Workshop on Visualization, Distribution and Delivery of 3D Parcels - Synthesis

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Proposed format

- Short introduction (10-12 min)
- Having a round table (30 min) about
  - Day 1
    - Identify the main issues/problems
    - Identify the progress in the last decade
  - Day 2
    - Identify potential solutions
    - Propose recommendations for further R&D
- Synthesis (10 min)

- But not very applied...

2001 – 1st Workshop on 3D Cadastres

- One workshop about technical issues. 3 themes were identified:

1. The concept of property (values/law)
2. User needs and requirements
   - The primary concern is to prepare a set of user requirements, where the user is the average property owner, rather than the system developer or the land surveyor
   - The visualization issue is very important for understanding part of the problem. Virtual objects can be used to show people what the property looks like.
3. System design
   - What aspects of 3D parcels/objects are specific to 3D and which are in common with 2D?
   - Where do you really need a 3D geometric representation?
   - Is projection to a 2D map sufficient?

A new reality !

- Data are more and more digitized
- The presence of Internet
- Expectation that data and information are for free and available from everywhere
- People change and are more educated, more critical
- Citizens, professionals and officials become more and more informed and connected
- Globalization, social media and virtual environments become part of the real life of individuals and organizations
- Improved communications and rapid evolution of technologies
- More oriented towards service provider
- Building 3D models is more accessible

Who we are?

- How many people ?
  - 12-14
- Background?
  - Land surveying/Geomatics : 9
  - Computers sciences : 3
- Domain of activity?
  - University/research : 5
  - Government : 7
  - Private sector : 1

Topics addressed:

- Visualization for what and for who?
  - 3D parcels definition
  - Do we need 3D data
  - Categories of users and users requirements
- What kind of visualization?
  - Digitized system or paper
  - Do we need 3D visualization system
  - Only viewing, With interaction
- Distribution/delivery
  - Digitized system or not
  - Web services

3D parcels definition (30 min)

- From a technological point of view, geodata visualization does not constitute a major problem anymore. The technology of today allows the production of various solutions
- But when it comes to visualization of the 3D cadastral parcel we should find in first instance a common definition of what means 3D parcel.
- The term parcel was first and mostly identify to a land/ physical object, we concluded to avoid using this term.
- If not using 3D parcel which term to use?
  - We talked about 3D spatial units, 3D legal units, 3D register object, 3D administrative units, 3D property, 3D property units. Sometime we referred to LADM terminology

3D parcels definition (30 min)

- Some outcomes of this discussion
  - The term Property is too restrict it mainly refers to ownership (the right of property)
  - The concept of a space object is problematic as the right does not apply to volumetric object but to boundaries
  - The term legal seems important,
  - Some objects are registered, but some not, are we interested to visual both? The answer was yes, so we prefer not using the term register
  - the term "3D legal unit" is close to the concept that the majority have in mind
- I was "forced" to stop the discussion....

Categories of users and user's requirements (15 min)

- We have to take into consideration the categories of users but more important to focus on user's requirements
- We are still missing user's requirement analysis
- Having 3D representation (volume) of 3D parcels seems not a current requirement, people are doing well with a combination of 2D representations

What kind of visualization?

- First we assume having digitize data
  - Even though we recognize that many users are still using papers! (maybe more than 50% of the current users!)
- 2 general purposes for visualization
  - Recognition (to understand)
  - Analysis (in order to make decision, this is maybe more related to specialist like architect, lawyers, notaries)
- About viewing, the focus is on the legal object and being able to view the RRR,
  - And afterward the physical objects
- Viewing the physical objects is easy (lot of 3D models) but viewing the legal objects is much more relevant, and challenging since we do not see the object (fiat object)

What kind of visualization?

- We do not have to reinvent techniques about viewing 3D objects but try to better integrate concepts from 2D cartographic sciences and tools
  - BUT not to be limited by this !
  - We have to be innovative on this point
- We should not create a new data schema for 3D but build on extension of the existing one (2D)

Graphical aspects (highlighting techniques)

- We recognized that viewing 3D parcels shares similar aspects compare to viewing others kinds of objects (like buildings), but it must exist specific highlighting techniques more appropriate to 3D parcels
  - We were nevertheless not able to identify these items
  - We talked about transparency, color, 3D axes, legend,
  - And we were surprised by the fact that Spain jurisdiction said: texture is not required ! We would like to know why?
- The appropriate techniques will also depend on what kind of overlapping properties is to be visualized
  - Object that we can see compare to object that we do not see (e.g. Underground objects)
- We thus strongly recommend having studies about applying/testing highlighting techniques to 3D parcels

Which level of interaction?

- This is not an exhaustive list but here are few examples:
  - Compute the volume,
  - Doing object selection (by a form or a cartographic interface)
  - Getting information about neighbouring (who are they)
  - Compute 3D buffer / Computer 3D intersection
  - Get measures
    - But here we stretched out the fact that getting a 3D measure is not so trivial in a 3D environment and we would better use tools to help selecting and snapping the objects
- Remind that level of interaction have to be matched with user profile (need research)

Distribution / Delivery

- About Web mapping, this is an important trends, and we have to keep developing and integrate the Web in our solutions
- We did not have time to discuss about what kind of Web services! But it is certainly important
- The Web mapping is a good solution to integrate various sources of data

Standards, new trends

- We also emphasis the importance of having standards for storing and querying 3D data (strong relation with displaying
  - We did not have time to discuss about cityGML since we were running out of time!
- We promote the development of 3D viewers like Adobe (accessible, reach large public) that allow the access to information
  - Which information should be accessible? We did not have time to discussed this point
- We were also interested of taking advantage of CrowndSourcing
  - Eg. To open a contest about how should be displayed 3D parcels, and which graphical variables or interaction the general public is interested in

Other conclusions

- One difference between 2001 and 2011, is that 3D system visualization and delivery are more available and accessible,
  - Half of the participant already built 3D models
- Conclusion from 2001 (in 2011 we still agree)

– Multi purpose use of 3D data

The conclusion has been drawn that 2D representation is still ok, even if the objects are 3D. A 3D cadastral database is too costly to introduce as a general concept. In 90% of the cases there is no need for a 3D cadastral database. Is this true? However, for city management, city planning, etc. models have to be made in 3D. 3D cadastral data could also be exported to planning systems, etc.