

“Lenticular Foil Display” New Geo-data Visualization Tools for Participatory Urban Planning

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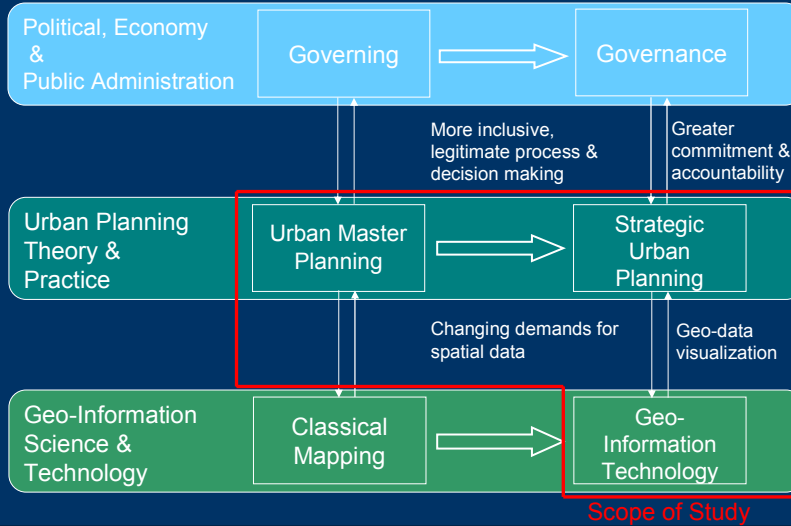
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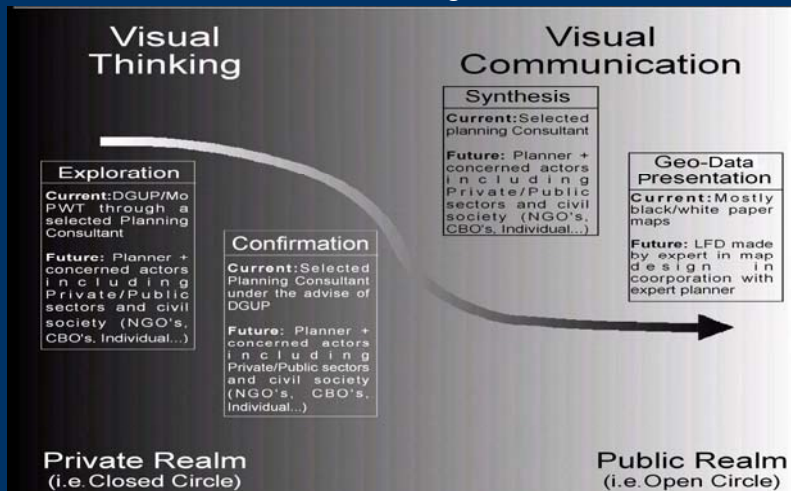
Geo-Data Visualization in Participatory Urban Planning

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Based on DiBiase 1990

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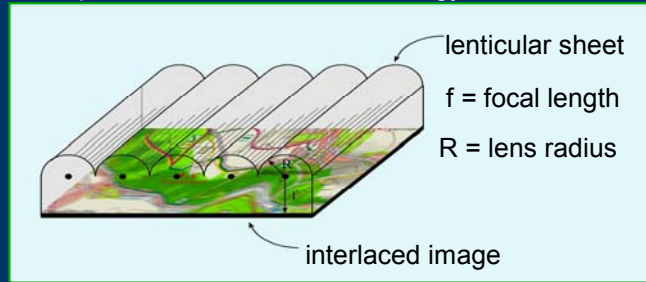
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Lenticular Foil Displays: A New Tool for Participatory Urban Planning

Principle of Lenticular Foil Technology



Source: Buchroithner et al. 2005a

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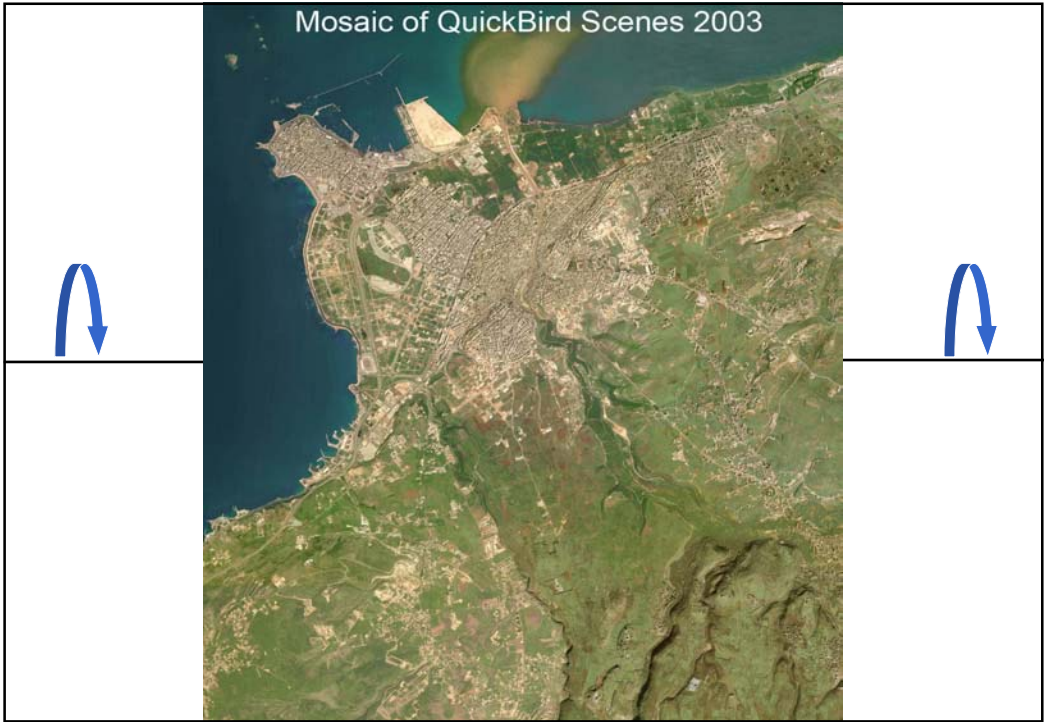
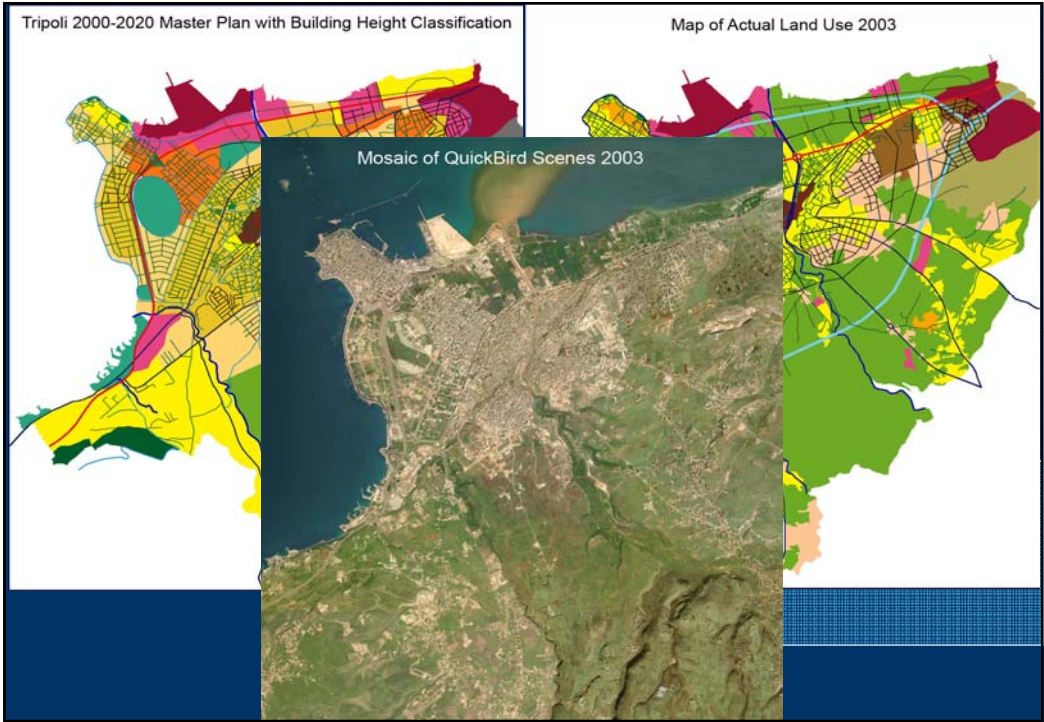
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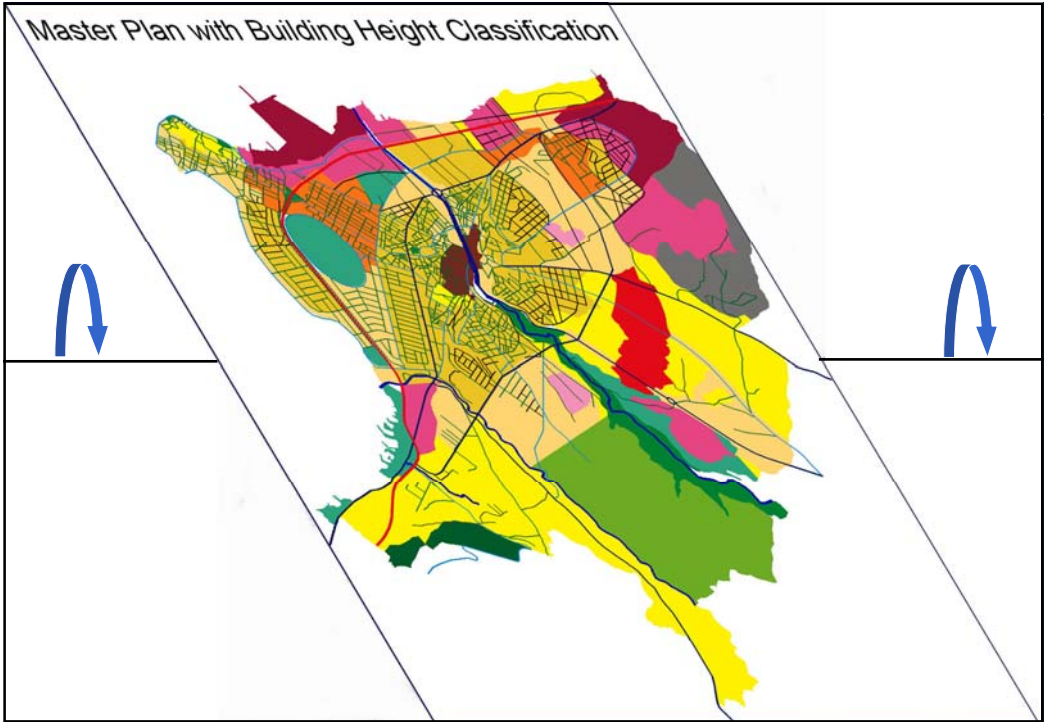
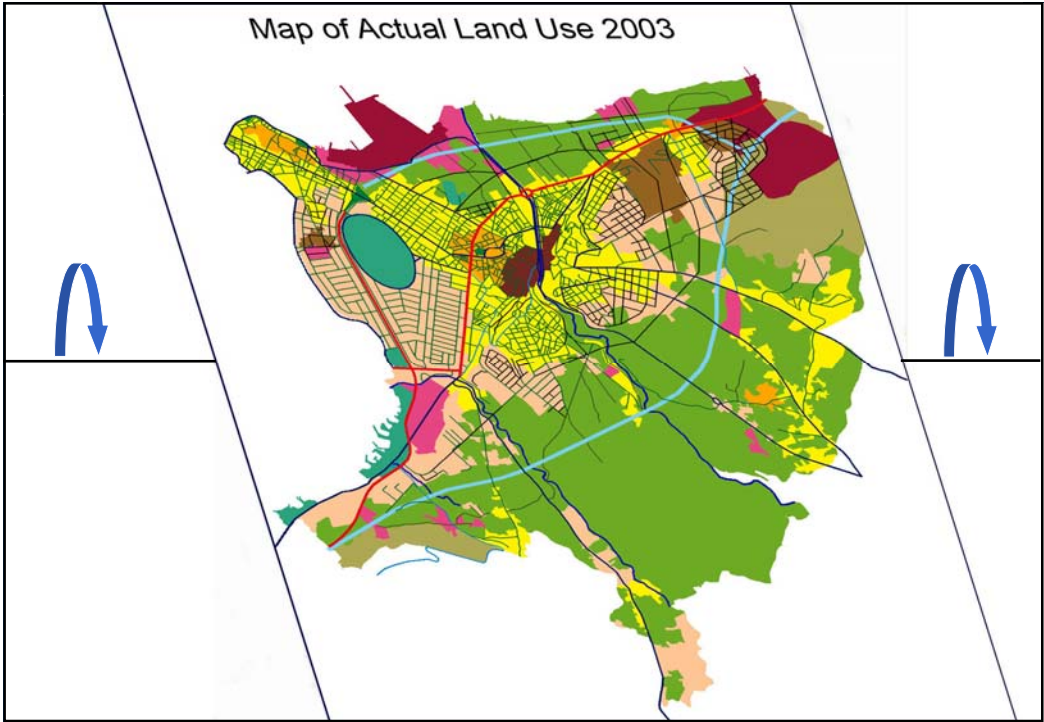
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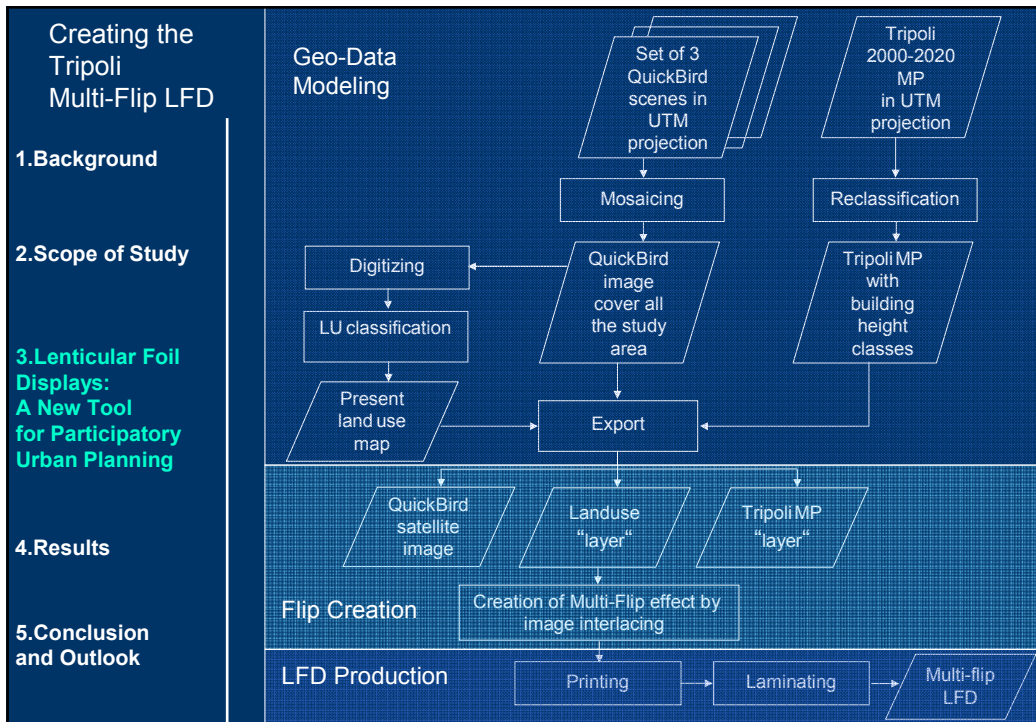
Effects of Lenticular Foil Displays

2D Effects	3D Effects	Combined Effects
Flip Morphing Zoom Animation	True-3D/ Auto- stereoscopy	All combinations of 2D- and 3D effects

Source: Buchroithner et al. 2005c







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Demonstration of tilting effect

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and drawing on transparent overlay

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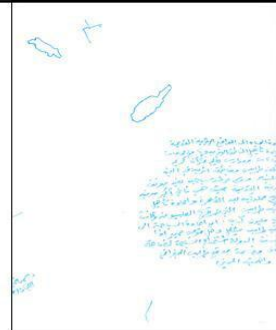
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Some examples of remarks noted and areas drawn on transparent overlay by the Interviewees



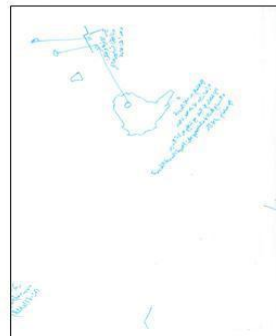
Respondent 23



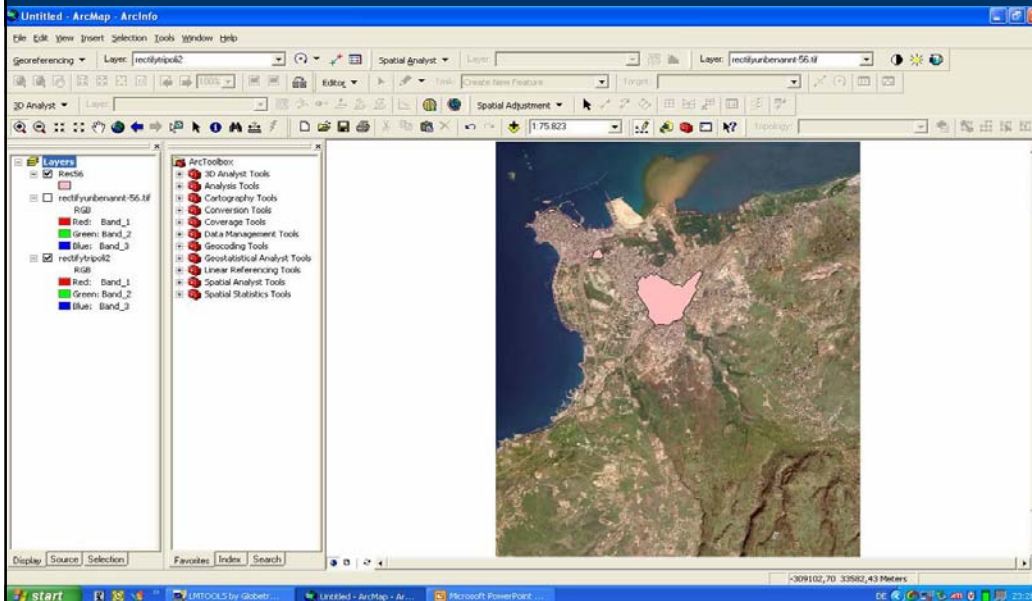
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Respondent 55



Respondent 56



Comparison of multi-flip LFDs and current conventional maps	Multi-Flip LFDs	Conventional Paper or Transparency Maps
	Advantages	Correspondence
	1. Good portability	Very good portability
	2. "Three-in-one" hardcopy effect	Three individual copies
	3. Easy location of homologue points in different "map layers" by simple tilting	Location of homologue points in separate map sheets frequently rather difficult and in separate map sheet cumbersome
	4. Larger-size print-out possible (in comparison to computer display size)	same
	5. No computer skills of needed by the participant	same
	6. No computer plus screen needed	same
	7. No electric power/no batteries needed	same
	8. Easy to input stakeholders' comments and ideas	same
	9. Improvement of the role of participatory urban planning and specially the involvement of non-experts in thematic- map reading	n.a.*
	10. Flexibility in "switching" (tilting) and reading more than one layers in one copy by flipping the multi-flip display	n.a.*

* n.a.: not applicable

Comparison of multi-flip LFDs and current conventional maps (ctd.)	Multi-Flip LFDs	Conventional Paper or Transparency Maps
	Disadvantages	Correspondence
	1. Insufficient geometric resolution for some experienced experts	Sufficient geometric resolution for some experienced experts
	2. "Cross-talk"/("ghosting") of individual "layers"	No cross-talk impact due to the individual map reading
	3. Cost higher in comparison to the paper maps print out	Relatively lower in comparison to the LFD
	4. Special knowledge needed for data processing and publishing	No special knowledge needed
	5. No real-time access to data-base content, searching for data other than that displayed	same
	6. No real-time data manipulation	same
	7. Digital data storing done manually and technical equipment required (scanner)	same
	8. Limited amount of spatial data integration in comparison to softcopy animation	same

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Conclusion & Outlook

- Role of geo-data visualization in enhancing participation
- Consideration of the users (knowledge, professions, education level etc.)
- Role of Multi-Flip LFDs in participatory urban planning, especially for non-experts in map reading
- Important aspects determining the LFDs' usefulness: "three-in-one" and "virtual reality"
- More investigations into LFD technology needed, regarding the ghosting effect
- Referring to: www.context.de, www.mbmSystems.de and www.plasticlogic.de
- Hardcopies (still!) highly recommended for developing (and even for developed) countries

