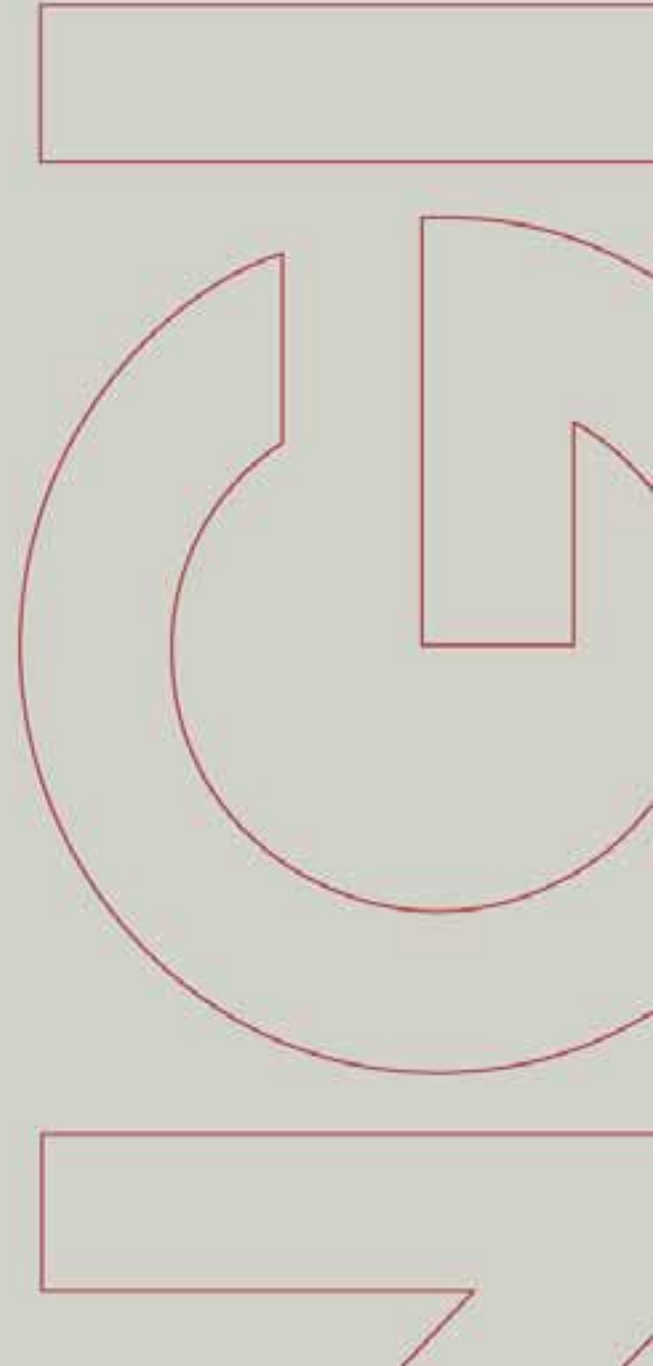# Introducing online fieldmapping in a traditional paperbased workflow

Presentation at ESRI UC 2010

by Helge Smebye, www.ngi.no

NGI

Agenda

NGI today

Projects at NGI

GIS at NGI

Benefits of tools

What we have done

Challenges

Conclusion

NGI today

Leading international centre for research and consulting in the geosciences

Main office and laboratories in Oslo
> Branch office in Trondheim, Norway
> Daughter company in Houston, Texas, USA

Private foundation

200 employees from more than 25 nations

20-30 guest researchers every year

Leading institution of CoE - "International Centre for Geohazards" (ICG)

Markets and services
- leading international competence centre

- Oil, gas and energy
- Natural hazards
- Building, construction and transportation
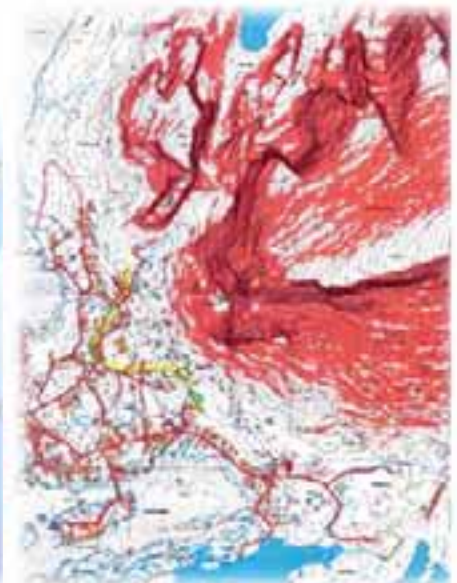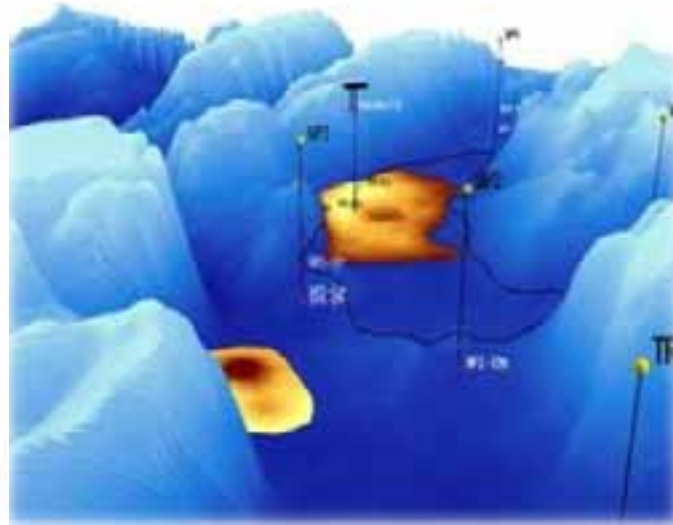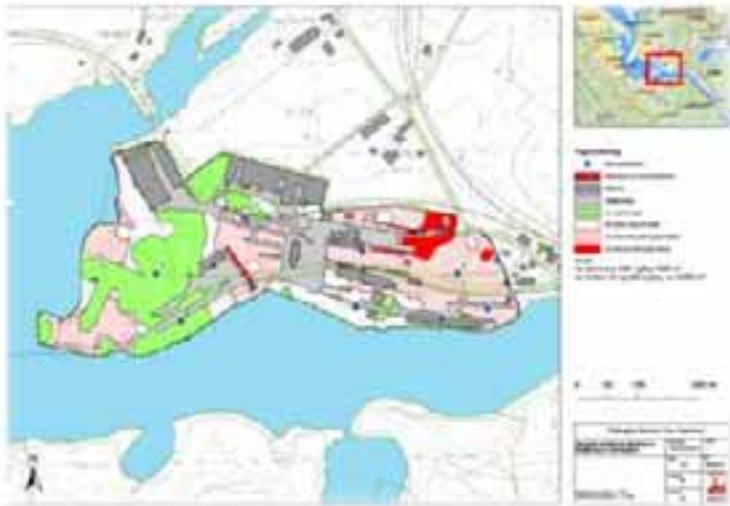- Environment

Projects at NGI

Different GIS requirements

GIS needs is often very
   different in different projects

Common for most field projects

Collect georeferenced data

- Inadequately managed
- Not reusable
- Poorly documented (metadata)

GIS at NGI

Central storage

Workflows

Web applications and services

"Handheld GIS project"

- Collect data in the field directly into this framework
- Make sure the framework supports data collection

Why introducing new tools?

Efficient dataflow

- Download and upload data directly to the enterprise geodatabase
- Collect data directly into the correct data structure

Higher precision

- Real time correction from Norwegian mapping agency

Improve quality of collected data

- Am I at the correct spot
- Are the standard attributes collected?

Why introducing new tools?

Sharing observation data

- National seamless dataset with all fieldobservations
- All data collected easily available for everyone without searching for the personal geodatabase

Background data

- Easy to prepare good background data
  - Ortophoto, large scale vector data, thematic maps, planned sample location ++
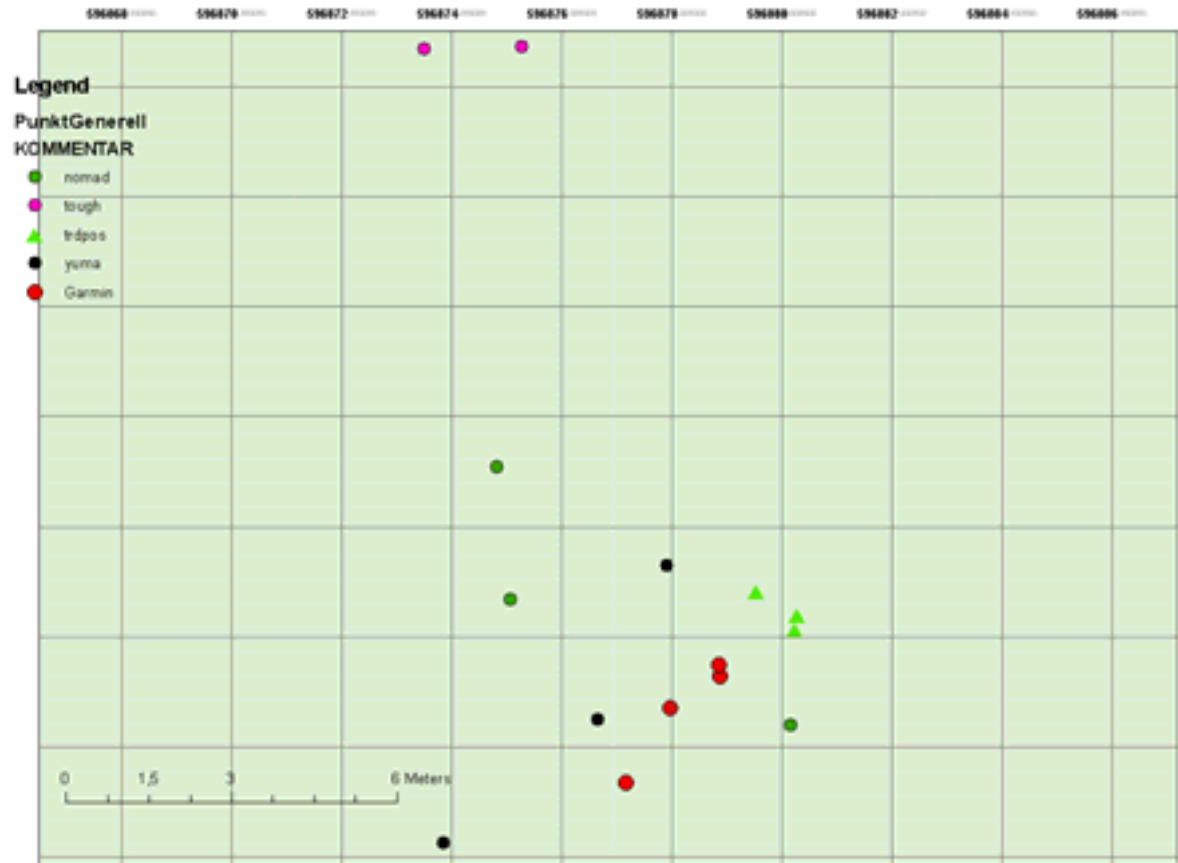
Equipment

- Testing
  - Hardware
  - Software
- ➔ Decided to continue with
  - ➔ ArcPAD
  - ➔ Trimble GPS
  - ➔ GPS Camera

Testing accuracy

Accuracy of devices is very
varying
- Quality of GPS antenna
- DGPS important
  - Local service
  - EGNOS/WAAS

GPS camera

- Geotags the image directly
- Issues:
  - Long fix time
  - Compass quality

PhotoMapper.lnk

Customizing ArcPAD

Custom login

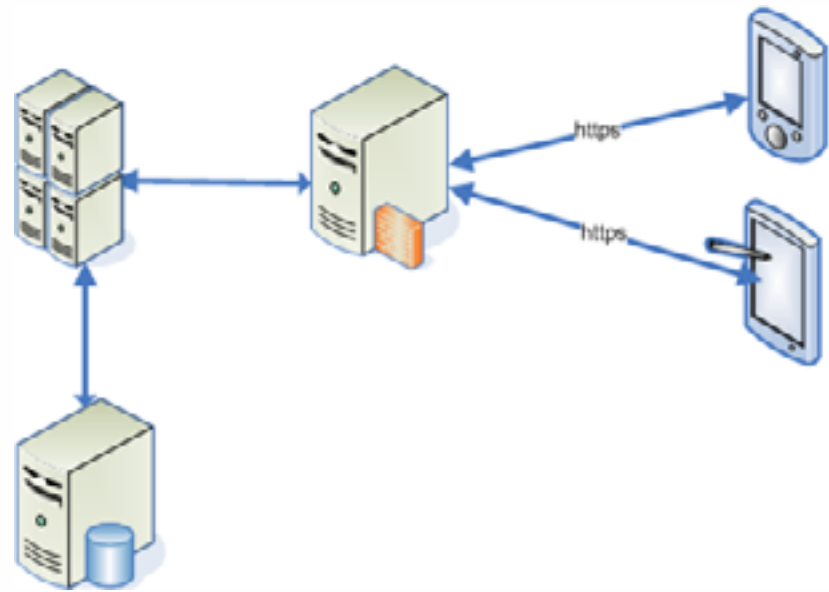- Stores username and project number

Custom layer input dialog

- Transfers username and project number to input forms

GPS information is recorded for each feature

Implementing a server framework

- Providing online editing

- Server framework
  - ArcGIS server
  - Firewalls – reverse proxy
  - Certificates

  → Makes it easy to deploy data to the handheld devices

Working with the end users

Applications

- Quick clay hazard mapping
- Avalanche hazard mapping
- Rock fall hazard mapping
- Environmental investigation

Follow up test persons

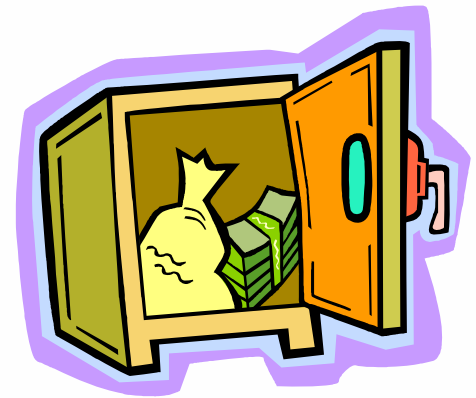## Data models made in cooperation with end users

Building a dataflow – critical factors

Preparation time

Security

Backup

Field work preparation

Data preparation

- Detailed data required
- Detailed national dataset not possible to store on device
- Must prepare data for each region where users has a job
- → National dataset to publish shortens the preparation time dramatically

For each job

- Separate version
- Separate service
- Separate firewall rule
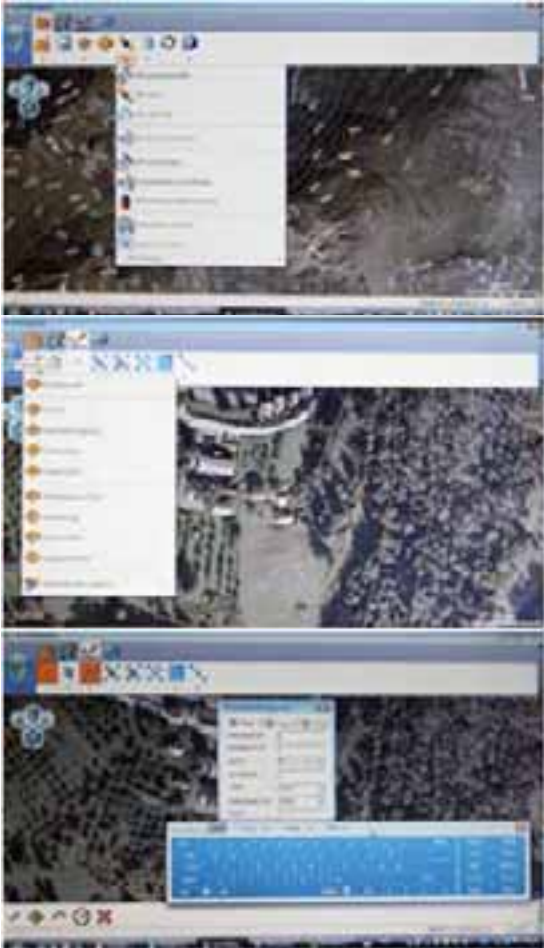
So - All implemented and everyone is happy???

OR?

Challenges

Upside

Still in an early phase

Positive response from projects needing higher
accuracy

Some enthusiastic test persons see a large potential

We have gotten a lot of experience and feel that the use
will grow and the quality of our field data will grow
with it

Conclusion

- Different systems for different needs
    - High or low accuracy
    - Large or small project
    - Weather conditions

- Keep it as simple as possible

- It takes a long time to reach all in an organization

Thank you for your attention!

Questions?

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