

Finding The Right Measure



**Using remote sensing data efficiently by
minimizing total cost and turn-around time
while ensuring fitness for purpose**



... can't we just measure as much as possible
with the highest available quality
and worry about the details later ?



Yes, but be prepared for a high price tag.

As a rule-of-thumb, doubling data volume/coverage/resolution/accuracy will

- quadruple the cost if existing technology is available
- exponentially increase the cost if new technology needs to be developed



Incorrect specification of parameters can distract from the purpose of the project and make real-world usage of the data difficult

Example 1 - Buying children's clothing at a department store

Required data: Clothing size

Measured data: Age and height

Processing needed: look-up table or friendly shop assistant

Example 2 - Buying a custom-tailored business suit

Required data: Scale factors for all cuts and seams

Measured data: About 20 individual body measurements

Processing needed: Tailoring skills



... in particular beware of 'preemptive specification creep', i.e.

taking the specifications of a successfully completed project
and just adding 5-10% to everything:

- 10% denser coverage
- 10% higher accuracy
- 10% more overlap
- 10% ...

If you're lucky this will only blow out the costs,
if not, it will make the project impossible ...



Initial planning workflow:

What is the desired outcome ?

What data is required to facilitate it ?

Which scale/accuracy has the most influence on the outcome ?

How can the data be measured ?

Are there any traps and pitfalls which need to be avoided ?



What is the desired outcome ?

(semi-)Automatic generation of orienteering maps from lidar data with minimal additional input and quality equivalent or superior to traditional mapping techniques.

What data is required to facilitate it ?

Lidar point cloud data sets (or DTMs or DSMs or ...)

Which scale/accuracy has the most influence on the outcome ?

TBD ...

How can the data be measured ?

Airborne Lidar

Are there any traps and pitfalls which need to be avoided ?

Many ... 'false positives', 'false negatives', 'aliasing', ...

