

Indoor geography and addresses

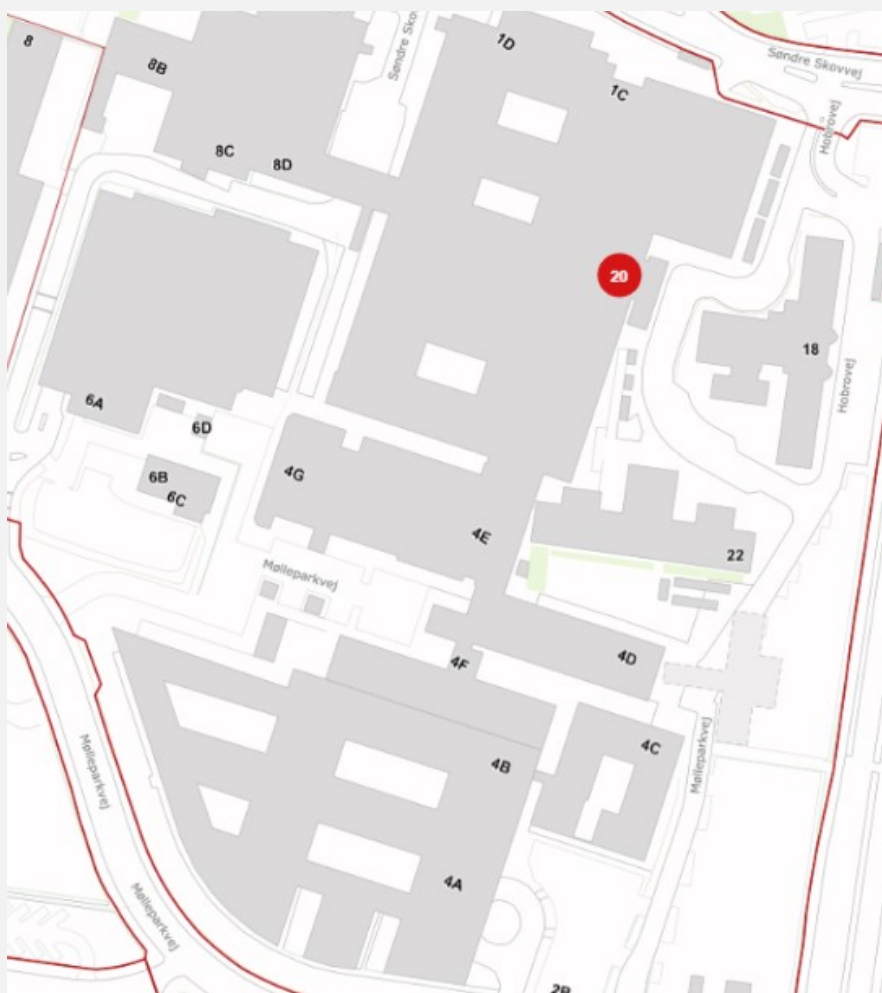
Agenda

1. How are indoor addresses registrated today?
 2. Short about address and related standards
 3. Indoor Geografi
 4. Door points in Denmarks Adress Register (DAR)
 5. Open forum – Do you have any thoughts on indoor addresses.
-



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Hospital





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Hobrovej 20
9000 Aalborg

ADRESSE

Hobrovej 20

OPDATERET03-05-2018

STATUSGældende

ID28255ba3-e807-4271-97e4-661cb27d7b2d

HUSNUMMER

+

VEJNAVN

+

10

1c

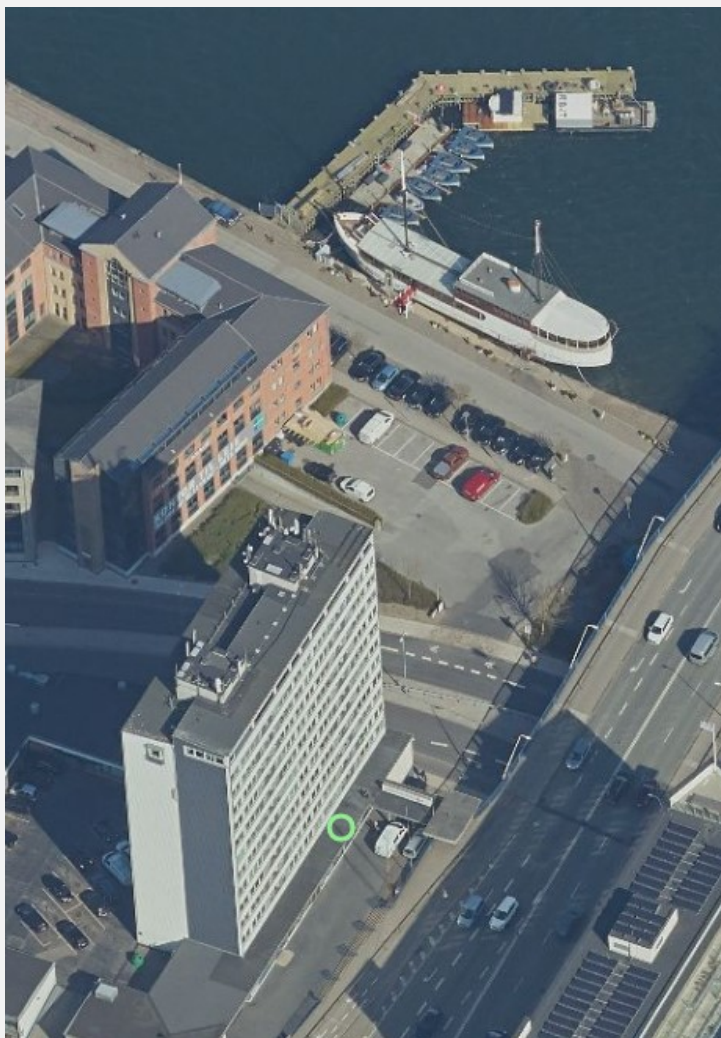
20

18

Søndre Skovvej

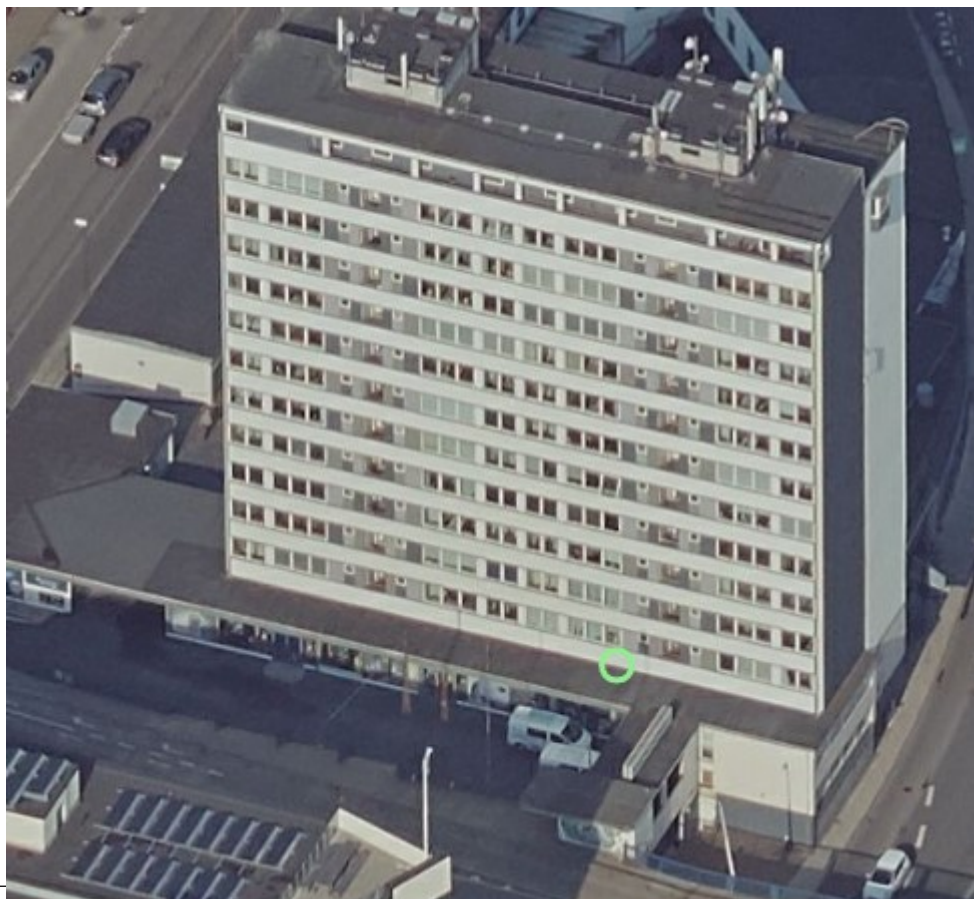
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Apartment building





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Vesterbro 125
9000 Aalborg

ADRESSER (48)

Vesterbro 125 +

Vesterbro 125, st. +

Vesterbro 125, 1. 101 +

Vesterbro 125, 1. 102 +

Vesterbro 125, 1. 103 +

Vesterbro 125, 11. 1102 +

Vesterbro 125, 11. 1103 +

Vesterbro 125, 11. 1104 +

Vesterbro 125, 12. 1201 +

Vesterbro 125, 12. 1202 +



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Shoppincenter

Falkoner Alle 21
2000 Frederiksberg

ADRESSER (84)

Falkoner Alle 21

Falkoner Alle 21, st.

Falkoner Alle 21, 1. 1020

Falkoner Alle 21, 1. 1025

Falkoner Alle 21, 1. 1040

Falkoner Alle 21, 1. 1060

Falkoner Alle 21, 1. 1070





Address and related standards

ISO/TC211 Address standards

- 19160-1:2015 Addressing – Part 1:Conceptual model
- **19160-2 Addressing – Part 2:Assigning and maintaining addresses for objects in the physical world (work in progress)**
- 19160-3:2020 Addressing — Part 3: Address data quality

ISO/TC211 Address standards

- 19160-4:2017 Addressing — Part 4: International postal address components and template language
- ~~19160-5 ddressing — Part 5: Address rendering for purposes other than mail (deleted)~~
- 19160-6 Addressing — Part 6: Digital interchange models (work in progress)

ISO 19160-2

Purpose of this standard:

- establishes an overall set of objectives for assigning and maintaining addresses;
- specifies the principles for assigning and maintaining addresses;
- specifies a good practice for assigning and maintaining addresses; and
- specifies a governance framework for assigning and maintaining addresses

ISO 19160-2

Important requirements in the standard:

- An address shall be assigned to an addressable object in the physical world so that it allows the unambiguous determination of the object for purposes of identification and location
- An address shall not include information about an individual or organization, owning the object to which it is assigned, or living and/or working at the object to which the address is assigned.
- Address data shall represent the addresses assigned to objects in the physical world

OGC standard

OGC Community Standard - Indoor Mapping Data Format (IMDF)

- A model for any indoor location, providing a basis for orientation, navigation and discovery
- Contains instruction for modelling spaces in airport, a shopping mall, and a train station
- Contains a section describing address
 - Representing postal address, of official or proprietary designation, associated with an element of a venue

Link to the standard: <https://docs.ogc.org/cs/20-094/index.html>

ISO/TC211 and OGC standards

Name of proposed project: Indoor feature model

Scope of the project:

This standard defines an indoor feature model to describe and define the inherent features of indoor spatial environment required commonly in various indoor applications. This model will provide a common reference to guide the collection and organization of indoor spatial information.

The scope includes the following:

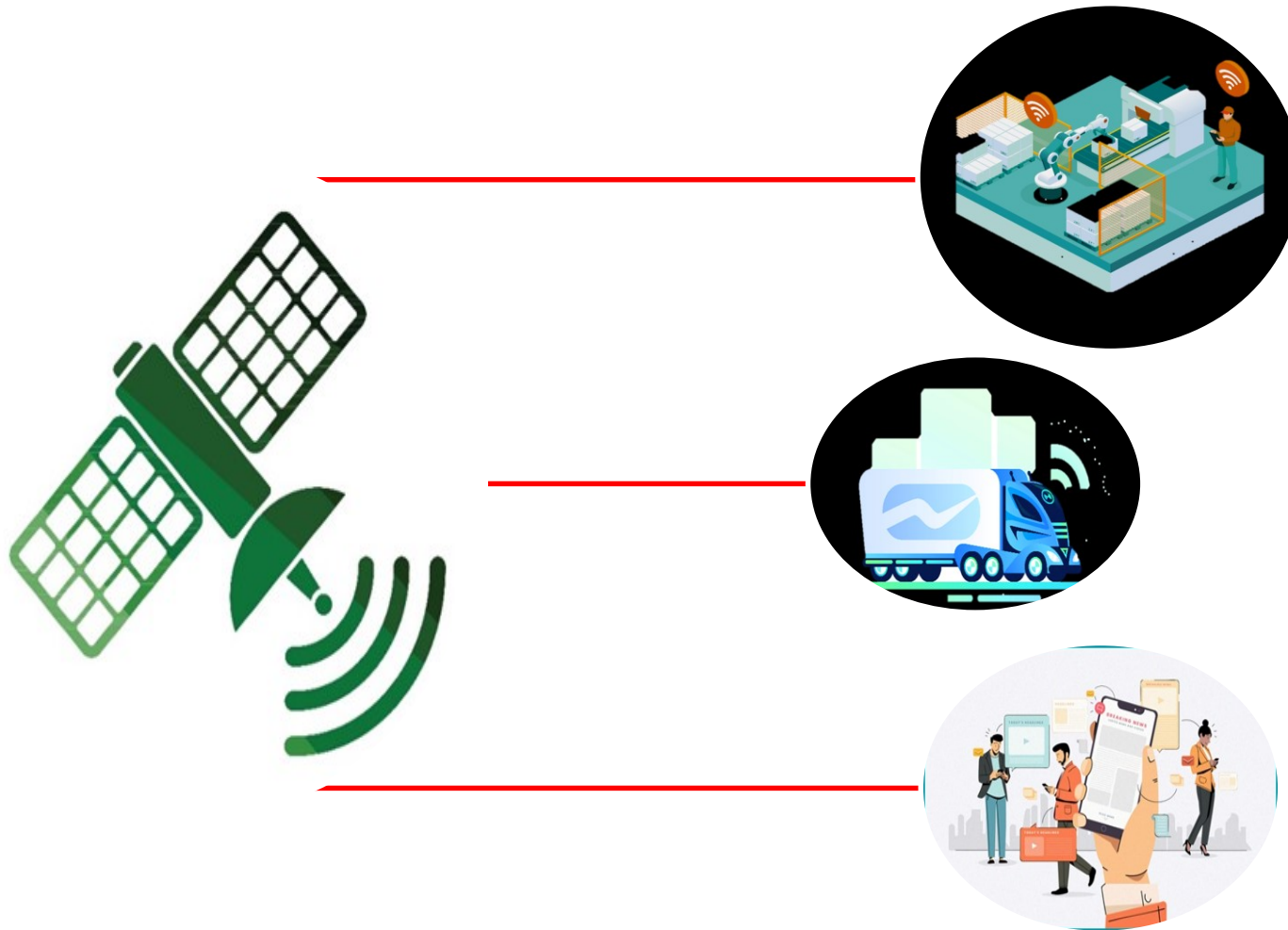
- conceptual models of indoor features and their properties;
- spatial associations and topological relationships among indoor features

Granularity:

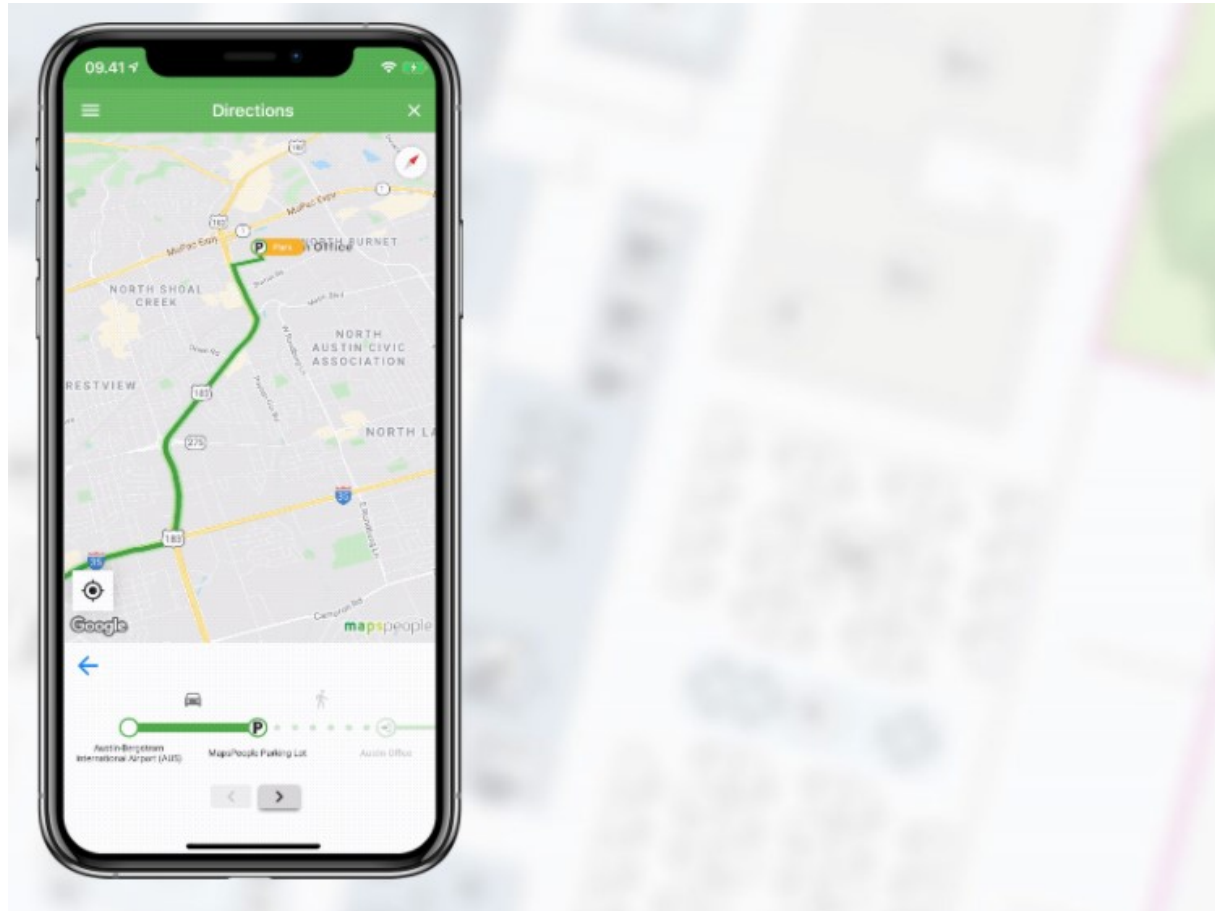
- building,
- floor,
- connection and
- unit

Indoor Geography

How to obtain a position



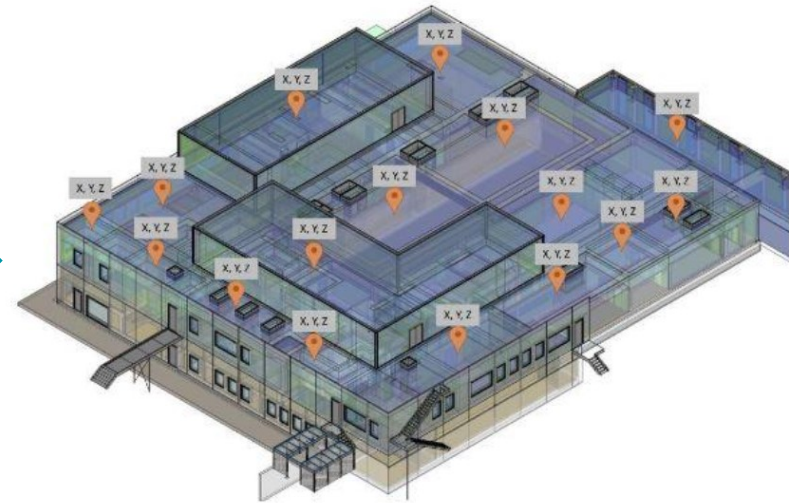
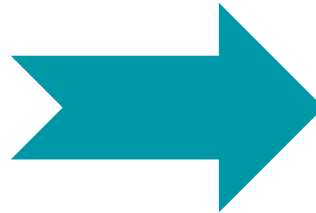
Geography is focused on the outdoor and ends at addresses



How to find your way around



2D maps towards 3D (BIM)



BIM



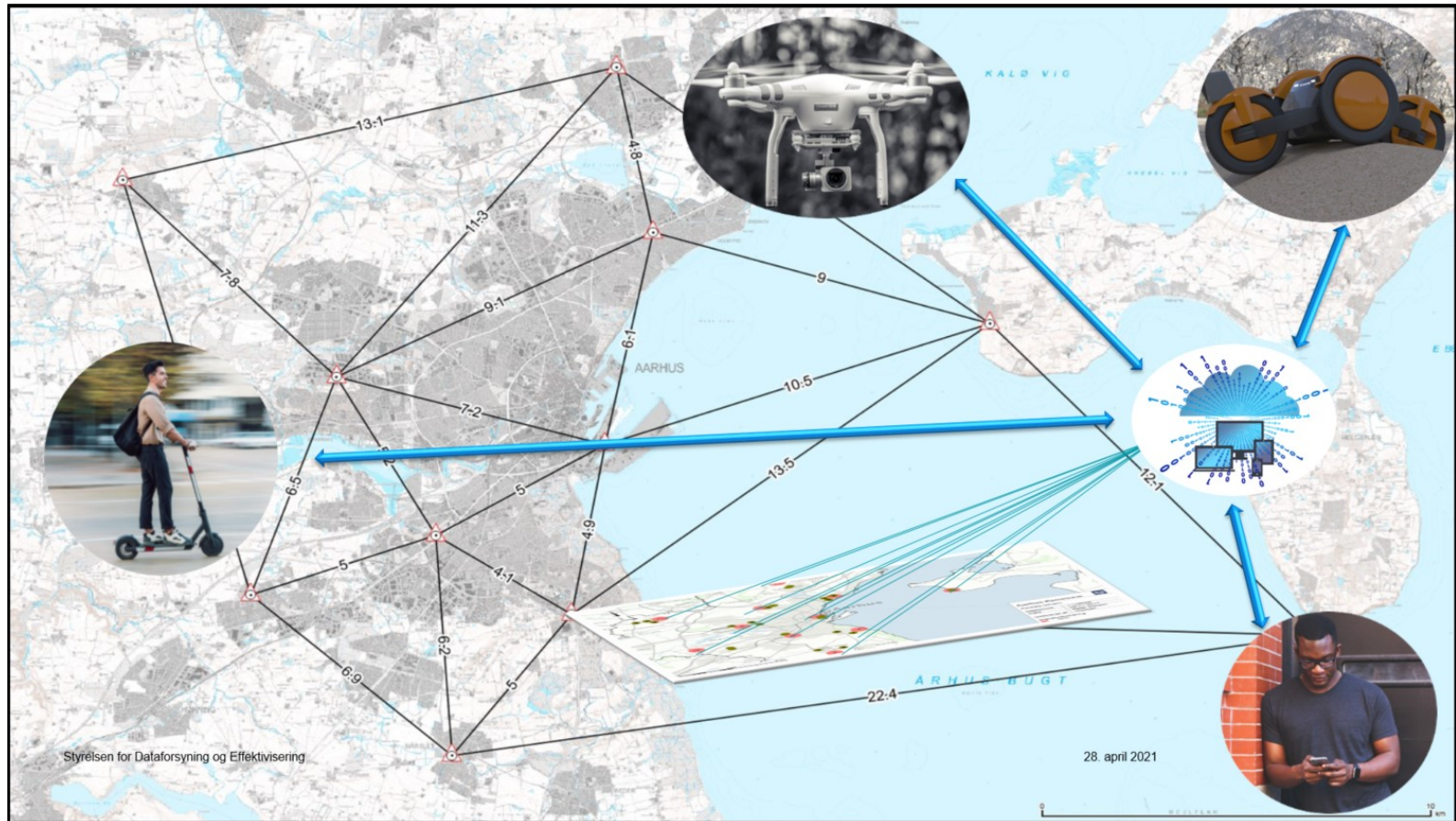
The physical and virtual becomes meshed



New societal needs



Next generation of navigation system



Where indoor geography will be a big asset





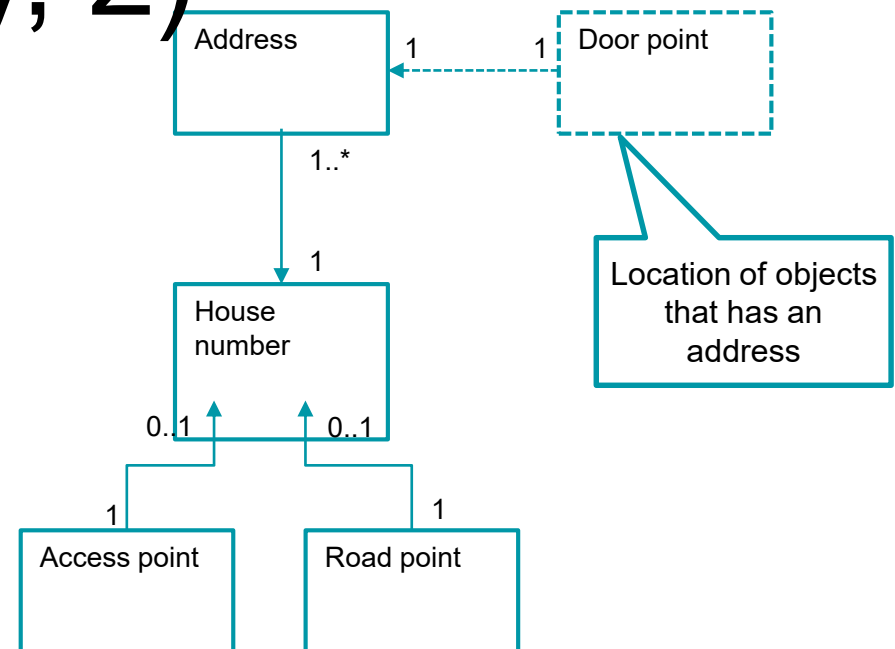
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Door points in DAR

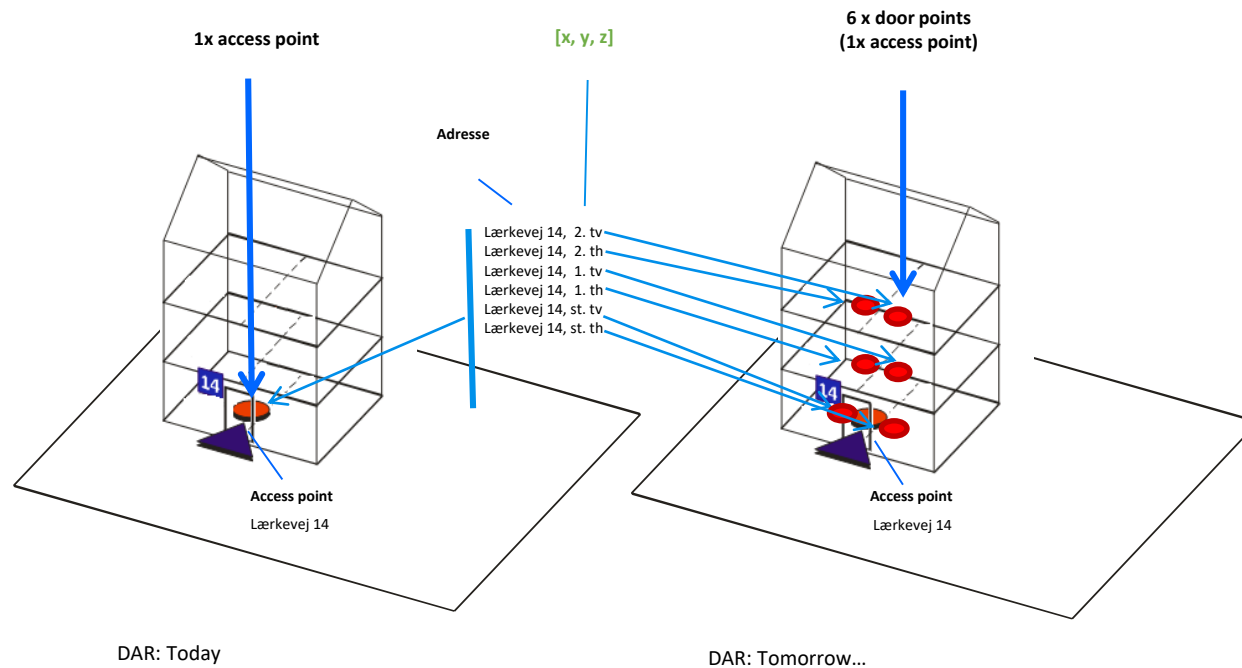
Nordisk adressesemøde april 2021

Karen Skjelbo karsk@sdfе.dk

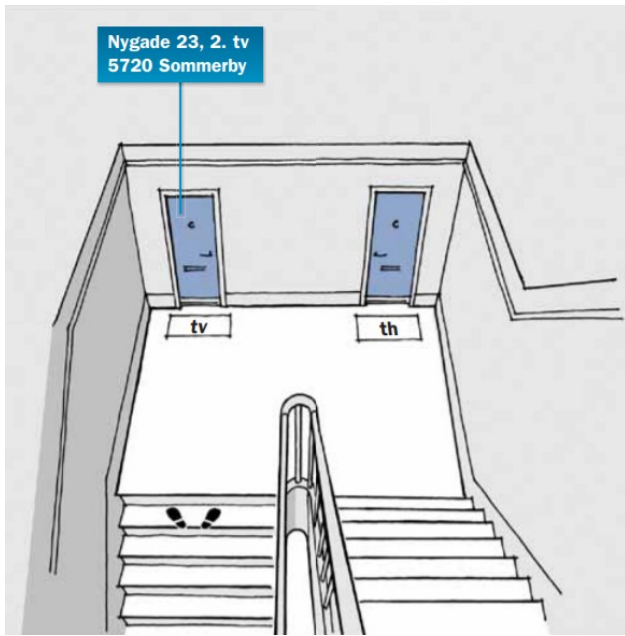
Problem: Where is location of the address (x, y, z)



Model for door points



Turning stairs and complex buildings

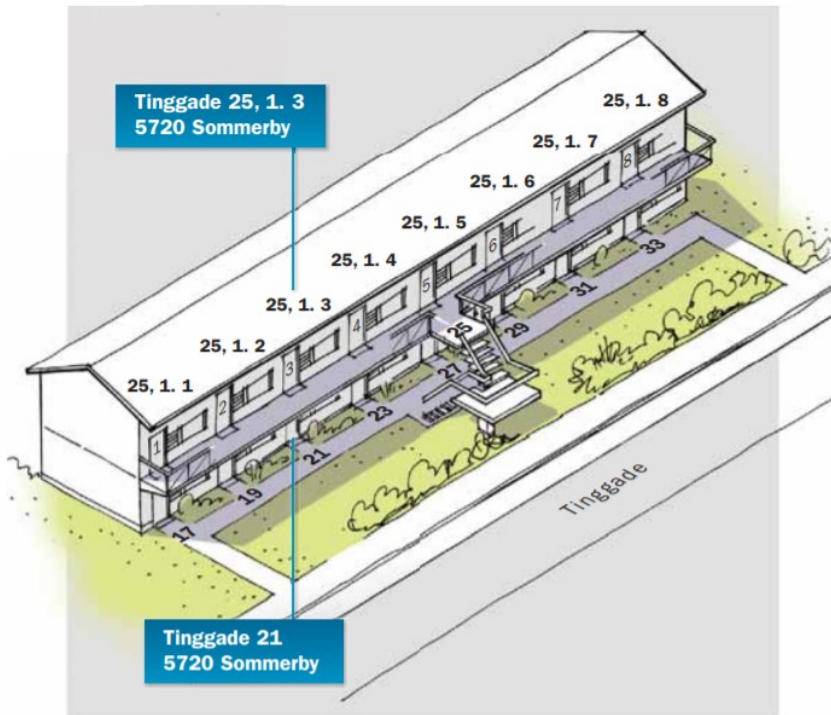


The floor identifier and the door identifier of the address specify the means of access to the address inside the building

The position must indicate the relative locations of the doors seen from the perspective of arriving at the floor.



External stairs



External stairs and access balconies.

The position must indicate the relative locations of the doors seen from the perspective of arriving at the floor.

What can it be used for

- View calculation
- Energy efficiency in Buildings
- More effective delivery of packages and goods
- Robot delivery
- Drone delivery



Gives a connection between indoor and outdoor geography.

How to get and maintain data

Calculating the x, y and z coordinates:

- We know the geometry of the building
- Turning stairs is related to special periods of buildings

Get information from the digital building case archive

- Almost all cases are digitized, and the data are free
- Will cost extreme amount of man hours

Cooperation with private company or authorities who "visits" the address

- Delivering (postnord, GLS etc)
- Will take time...