS A STAKEHOLDER?
Education of all stakeholders is crucial to move to a more sustainable environment.

Convention of the Rights of the Child contain specific language on the education of children related to the environment.

Education of children actualizes this right of the child while ensuring them to act on their engagement to environmental change management.
WHAT DID WE DESIGN?
Minecraft

Geocraft

Ecocraft

Energycraft
GEOCRAFT
Geospatial data:
- LandUse
- Transport infrastructure
- Urban Green
- Building characteristics
- ...

Geospatial Processes:
- Energy
- Air pollution
- waste management
- ...


HOW DO WE ENGAGE THEM?
GOAL OF ECOCRAFT

- Create sustainable awareness in a fun way
  - Serious gaming
  - Impact assessment
- Enhance involvement of citizens
ENERGycRAFT

- A serious game to teach about energy in the built environment

- Youngsters play in teams to redesign the energy situation in their neighbourhood
INTERACTIVE SERIOUS GAME
GAME RULES

- Three technologies
  + Urban wind
  + PV panels
  + Insulation

- Three indicators
  + Investment
  + CO2-emissions
  + Energy saved/produced
**SCORES AND REWARD**

- Winning score according to an equation
  - Normalized to 1
  - Invest cost had negative impact
  - Multiply to 1,000,000

- Winning team wins 3D printed wind turbine
IMPROVEMENTS (1)
**IMPROVEMENTS (2)**

- In game modelling
- Children get direct feedback
  - Iterative design
- Spatial component becomes more clear
CONCLUSION

- The serious game works to extract information from high school students
- The serious game made the students enthusiastic to participate
- The serious game helped teach the children about difficult concepts
- The point clouds the students built can be used for many different data analyses
Thank you!

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