

Development Scenarios of the 3D Cadastral System in Finland

FIG Working Week 2012
Rome, Italy

Knowing to manage the territory, protect the environment,
evaluate the cultural heritage

TS05A - 3D and 4D Cadastre I
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NATIONAL LAND SURVEY OF FINLAND 1

Development Scenarios of the 3D Cadastral System in Finland

Content of the presentation

- As a conclusion this presentation will present the most likely development scenario for the Finnish 3D cadastral system and its judicial, technical and practical consequences.
- Before these conclusions the methods that was used to analyse the problem are presented.
- And before the methods, the importance of the study is discussed: why was it necessary to analyze our cadastral system and its development scenarios; what are the main reasons for the development work and what is the scale of the problem.

2

Development Scenarios of the 3D Cadastral System in Finland

Importance	Methods	Conclusions
<Current Situation>	<Development needs>	<Scale of the problems>
<p>3D real estates are not being formed in Finland at this moment</p> <ul style="list-style-type: none"> □ In Finland the cadastral system is today a two-dimensional (2D) system projected to the ground level. □ Real estates are legally formed in cadastral surveys and it is not possible to form a three-dimensional (3D) real estate. □ The lack of possibility of 3D property formation has lead to various substitute solutions such as leased area, encumbrance and company form arrangements and shareholding contracts based on joint ownership. 		
3		

Development Scenarios of the 3D Cadastral System in Finland

Importance	Methods	Conclusions
<Current Situation>	<Development needs>	<Scale of the problems>
<p>The current cadastre does not fulfill the reliability requirements</p> <ul style="list-style-type: none"> □ 3D property formation is needed especially in large-scale construction works including spaces over- and underground. □ The basic problem in the current situation is that the legislation, and thus property formation and registration, do not recognize other measures than those falling on the ground level. □ Therefore, different means for obtaining ownership and possession rights and mortgageability for overground and underground spaces must be searched in each separate case making use of the existing judicial mechanisms and sometimes even the “grey-areas” of the legislation. □ Case-specific proceedings lead to incoherent practices and uncertainty considering the possession of the real estate, real property formation, maintenance of the cadastre, title registration and granting of various licenses and mortgages. 		
4		

Development Scenarios of the 3D Cadastral System in Finland

Importance	Methods	Conclusions
<Current Situation>	<Development needs>	<Scale of the problems>
<p>3D property formation is necessary very seldom</p> <ul style="list-style-type: none"> □ 3D property formation is not required for houses or apartment since Finland has well-working Apartment House Company Act which is based on shareholdings. □ 3D property formation is not required for railways, highways etc. because Finland has well-working Railways Act and Highways Act which are based on permanent usufructs. □ The biggest need for 3D property formation lies in big construction projects which include independent functional entities such as parking space, retail, office space and housing, and in which the independent entities are on top of each other. □ However, as there are annually only a few projects like this the problem of 3D properties has not been fixed – yet. 		

5

Development Scenarios of the 3D Cadastral System in Finland

Importance	Methods	Conclusions
<Alternative 1>	<Alternative 2>	<Alternative 3>
<p>SWOT-analysis based on questionnaire targeted for professionals in the field</p> <ul style="list-style-type: none"> □ Alternative 1: Maintain the cadastre mainly as it is. □ Strengths: The present system is working fairly well in most cases; No costs from alteration work. □ Weaknesses: The present situation can't be outstandingly improved to meet the needs of modern world. □ Opportunities: The present practises for substitute solutions could be improved and unified. □ Threats: 3D constructions will increase in the future and the problems arising from the present cadastral system will increase as well. 		

6

Development Scenarios of the 3D Cadastral System in Finland

Importance	Methods	Conclusions
<Alternative 1>	<Alternative 2>	<Alternative 3>
<p>SWOT-analysis based on questionnaire targeted for professionals in the field</p> <ul style="list-style-type: none"> □ Alternative 2: The present legislation and cadastral system are developed to support 3D real estate formation and registration in special cases. □ Strengths: The present system can be maintained for the most part; Transparency of the cadastral system and legal protection of the mortgagee will improve. □ Weaknesses: The outreach of the real estate may in some cases become complicated and confusing. □ Opportunities: Need for non-uniform and contract-based solutions will diminish. □ Threats: All repercussions of the reform may not be considered when amending the legislation and developing the technical and practical solutions. 		
7		

Development Scenarios of the 3D Cadastral System in Finland

Importance	Methods	Conclusions
<Alternative 1>	<Alternative 2>	<Alternative 3>
<p>SWOT-analysis based on questionnaire targeted for professionals in the field</p> <ul style="list-style-type: none"> □ Alternative 3: The whole cadastral system is changed into truly three-dimensional. □ Strengths: Coherent system as a result. □ Weaknesses: The final outcome will be a system which would not be effectively utilized; the renewing work and its expenses would be high considering the needs. □ Opportunities: The system might offer new possibilities for eg. Environmental planning and visualization. □ Threats: Renovation of the data systems will be more challenging and expensive than expected. 		
8		

Development Scenarios of the 3D Cadastral System in Finland

Importance	Methods	Conclusions
<Judicial>	<Technical>	<Practical>
<p>The cadastre will be develop based on Alternative 2 (3D property formation will be made possible in special cases)</p> <ul style="list-style-type: none"> □ 3D property formation will be made possible only in areas with detailed plan. □ The need for 3D properties must be identified in the detailed plan. □ However there is no need to change the regulations concerning Planning and Building Act since the current legislation does not prohibit identifying 3D properties. □ The biggest changes must be made to the Property Formation Act and to the Real Estate Register Act. <ul style="list-style-type: none"> □ For example the definition of real estate needs to be reconsidered □ Also some minor changes might have to be made to other acts, i.e. to Land Code, property formation enactment 		

9

Development Scenarios of the 3D Cadastral System in Finland

Importance	Methods	Conclusions
<Judicial>	<Technical>	<Practical>
<p>The cadastre will be develop based on Alternative 2 (3D property formation will be made possible in special cases)</p> <ul style="list-style-type: none"> □ The number of 3D properties on top of each other will not be technically limited. □ 3D properties shall consist of only one parcel. □ The size of the 3D property will be calculated from the area projected to the ground level. 		

10

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Importance	Methods	Conclusions
<Judicial>	<Technical>	<Practical>
<p>The cadastre will be develop based on Alternative 2 (3D property formation will be made possible in special cases)</p> <ul style="list-style-type: none">□ The first step will be clarifying legal issues.<ul style="list-style-type: none">□ The preparation of the legislation is targeted to be ready at the end of 2013.□ After the legislation is prepared, the questions concerning property formation processes and technical aspect in a more detailed manner can be solved.□ If everything goes as planned the 3D property formation should be possible in Finland around 2015-2016.		

11

Development Scenarios of the 3D Cadastral System in Finland

Thank you for your Attention!

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12