BIM and GIS
The future of information management in life cycle asset management

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Asset Management
Asset Management

Asset Management requires a life cycle view and optimal mixture of capital investments, operations, maintenance, resourcing, risks, performance and sustainability

Optimization of asset care and asset exploitation
Life cycle Asset Management

Exploitation and care of assets...
Port of Rotterdam

Changing requirements…
Asset Management

Asset Management Software

standardizes data and allows interoperability, providing users the capability to reuse, coordinate and share information in an efficient and effective manner.
Use of information in Asset Management

- Information is often difficult to obtain
- Information is not available in an appropriate format
- Information is not up to date or lost
- Issues are detected too late
Use of information in Asset Management

Issues are detected too late...
Information management
A reduction in the failure costs in the design / renewal phase of asset management
# Need for BIM and GIS

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Varying requirements and needs…
BIM (Building Information Models)
GIS (Geographical Information Systems)
BIM and GIS (Google Earth / Sketch Up)
Main Questions:

- What are in the design phase the benefits of using BIM and GIS?
- What are the costs and benefits of an up-to-date BIM during the life cycle?
- What are the costs and benefits of being able to have a GIS viewer during the renewal phase?
Case: ‘N23 Westfrisiaweg’

Project Details:
- Route: 30 km (including 22 km of existing road)
- Design cost: about 21 million
Approach

- Quantify failure cost
- Quantify costs of GIS and BIM
  - GIS (during renewing phase)
  - BIM (during life cycle)
- Based on Net Present Value

\[ NPV = \sum_{t=0}^{n} \frac{(Benefits - Costs)_t}{(1 + r)^t} \]

\( r \) = discount rate
\( t \) = year
\( n \) = analytic horizon (in years)
Conclusions

- 5-6% of the design costs can be reduced
  - BIM (36%)
  - GIS (64%)

- GIS appears strong cost-effective

- BIM appears cost-effective
Grontmij: a fascinating company of people

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