Value Chain Mapping

Forestry Management Use Case

The Added Value of 3D Geo-information

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Agenda

- Purpose: why look at forestry management?
- Approach: what we did.
- Results: what we achieved
  - Value chain
  - Qualitative Benefits
  - Reference material
- How can the deliverables be used

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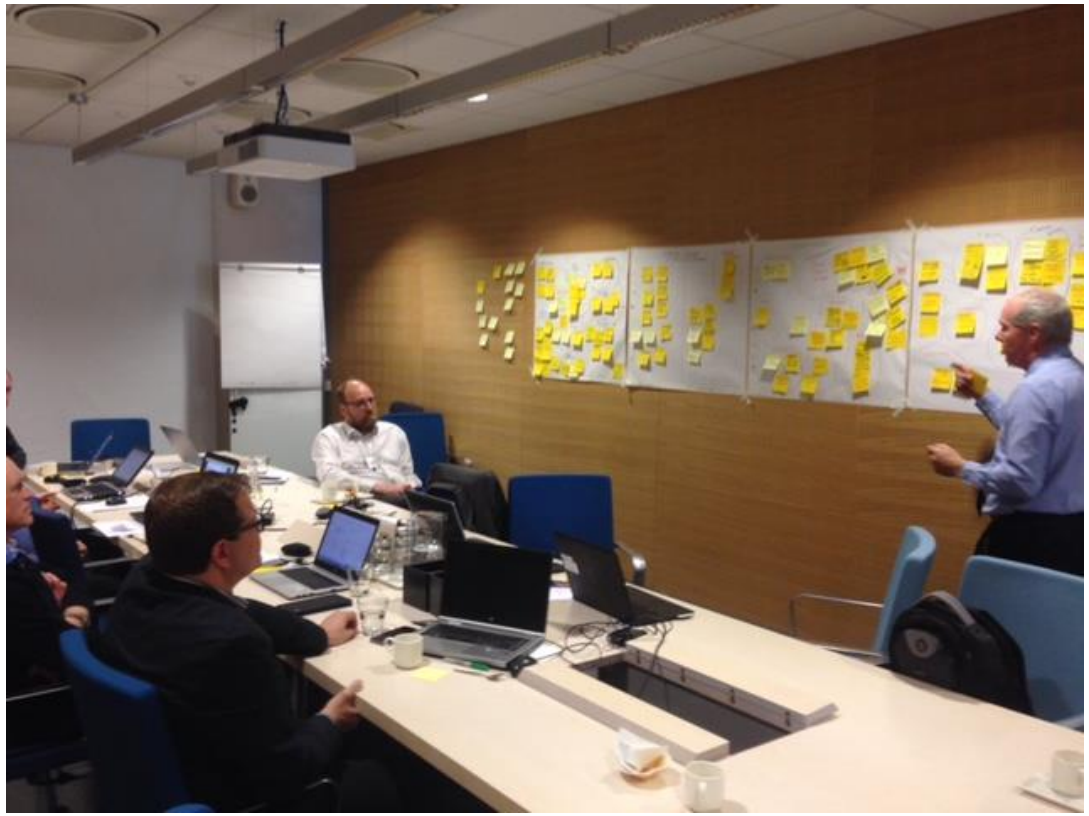
Scope of Use Case

- Swedish and Finnish forestry sectors.
- Both countries have:
  - state funded National Mapping and Cadastral Agencies (NMCAs)
  - Forest Centres/Agencies - responsible for a wide range of data collection, analysis and distribution services.
- Characterised by:
  - large number of forest owners
  - much smaller number of forest companies providing silviculture services and marketing forest products.

Approach

- Workshop in the offices of National Land Survey of Finland in Helsinki
- Representatives from:

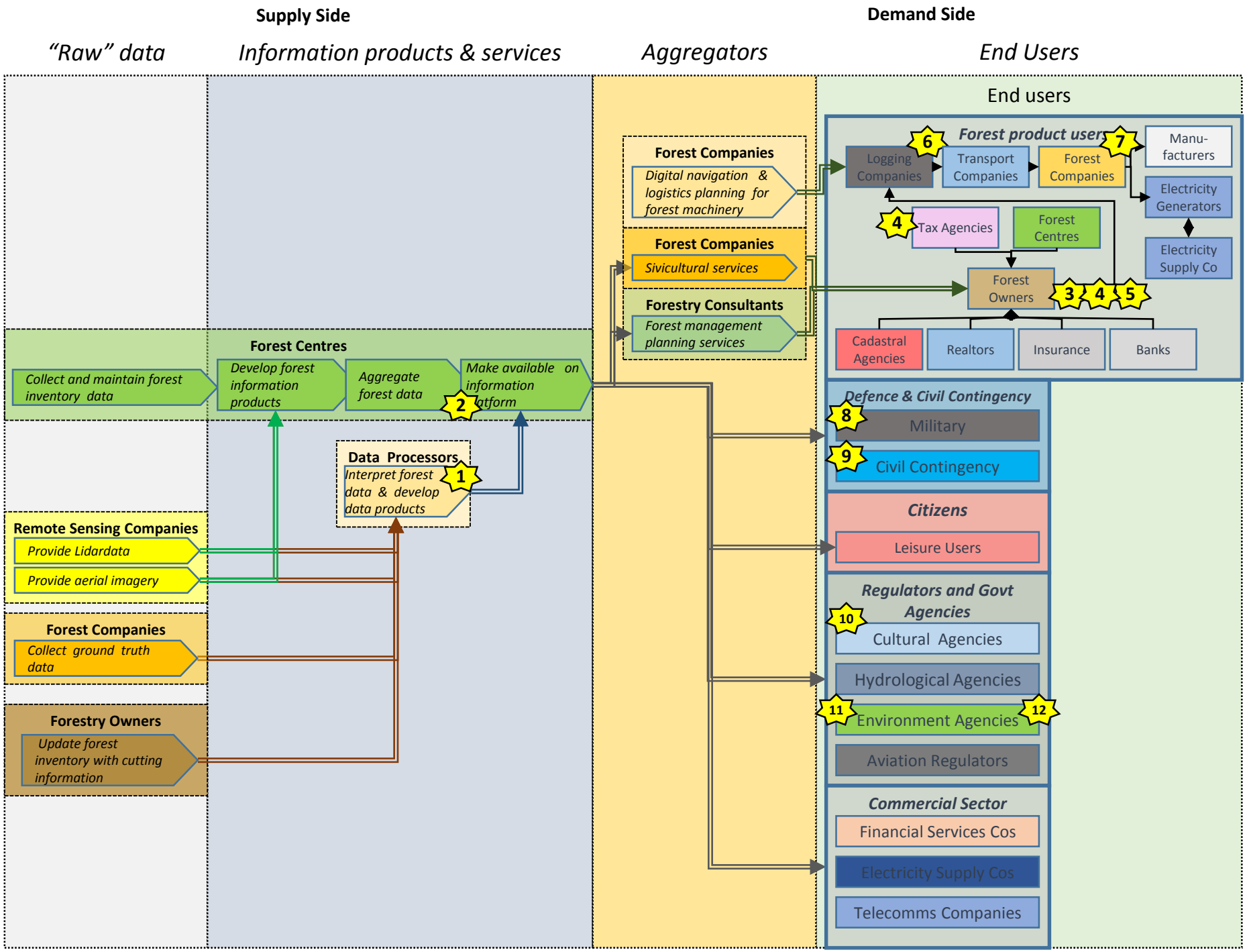
Juho Heikkilä	Finnish Forestry Centre
Timo Melkas	Metsäteho Oy *)
Sakari Tuominen	Natural Resources Finland
Jurkka Tuokko	National Land Survey Finland
Juha Vilhomaa	National Land Survey Finland
Heli Laaksonen	National Land Survey Finland
Svante Larsson	Swedish Forest Agency



*) A Finnish company owned by the leading forest industry companies specialised on research and development (R&D) work and projects e.g. Forest Big Data.

Approach (cont.)

- What we learned
  - Introductions
  - Explanation of objectives
  - Setting context
    - excellent presentations by Finnish Forestry Centre and Swedish Forestry Agency, both focusing on the use and benefits of 3D.
  - Value chain mapping
    - an interactive exercise through which we identified the actors (users) and then the processes where geo-information adds value.
  - Benefits Prioritisation of 3D Value add (benefits)
  - Next steps



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Top Qualitative Benefits

1. Survey costs are dramatically reduced.
    - LiDAR produces more accurate and cheaper data freeing surveyors from time consuming ground surveys.
    - Forest Centres are able to provide more productive analysis and advice to forest owners.

2. Co-operation within the forestry sector
    - Reduces costs of acquisition and
    - Re-use of the data across multiple sectors multiplies the value add.

Top Qualitative Benefits

3. Increased forest productivity

- By providing forest owners with information about the value of their forests they can be encouraged to invest in and sell their assets

4. Increased forest productivity

- Advanced planning and appropriate application of silviculture techniques using forest data products

5. Reduced logistics costs

- Accurate data on the depth of water table allows better planning of routes for timber transport.

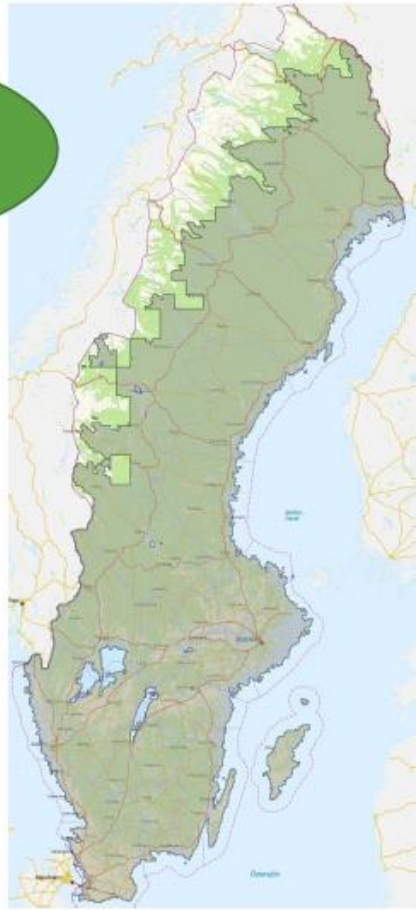
Photo: Håkan Hjort, Niac Photo

Reference Materials: Swedish Business Case

Inventory cost

- The cost to develop and produce the Forestry Maps from laserdata was 25 million SEK* (2,7 million EUR) which is only one (1) SEK (0,1 EUR) per hectare productive forest land.
- The cost to do a traditional inventory with a crew in the forest is a minimum of 100 SEK (11 EUR) per hectare.

Most of Sweden finished
Dec 31, 2015



Version 1.1

Returns

- Earlier studies showed that improved analysis and planning material gives a return on 65 times the investment.
- We estimate that today the return on the investment of 25 million SEK (2,7 million EUR) is 50 to 100 times which means 1,25 to 2,5 billion SEK (134-268 million EUR).

*SEK = Swedish krona

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Reference Material: Finnish Business Case

- See also https://youtu.be/lUcOOCfI7cU

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Key Learning Points

Supply side

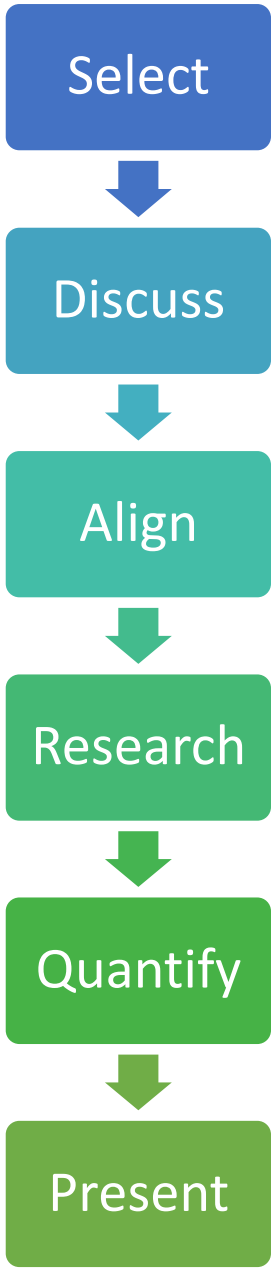
- Number of actors in data collection relatively small
  - aerial survey and remote sensing consultants and forestry companies
- Data product production is dominated by government agencies

Demand side

- Small numbers of specialist software developers and aggregators
  - In-cab navigation technology
  - App developers for leisure market
- Key users
  - Forestry companies
  - Government agencies
  - Citizens

What next?

- Assess whether forest management is one of the strongest use cases for your country
  - Analyse value chain materials
  - Rank against political priorities
- Stakeholder Engagement
  - Organise business case workshop with private sector foresters, forestry agencies
  - Use Value chain mapping exercise to facilitate consensus
- Align to official Government policy on forest management
  - Understand policy positions, and how 3D geo-information provides solutions
- Research reports into costs of forest management
  - Costs and Benefits from Finnish and Swedish Studies
  - Look to examples for benefits transfer (USGS 5. Forest Resources Management)
- Prepare Business case
  - Strong emphasis on costs and benefits as good evidence
- Presentation
  - NMA Management buy-in
  - Forestry Stakeholders



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Summary

- Well organised and attended workshop with very engaged and competent experts
  - However, private sector forestry users missing
- The value chain produced is substantially complete and relatively simple
  - It has been reviewed and suggested changes incorporated
- Spreadsheet of benefits clear and compelling
  - Benefits substantial to both public and private sectors
- Well developed business case for 3D geo-information in both Finland and Sweden already exists
  - Likely to be accessible for cost-benefit stage
  - Importance in other countries not clear
- Excellent reference material
  - Value chain mapping study had been undertaken for big data impact on forestry providing good basis for discussion
  - Cost-benefit summary information supplied

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