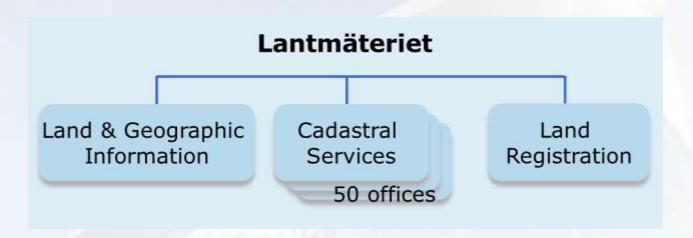


Surveying the world of tomorrow –

Helsinki Finland 29 May - 2 June 2017

From digitalisation to augmented reality

### **Key players in Swedish land management**



Private sector (GIS, valuation etc.)

39 Municipal Cadastral Authorities

Public sector (planning, acquisition etc. )





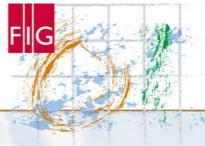










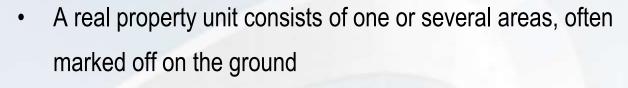


Surveying the world of tomorrow -

Helsinki Finland 29 May - 2 June 2017

From digitalisation to augmented reality





- 3D real property formation was introduced 1 January 2004, ownership flats 1 May 2009
- A property unit may include buildings, fences, trees, water areas etc.
- Technical infrastructure is not by itself considered as real property (roads, water and sewage systems, electrical power lines etc.)



The building on the real property unit Gävle Viken 10:2





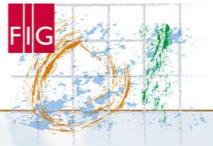












Surveying the world of tomorrow -

Helsinki Finland 29 May - 2 June 2017

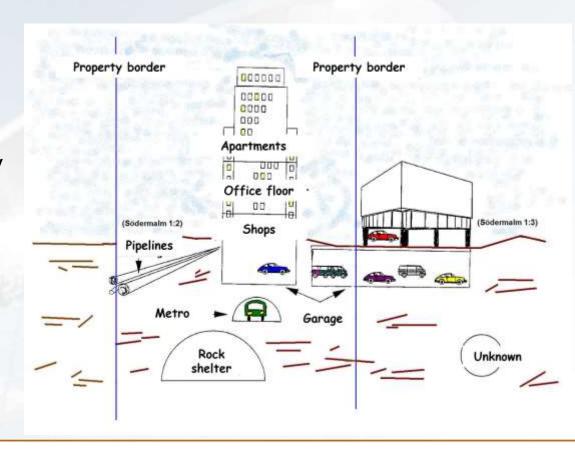
From digitalisation to augmented reality

### What is a property? What is a 3D property?

According to the Land Code "solid property is land and it is divided in to real properties"

A 3D real property is a real property surrounded by borders both vertically and horizontally. It is one **closed** volume.

It is possible to join a 3D area to a regular 2D real property.







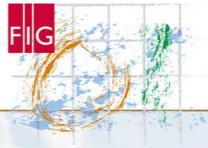












Surveying the world of tomorrow –

Helsinki Finland 29 May - 2 June 2017

From digitalisation to augmented reality

### Different kinds of 3D properties

- Traditional property unit with 3D parcel
- 3D property unit
- Condominium





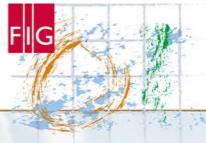












Surveying the world of tomorrow -

Helsinki Finland 29 May - 2 June 2017

From digitalisation to augmented reality

### **Example of a 3D property**

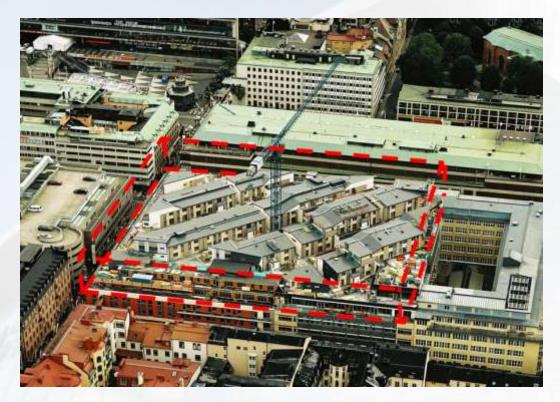


Foto: Lennart Johansson InfoBild





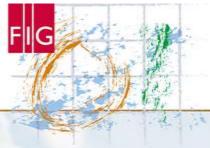












Surveying the world of tomorrow -

Helsinki Finland 29 May - 2 June 2017

From digitalisation to augmented reality

# Traditional property unit with 3D parcel

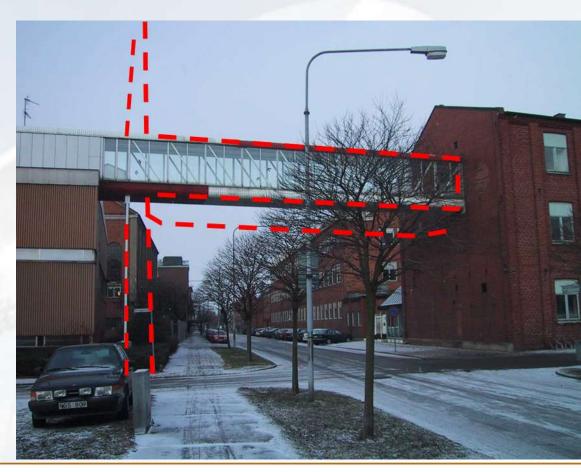


Foto: Cecilia Adolfsson





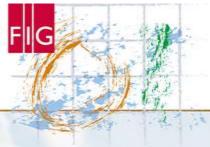




Platinum Sponsors:







Surveying the world of tomorrow –

Helsinki Finland 29 May - 2 June 2017

From digitalisation to augmented reality

# 3D property units

### different functions/management



**Apartments** 

Offices

Shops

Different constructions or floors in the same building/construction can have different owners.

Implementation of larger road and rail road projects is facilitated.





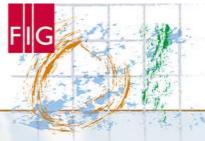










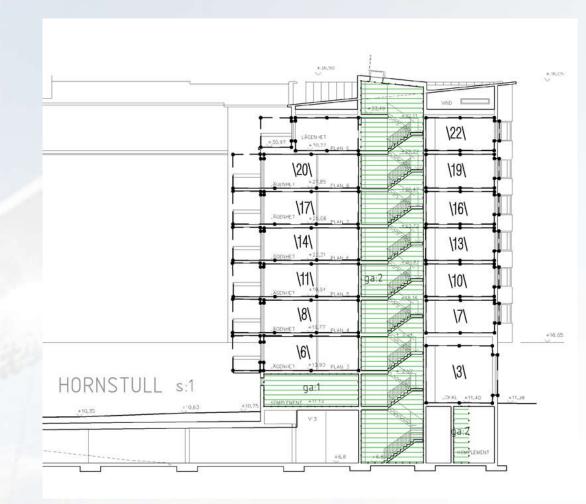


Surveying the world of tomorrow -

Helsinki Finland 29 May - 2 June 2017

From digitalisation to augmented reality

#### **Condominiums**







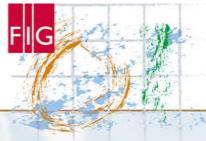












Surveying the world of tomorrow -

Helsinki Finland 29 May - 2 June 2017

From digitalisation to augmented reality

#### Advantages of 3D properties

The need for 3D properties, practical examples:

- More efficient use of properties within city centers
- More efficient use of public owned land through underground constructions, for example garages
- 3D properties clarifies the ownership and rights between different actors, for example on stations, travel centers, port terminals and tunnels
- Also useful for a wide range of other purposes

#### Advantages with 3D properties:

- Increased building in city centers (better use of existing schools, public space and infrastructure)
- Facilitates financing of infrastructure projects
- Easements and agreements are replaces with ownership
- Clarifies responsibilities for common facilities





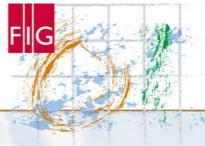












Surveying the world of tomorrow -

Helsinki Finland 29 May - 2 June 2017

From digitalisation to augmented reality

### **Property formation for 3D properties**

Application to the cadastral authority (Lantmäteriet)

3D properties are formed and reformed with a cadastral procedure

There are rules about suitability and special regulations

Formal contact with the municipality/ the local building committee.

The cadastral authority decides, for example when a construction shall be built.

1 state and 39 municipal cadastral authorities







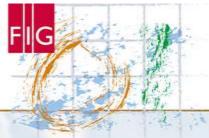












Surveying the world of tomorrow -

Helsinki Finland 29 May - 2 June 2017

From digitalisation to augmented reality

### The cadastral procedure

Application

Contacts, Research Formal meeting

Fieldwork, Mapwork

- Property owners
- Authorities
- Old cadastre orders

- Claims
- Information and discussion
- Legal trial
- Draft for decision

Decision

**Appeal** 

Legal force

 To be seen in the property register and register map



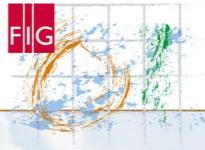












Surveying the world of tomorrow –

Helsinki Finland 29 May - 2 June 2017

From digitalisation to augmented reality

### **Implementation**

Usual rules concerning property formation are applied

+

Certain special rules about 3D properties





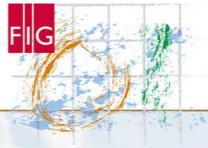












Surveying the world of tomorrow –

Helsinki Finland 29 May - 2 June 2017

From digitalisation to augmented reality

### **General questions**

- New or changed properties have to be suitable for their purpose longterm.
- The cadastral surveyor is responsible for the basis of the decision and therefore that the questions about rights (easements etc) are solved.
- Property formation have to be in accordance with existing plans and regulations.





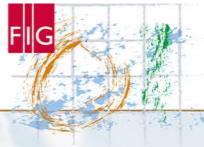












Surveying the world of tomorrow -

Helsinki Finland 29 May - 2 June 2017

From digitalisation to augmented reality

### **Special regulations**

3 D property shall include a building or other construction or part thereof Exception unbuilt:

If it is necessary to secure financing or the construction of the building.

The property have to be operational within the near future. The cadastral authority decides the time.

If the building is not constructed or if it is destroyed the 3D property returns to the ground property.

It have to consist of at least 3 apartments.

It has to be ensured rights needed to be used in an appropriate way.





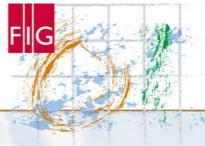










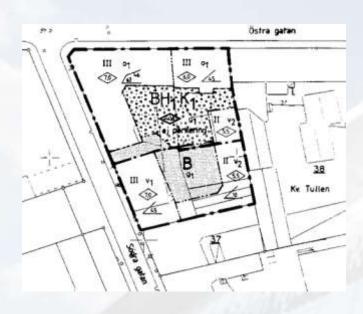


Surveying the world of tomorrow -

Helsinki Finland 29 May - 2 June 2017

From digitalisation to augmented reality

### **Planning regulations**



- The building and planning act is not changed.
- New detailed development plans are often made for three dimensions
- Detailed development plans usually regulate the permitted use of the properties, not the division into property units.
- Old property formation plans can be a problem.

















Surveying the world of tomorrow -

Helsinki Finland 29 May - 2 June 2017

From digitalisation to augmented reality

### Cooperation within the building



#### Rights shall be created when needed

the property unit is assured of the rights necessary in order for its appropriate use to be possible..."

Easements according to RPFA

Joint facilities according to the joint facilities act

Funding to ensure maintenance and renewal of joint facilities





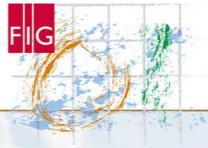












Surveying the world of tomorrow -

Helsinki Finland 29 May - 2 June 2017

From digitalisation to augmented reality

### **Boundaries for the 3D property**

Defined through: the existing facility or building permit plan

4 Chap. 27 §
Real Property
Formation
Act

No specific regulations concerning how to specify the boundaries of the 3D property.

If setting out and marking the boundaries can not be done in a suitable way, the boundaries shall be described with sufficient clarity on a cadastral survey map and in the cadastral records (description).





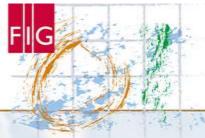












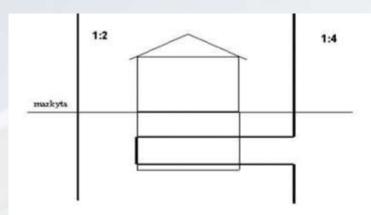
Surveying the world of tomorrow -

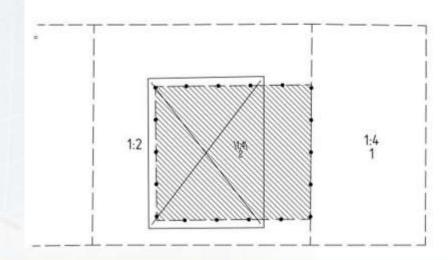
Helsinki Finland 29 May - 2 June 2017

From digitalisation to augmented reality

### **Real Property Register**

- Norr 1:4 with 3D property space
- Norr 1:2 hollowed by 3D property space
- Digital Index Map









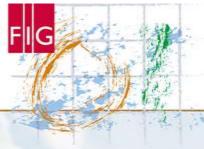












Surveying the world of tomorrow –

Helsinki Finland 29 May - 2 June 2017

From digitalisation to augmented reality

### 3D properties in Sweden since year 2004

- There are 827 formed 3D properties (2016.12.31)
- There are 1066 ownership apartments (2016.12.31)
- More 3D properties in the larger cities and in the South and Western part of Sweden (Malmö, Gothenburg etc.)
- Fewer 3D properties in the rural areas and zero ownership apartments in some counties in the north and in other rural areas.
- Stockholm large infrastructure projects are using 3D property formation





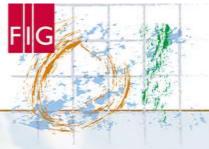












Surveying the world of tomorrow -

Helsinki Finland 29 May - 2 June 2017

From digitalisation to augmented reality

#### Contact

Alexandra Högblom Moisio

E-mail: alexandra.moisio@lm.se

Office: +46 8 709 57 77

More information: www.lantmateriet.se





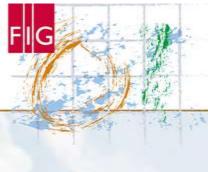












Surveying the world of tomorrow -

Helsinki Finland 29 May - 2 June 2017

From digitalisation to augmented reality















