WP4 - Visualization of and user interaction with 3D city models

Task 4.3 - Exploring user innovation in 3D city navigation

Marinka Vangenck & Jo Pierson

Vrije Universiteit Brussel (VUB)

Studies on Media, Information & Telecommunication (SMIT)

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Project task

Task 4.3 ‘Exploring user innovation in 3D city navigation’

- Implementing user driven innovation in 3D city environment from a **people-centred development perspective**
- Research question
  - ***‘Which services offer a genuine added value for users in a 3D city environment?’***

User driven innovation

- Origin**: ISO 13407 - Human-centred design** processes for interactive systems
- **Characterized** by:
    1. Active involvement of users
    2. Appropriate allocation of function between users and technology
    3. Iteration of design solutions
    4. Multi-disciplinary design
- **People-Centred Design (PCD)**
- Extending UCD scope by involving the user within his/her **social context** as source of innovation

UCD	PCD
Needs	Practices
Tasks	Goals
Individuals	Social context & Communities
Explicit knowledge	Tacit knowledge

User driven innovation approach

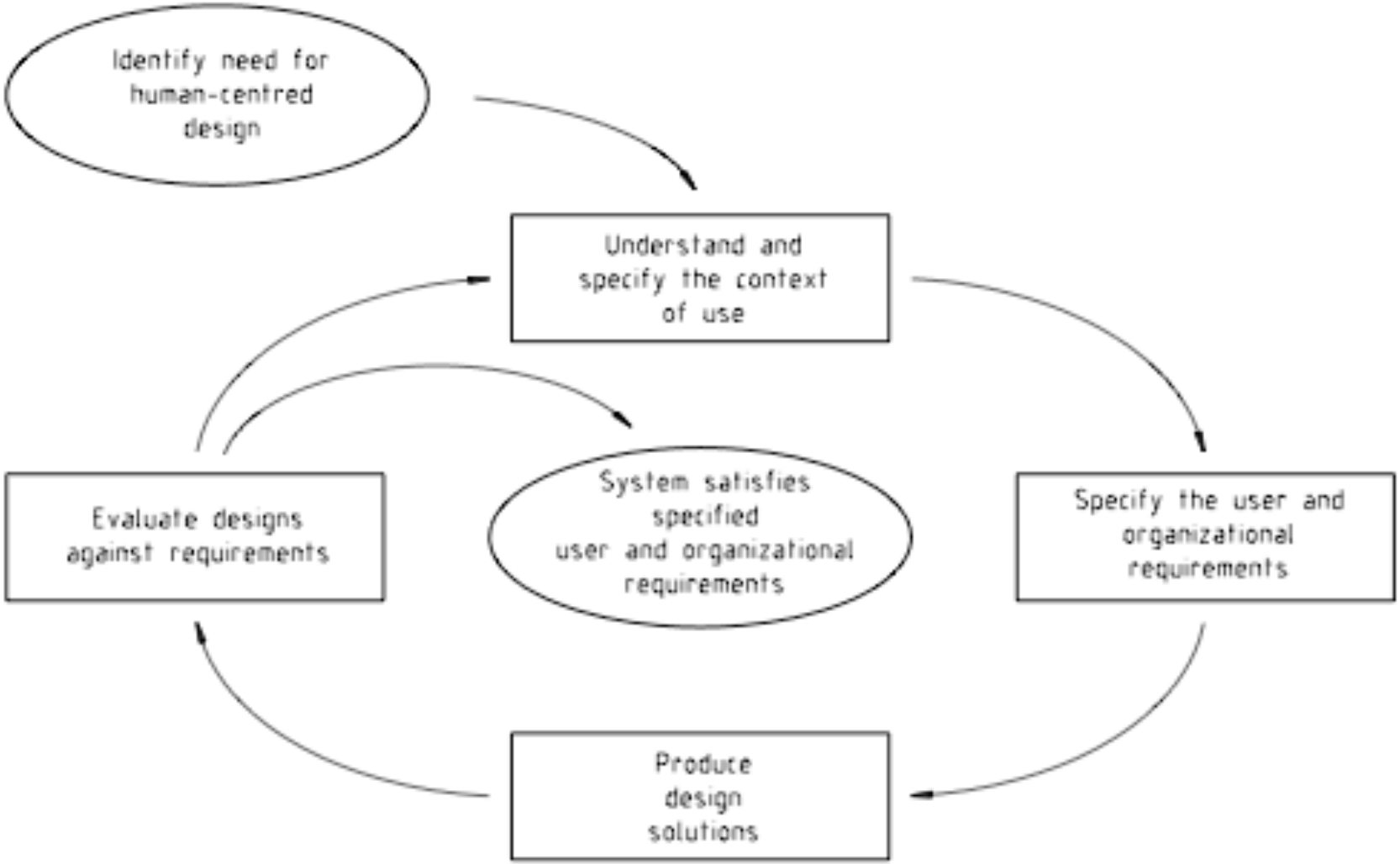


Figure 1 — The interdependence of human-centred design activities

1 - Scanning user innovation opportunities

- Method
  - Horizontal state-of-the-art overview of possible innovative domains regarding 3D city environments (desk research)
  - External feedback meetings with project partners from research and industry (EDM and Androme)
  - Internal feedback meeting with user experts and researchers
- Outcome
  - Identification of 4 vertical domains within which a 3D city model and its related services have user innovation opportunities and possibly a genuine added user value
    1. **Tourism** (city trips)
    2. **Real estate**
    3. Urban planning
    4. Public transport

2 – First assessment innovation opportunities

- Empirical field research:
  - Identification of archetypal users within the domains of tourism and real estate (professional & private users)
  - Selection and investigation of representatives of archetypal users

	Tourism (city trips)	**Real estate**
Professional users	Travel agents	Real estate agents
Private users	City trippers	Prospective home-buyers/ renters

2 - First assessment innovation opportunities

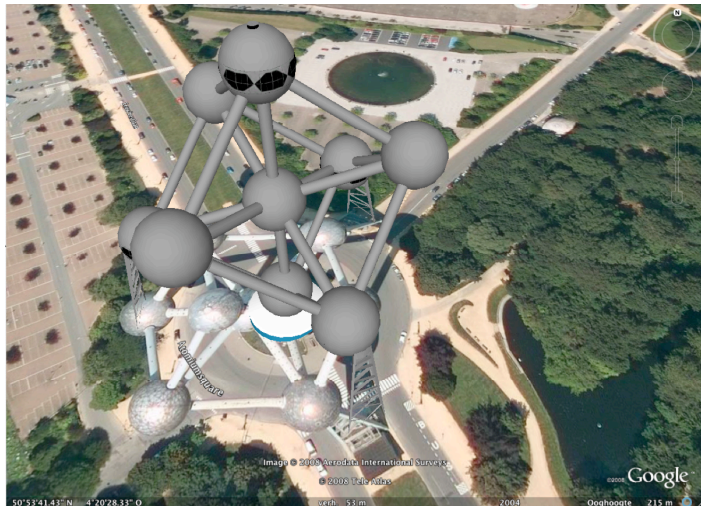
- A first **explorative** assessment of 2 vertical domains in order to assess the opportunities for innovation and to identify sensitizing concepts for people-centred development of 3D city services
- Multi-method approach
  1. Desk research on practices and current ICT tools
  2. Expert interviews
  3. Respondent interviews

  => Both domains will be investigated in depth in 2nd research phase

Tourism - city trips: findings

- City trippers often struggles with **wayfinding** issues, which means that (mobile) urban 3D applications need to provide **navigation support**. City visit still entails a **combination** of classic analogue means (city map, travel guide,**…**) and 3D navigation.

- Depending on the **type of city visitors**, a 3D city model should enable users to **virtually visit** particular places and sights in advance and on the spot so they can assess what would be worth a visit. Oversized or **highlighted 3D images** help city trippers in their **selection of sights** that people want to visit (top 10 short list), based on **reviews and photos** by other tourists



Tourism - city trips: findings

- A 3D urban application needs to indicate the position of **accommodations** (hotels) with respect to the city centre (including distance), **public transport** and the most important **sights** and possibly walking routes.
- The ability to virtually **explore the street** and if possible the **inside** of hotels before making a reservation is perceived as very useful.
- For the travel agencies, 3D city models could be used to **visualize** (parts of) a city, hotels, a street, etc. and share with customers, depending on the kind of service offer.

Real estate: findings

- Belgian real estate websites do not offer much information on the neighbourhood of a property. 3D city models should enable prospective movers to **virtually prospect** neighbourhoods and properties from their personal desktop computer. In this way it serves as a **enriched selection tool** to identify potentially interesting properties. For this the 3D application needs to **highlight** the properties that are for sale or to let.
- A **3D tour inside** a property would enable prospective movers to get a better idea of the size of the different rooms and thus of what they can expect in reality. However this is constrained by business aspects.



Real estate: findings

- A 3D city model should indicate possible **nuisance factors** like busy streets/motorways, railways, etc. and **useful facilities** like public transport, schools, grocery shops, sport centres, ...
- A 3D city model could also be used **by the real estate agencies** to **visualize** the pleasant and/or quiet location of a property or a lot.

2 - First assessment innovation opportunities

- **Outcome**
  - Validation of selected domains: user opportunities in 3D city environment
    - Tourism – city trips
    - Real estate
  - Two user grounded scenarios (city trips & real estate)
    - Define the possibilities and constraints of 3D digital city environment
    - Serve as guidelines for people-centred technological development in URBAN (cf. Task 4.4)
    - Co-design approach

Next steps

- **Task 4.4: Embedding user innovation in technology design**
  - Objective: Integrate user research in technological design process
    1. Interview technological project partners to trace the ‘hooks’ where user input could guide the development
    2. Co-design exercise: to what extent are the user scenarios from task 4.3 (technologically) feasible

Q & A



Marinka Vangenck
marinka.vangenck@vub.ac.be
prof. dr. Jo Pierson
jo.pierson@vub.ac.be

Vrije Universiteit Brussel (VUB)
Interdisciplinary institute for BroadBand Technology (IBBT)
Pleinlaan 2, B-1050 Brussels - Belgium
http://smit.vub.ac.be

IBBT smit

Vrije Universiteit Brussel