Towards introducing a geocoding information system for Greenland

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Publication date: 2012

Document Version
Publisher's PDF, also known as Version of record

Link back to DTU Orbit

Citation (APA):
Towards introducing a geocoding information system for Greenland

^ DTU, Denmark; * ASIAQ, Greenland;  
** MBBL, Denmark

Kortdage 2011, Kolding, Jylland, Danmark
Geoforum Danmark

Background – The Issue (1/5)

Greenland Police department

Ambiguity in referencing the location leads to a situation where the incident had not been handled.

Figure Ref: [1]
Background – **Physical Addresses** (2/5)

In Greenland, there are **several names for the same place**:
- According to the historical function – this is very common in Greenland.
  
  **Example Ref [2]:**
  - Tuapannguit 7-104;
  - Tuapannguit (7), former block Q.

- Some of the former Danish road names are still used (Jagtvej).
- It is usually pointed out, that certain buildings or functions are next to the address in question:
  
  **Example:**
  - Next to the former KNR (Greenlandic Broadcasting Channel).

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Background – **Land And Area Allotments** (3/5)

- In Greenland, the land is not owned by anyone. Instead, a citizen, the municipality, or a company can apply for an area allotment for their property.
- The registry for all area allotments is called NIN and this register is separate from the register for building number registry (B-number registry).
Background – **Buildings** (4/5)

In Greenland, you can own buildings and other property. For object identification they have:

- Building numbers (equivalent to title numbers, B-numbers).

There is no official Greenlandic dwelling register. Data can be retrieved from Danish personal identification registry (CPR).

Data should be systematized and combined.

Background – **Roads** (5/5)

- In Greenland, not all the roads have been digitalized. Some roads do not have a name. Road features have a simpler structure than in DK (road name = point).
  - Worth to notice that cities and settlements are not interconnected by roads.
- Missing roads should be digitized.
- Road names are barely labels placed on fixed points on the roads. They should be attributes of road segments or composite features composed of one or more base features.
- Electronically manageable road infrastructure would help in:
  - Waste management,
  - Street lighting,
  - Snow removal, street cleaning.
Resemblance with Danish addressing system

Similar due to historical reasons
- Post code area, Municipal area

Practices to follow from DK addressing system
- Building numeration by road arc length
- Dwelling numeration

Modified entity relationship diagram of Danish addressing system Ref: [5]

Formalizing model of Greenland’s addressing system

The paper includes (first iteration)
- Ontology shared vocabulary and taxonomy
- Ontology chart (concept dependency diagram)
- Logical model (EERD)
Some modifications regards dependencies have been made.

Logical model (EERD)
Benefits in the future

With an electronic address system the possibilities are numerous:

- The Greenlandic Emergency Management:
  - Police, Ambulance, Fire brigade

- Management
  - Construction planning
  - Maintenance/Supplies (road, building, sewage, water, heating)
  - Waste management

- Statistics:
  - Demography
  - Migration
  - Health

Conclusions and further work

- Use of Danish addressing model as practice example
- Formalization of Greenland’s addressing model
  - Geographic point introduction

- Road digitizing plan?
- How to efficiently re-use and interconnect currently available data sets?
  - Interconnection with Danish CPR registry?
  - NIN (land allotment register), GER (company register)
- Extendable model for future?
- Further user requirement engineering?
- Implementation possibilities?
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