‘VEPs’

the ‘Virtual Environmental Planning systems’ project

John Counsell
Cardiff School of Art and Design
University of Wales Institute Cardiff
Wales, UK
jcounsell@uwic.ac.uk

“usability – effective, efficient, engaging, error tolerant, easy to learn”

Whitney Quesenbery http://www.wqusability.com/articles/more-than-ease-of-use.html

www.Veps3d.org
Interreg IIIB NWE funded project - Approx 4.7m euros
Proposed 2003, began late 2005, and ran until June 2008
Also funded by the UK - potential for its e-Planning programme
Objectives

- Share technical competencies between NWE partners.

  3-dimensional visualisation, ICT applications to promote public consultation, environmental modelling, data collection & use for e-Planning in territorial development in NWE.

- A common architecture and methodology drawing on transnational experience and the knowledge of planning regulations and sustainability metrics in NWE, to enable citizens to view and respond to planned changes via home PCs.

- Refine and implement a test-bed system in a number of demonstrations in the NWE region, thereby increasing transnational experience. Evaluate and iteratively refine the methodology and the system architecture and applicable open standards.
Prototype tools

with which to evaluate:

- **Alternative approaches** to showing planning proposals in internet based 3D contexts

- The appropriateness of **different forms of public participation tools** (dialogue and commenting)

- If it is the right technology and approach for addressing these planning consultation issues, i.e.
  - Whether these tools may be **easier to use** for the same tasks than the current approach?
  - The potential of such tools for **enhancing effectiveness**?

- **Interoperability**

- **Interfaces to GIS** and other (open source) tools
## Public Consultations

<table>
<thead>
<tr>
<th>Complementary</th>
<th>Immediate (synchronous)</th>
<th>Deferred (asynchronous)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physically present (co-located)</td>
<td>Planning for real</td>
<td>Plans and comments</td>
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</table>

**VEPs**

- **Virtual collaboration**
  - Video Conferencing
  - Virtual messages and modelling

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www.veps3d.org
immediate consultation

Figure 3.1 eBeam (circled in red) in use during a community café consultation.

Figure 3.7 The UWE back projected screen, discussion in crowded situations.

EXECUTIVE SUMMARY AND MAIN FINDINGS

The aim of this report is to investigate the potentials of using Interface Technologies to facilitate urban planning processes. Based on the investigation, the Main Findings from this report are summarised below:

- Portable Interface & Display Technologies

  Portable Interface Display Technologies, such as the eBeam Interactive Whiteboard, and Portable Media Walls have been successfully used in a variety of consultation events in different locations from community cafés, offices and even a former Ministry of Defence air force base. Each location offered a variety of challenges for the installation of technologies, concerning with location, light etc. The location where devices to be installed needs careful consideration and, ideally, a site survey before any event. This would include checking light interference, power availability, heating and ventilation if in a small room, as well as access for flight cases' equipment and setup time.

www.veps3d.org
immediate e-collaboration

- Ad-hoc technology ‘mashup’
- (COML = comment markup language!)
  www.VEPs3D.org
Citizens view & respond

“usable, effective, efficient, engaging, error tolerant, easy to learn”

Acceptance vs simplicity

both EAEW & Groundwork

staff getting a message across to the public prefer film to interaction so far!

Usability testing and evaluation

Ease of use, compared with...
- Google Earth
- Microsoft Virtual Earth

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Whitney Quesenbery http://www.wqusability.com/articles/more-than-ease-of-use.html
The modelling spectrum

Past - circa 1300, St Teilo’s Church, St Fagans,

The Present

Future, Rosensteinviertel, Stuttgart, 2020?

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LiDAR – first reflection

50cm data Leicester, UK

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LiDAR – last reflection

50cm data Leicester, UK

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Image © The Environment Agency for England and Wales 2004
LiDAR intensity

50cm data Leicester, UK

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First Reflection & Intensity
Auto-updated data

EAEW use ArcView - 6 major algorithms – operator choice

Automated Vegetation and building removal, in which identified DEM cells are buffered by 4 metres, identified objects stripped out of scene, then the gap is filled by simple interpolation.
Automated object extraction
FELIS, Freiburg - automatically extracting trees, and the external geometric form of building massing and roof topography from LiDAR data – in less than 10 minutes


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deferred consultation

- Synthesizing new forms into existing contexts

(not easy - yet)
Comment (needed CML)

Comments are stored in CML with viewpoints

(ComL = comment markup language!)

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Respond (with new models)
Existing can be amended or new proposals added

http://164.11.131.108/dev/htdocs/veps/vr/app/main.php
Respond (presence not easy)
Images can be added, layers switched on or off

http://164.11.131.108/dev/htdocs/veps/vr/app/main.php
Environmental modelling
Environmental modelling

VIEWING FLOOD MODELS IN 3D
Test-bed systems & demos

France
- **Tours** – University Campus – micro level **carpark** consultation
- **Reims** – *social housing renewal* consultation

Germany
- **Stuttgart** – Rosensteinviertel, *air-rights consultation*
- **Black Forest** – *flood prevention* consultation

UK
- **Bristol** harbourside area – *flooding / retrospective plan appraisal*
- **Swindon** – *Masterplanning & new housing in flood zone*
- **St Fagans** – *(Museum of Welsh Life) – heritage and landscape park*
- **Salford** – *redevelopment* consultation
- **Manchester** – *Masterplanning riverside in city, new buildings*
- **Frome** – *Masterplanning brownfield developments*
- **RICS Schools Project** – *6th form geography in the UK South West*
- **Plymouth** – *Groundworks, Public consultation and engagement*
Pick & Mix Consultation tools

Glue + CML

Images © VEPs 2008
Other metrics and tools

e.g

- Metroquest
- UrbanSim
- CAST

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Executive Summary

CONCLUSIONS AND RECOMMENDATIONS

As society becomes more complex, there is a growing need to make our cities more sustainable, strategic decision making in urban planning becomes more important. In this report, tools for making decisions up to 20 years ahead have been assessed. These tools address issues such as transport, urban sprawl, economic policies etc. In particular, there is a focus on three software based scenario planning & simulation tools - MetroQuest, UrbanSim and CAST.

The report found that there is a need and desire to employ more tools and, in particular, ICT tools in the strategic planning process, with emphasis on tools for devising scenarios and analysing their associated consequences, as well as for facilitating stakeholder engagement. These tools would enable us to take a strategic approach to the environmental planning, which is addressed in INTERREG IVB North West Europe (NWE) Programme Priority 2: 'Sustainable management of natural resources and of natural and technological risks’, and INTERREG IVB North Sea Region (NSR) Programme Priorities 2: ‘Promoting the Sustainable Management of our Environment’. The Priority is targeted at enhancing the environmental quality in the region.

The three tools described and assessed in the report, i.e. MetroQuest, UrbanSim and CAST, scored well in terms of these parameters. It was concluded that city and

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Report on Local Planning Support Systems: Executive Summary

CONCLUSIONS AND RECOMMENDATIONS

The report found that Germany, the UK and France have very different planning systems, with the UK having no formal planning instruments at the local level. There was also shown to be a different level of implementation of software technologies to support local planning practices in the three countries: whilst the cities in Germany were shown to have quite a high level of implementation of software technologies, in contrast, the cities in the UK were found to have a fairly low uptake of ICT tools. This may, in part, be due to the fact that most city authorities in the UK tend to contract out urban design and public consultation based practices to external consultancies. Related to this is the requirements of the cities, where there was found to be a greater need for ICT tools in city authorities in the UK, compared to that in Germany, particularly software tools to facilitate community consultation and 3D tools to better
Data Collection (issues)

- Finding Data in the appropriate format
- Delivering Data
  - e.g. Stuttgart, Web 3D services
    Schema allow for extensions but are not yet comprehensive or easy to apply
Applicable open standards?

- City GML
- IFCs
- GML
- KML?
- X3D?
- Height data
- Occupancy data
- Wall openings
- Flood
- Noise
- etc ......

Presence (is it credible?)
Presence in Google Streetview

Aspen Colorado in Google Earth Street View
Presence in Google Sketchup

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Presence in Google Sketchup
Open standards?

Or still a black art?
Open standards?

- Hydro_AS-2D
- MIKE 21
- TUFLOW

Converted to City GML ADE Conformance XML

http://www.hft-stuttgart.de/fbv/fbvweb/privhomepages/coors/schulte/citygml_ade_hydro.htm
establish a 3D reference grid

Recommended scan positions

church

scanner

ground

SCANNING STRATEGIES

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Building and landscape
Snapshots - moments in time
Semantic interpretation

University of Salford.
Jactin House, ground based laser, Planar identification in Microstation

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Images © 2005 Dr Yusuf Arayici of Salford University
Conclusions
‘takeaways’....
more readily available data...
- Auto-updated data, LiDAR
- More repetitive snapshots
- Real-time reaction to presence & ambient intelligence
Low cost point clouds?

www.photosynth.com


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Conclusions

major issues remain:

- usability
- lack of interoperability between the emerging standards
- availability of data in these formats

a few years away from being sufficiently easy for access by all?
Responding with new models

Video from web-browser

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jcounsell@uwic.ac.uk