

Applications and the Importance of Geodetic Infrastructure

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FIG has collaborative activities with IAG, ICG, and IGS



Technical Seminar on Reference Frame in Practice

4-5 May 2012, Rome, Italy





Cost Effective GNSS Positioning Techniques



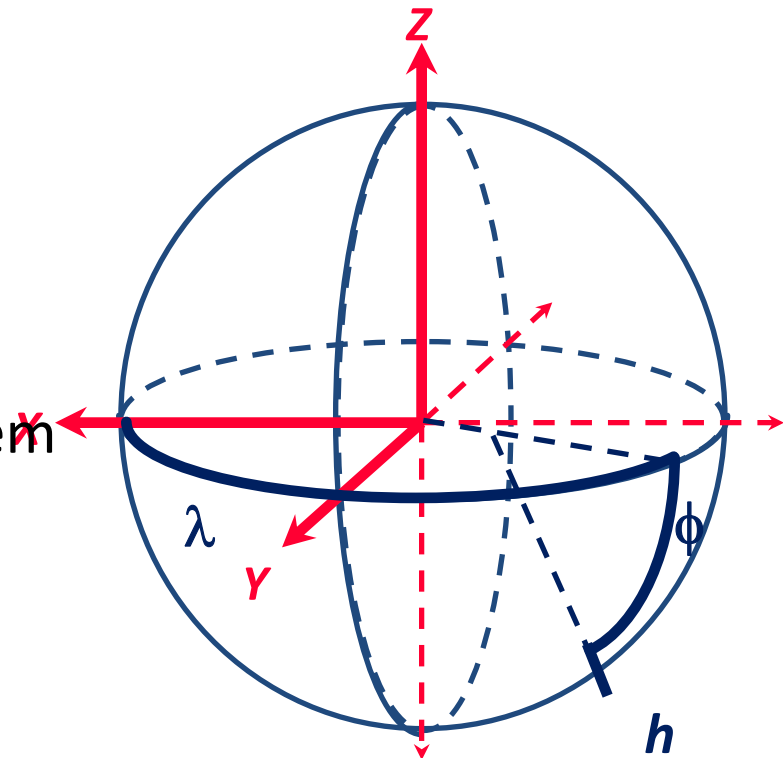
FIG Commission 5 Publication

“Cost Effective GNSS Positioning Techniques” *FIG Publication 49*

(Available online at www.fig.net)



efficiency in positioning requires
 common/homogenous reference system



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Home business

Pemandu: NKRA strategies on crime working

Key success factor due to cross-ministerial and cross-agency collaboration

by **Jennifer Jacobs**
TheEdge.com

KUALA LUMPUR: When the Performance Management and Delivery Unit (Pemandu) held a press conference recently to say that crime has actually gone down, most journalists were sceptical. They wanted to know how this conclusion was arrived at.

According to the presentation, index crimes dropped by 8,287 to 80,248 in the first half of this year, compared with the same period in 2010 and street crimes had fallen by 8,047 to 11,299.

Eugene Teh, Pemandu director of crime, national key results area (NKRA), was unfazed. He had expected the scepticism. So he outlined the strategies Pemandu had pursued to bring about this drop in crime rate. There were short-term

theft is an issue and you start to put measures in place to address that. But you're putting the measures at the end of 2011, when most of the cases were in 2010. That means things may have changed in the meantime. What we did is to ensure a timely evaluation of data and a very quick turnaround in terms of how we are going to address the issues."

The second thing Pemandu did was to add the geographical aspect to the data. "So it's not just that there are a lot of crimes in Kuala Lumpur, but there are a lot of incidents in this part of Jalan Imbi in Kuala Lumpur. This way we know where we want to deploy more of our resources."

He pointed out that it would take at least six months to train a "smaller number" of officers. It didn't make sense to wait that long before deploying the strategies to bring an immediate reduction in crime.

"Idris (Jala) likes to say that we don't start by addressing the capability issue. It was not about



Teh: When we did this programme, the key success factor was that we created a platform for cross-ministerial and cross-agency collaboration.

Large-scale mobilisation of uniformed personnel to fight crime based on hotspots in three waves

74,222 + 7,402 = 8,140 = 25,794

did, it took almost two years for your case to be heard and in the meantime the evidence would be lost or key witnesses would not be available — so you essentially got off without punishment," he said.

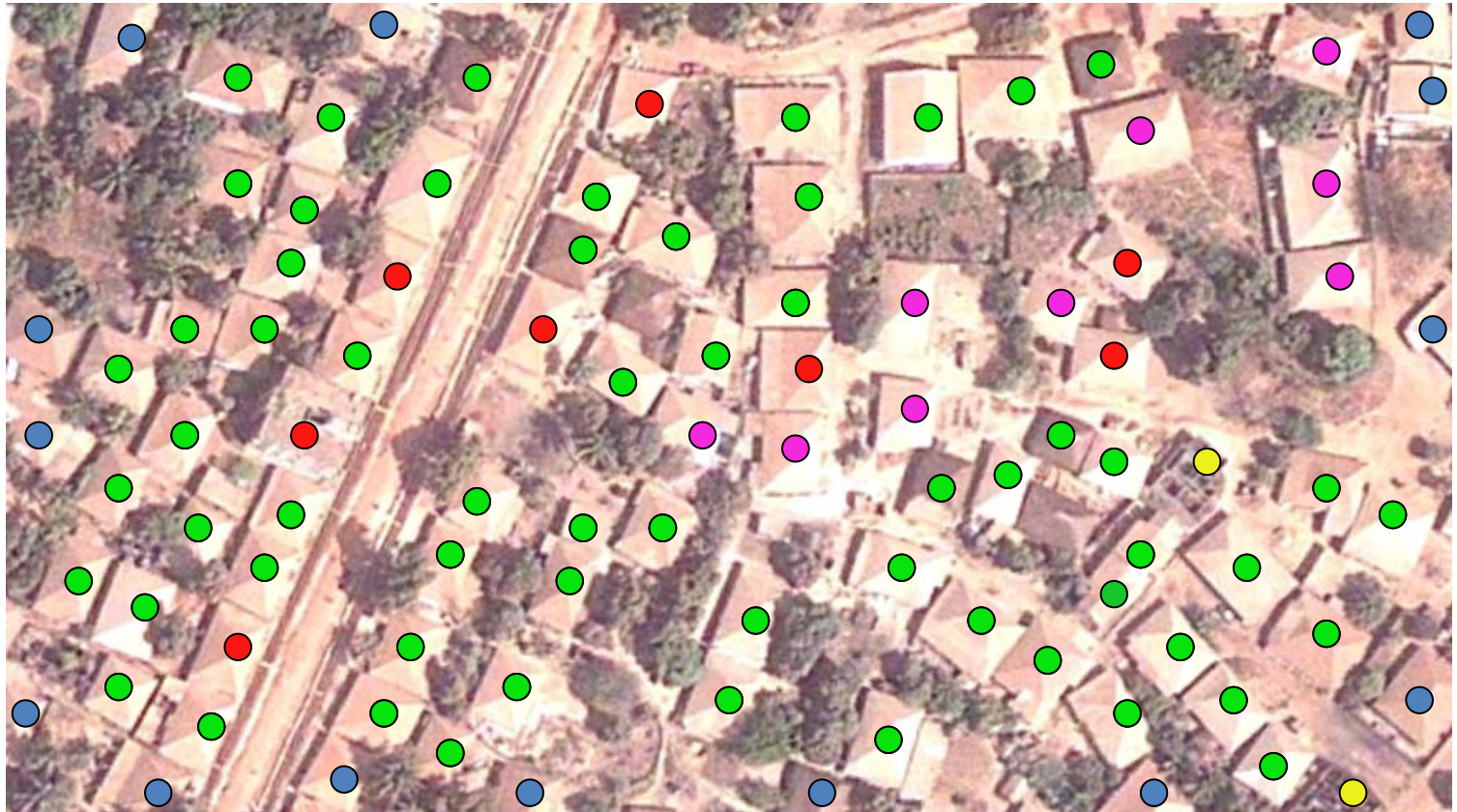
Teh said Pemandu decided to go for the jugular. "There were some very concrete things we could do very fast. First there was a huge backlog of cases. We took some 2,001 off the backlog and made sure the judges were clearing them and even monitoring how these were cleared on a monthly basis," he explained.

"This did not go down too well, especially with the lawyers. "We had a lot of problems with that because the Bar Council was complaining that judges were no longer interested in justice but in expediency and most cases ended up in a "dismissal not amounting to acquittal". So we implement something and then go back and make adjustment based on feedback from stakeholders," Teh said.

Another thing Pemandu is re-

Good land rights infrastructures exist in only 35-50 countries and only 25% of the estimated 6 billion land parcels are formally registered. This leaves more than 4 billion land parcels without land tenure security

*(Daniel Ruberg,
 FIG Commission 7 Chair)*
 (in an interview he gave to
 GIM International, March
 2012)



(Lemmen, FIG)

FIG Task Force on Surveyors and Climate Change seeks to identify and investigate specific areas where surveyors have the professional expertise to contribute to studies related to climate change.

For example, this may include assessing the accuracy of relevant technologies; opportunities for spatial measuring and monitoring; providing an unbiased, pragmatic approach to data interpretation; contributing to the understanding of the datums and reference frames that underpin global measurement systems; and systems for land administration, management and settlement that may accommodate land use changes driven by climate variability and help improve productivity.



Applications and Benefits from GNSS

- Time for survey control for photogrammetric mapping from 4 months down to 1 week;
- Rail track survey costs reduced by 80% through GNSS based automation.



(Lorimer 2007)

Applications and Benefits from GNSS

- *“Machine Guidance”*

Guiding heavy machinery used in Agriculture, Maritime, Mining and Construction



(LeicaGeosystems)

Application and Economic Benefits

- GNSS machine control in the form of auto-steer is widely used in the grain, cotton, sugar and horticultural sectors of Queensland agriculture;
- Using auto-steer for control farming can reduce input costs of fuel, seed, fertilizer, herbicide and time by 10-20%;
- An estimated 15% of grain growers in Australia use GNSS for machine guidance and 9% for auto-steer.



(Lorimer 2007)

Application and Economic Benefits

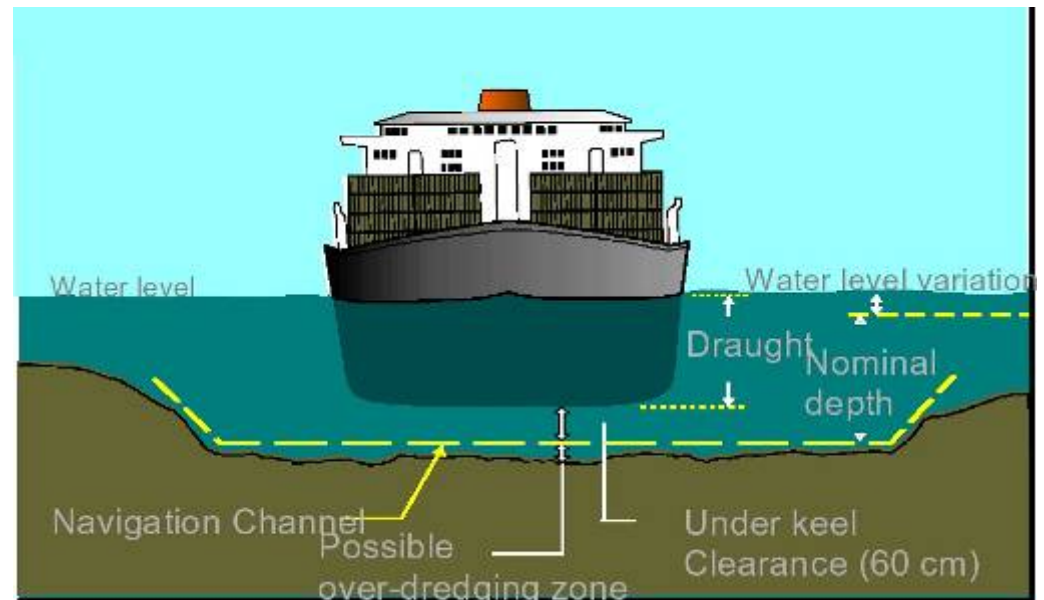
- Using GNSS machine guidance and other innovative techniques the Port of Brisbane Motorway was completed six months ahead of schedule (30% reduction in time required), with a 10% reduction in total project costs, 10% reduction in traffic management costs and 40% reduction in lost time injuries.



(Lorimer 2007)

Application and Economic Benefits

- By introducing GNSS pilotage systems 4 fewer buoys were required at a Queensland coal port with a cost saving of A\$4 Million (USD 3.6M).



(Lorimer 2007)

Application and Economic Benefits

- In open cut Mining, precise GNSS is used for a variety of tasks including surveying, grading, dozing, drilling, collision avoidance and fleet management;
- Productivity increases are as much as 30% by adopting GNSS.

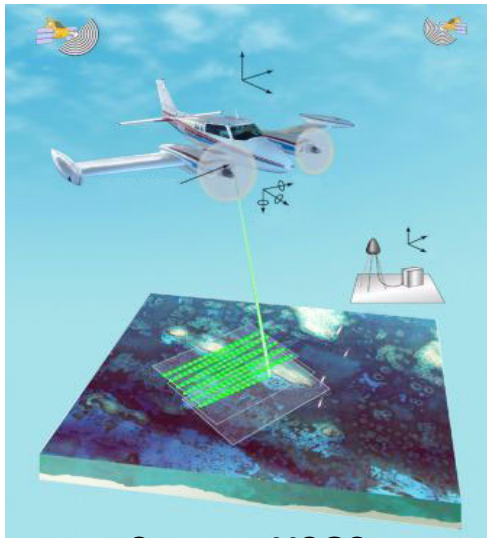


(Lorimer 2007)

Example of Continuously Operating Reference Station



From individual points to point clouds



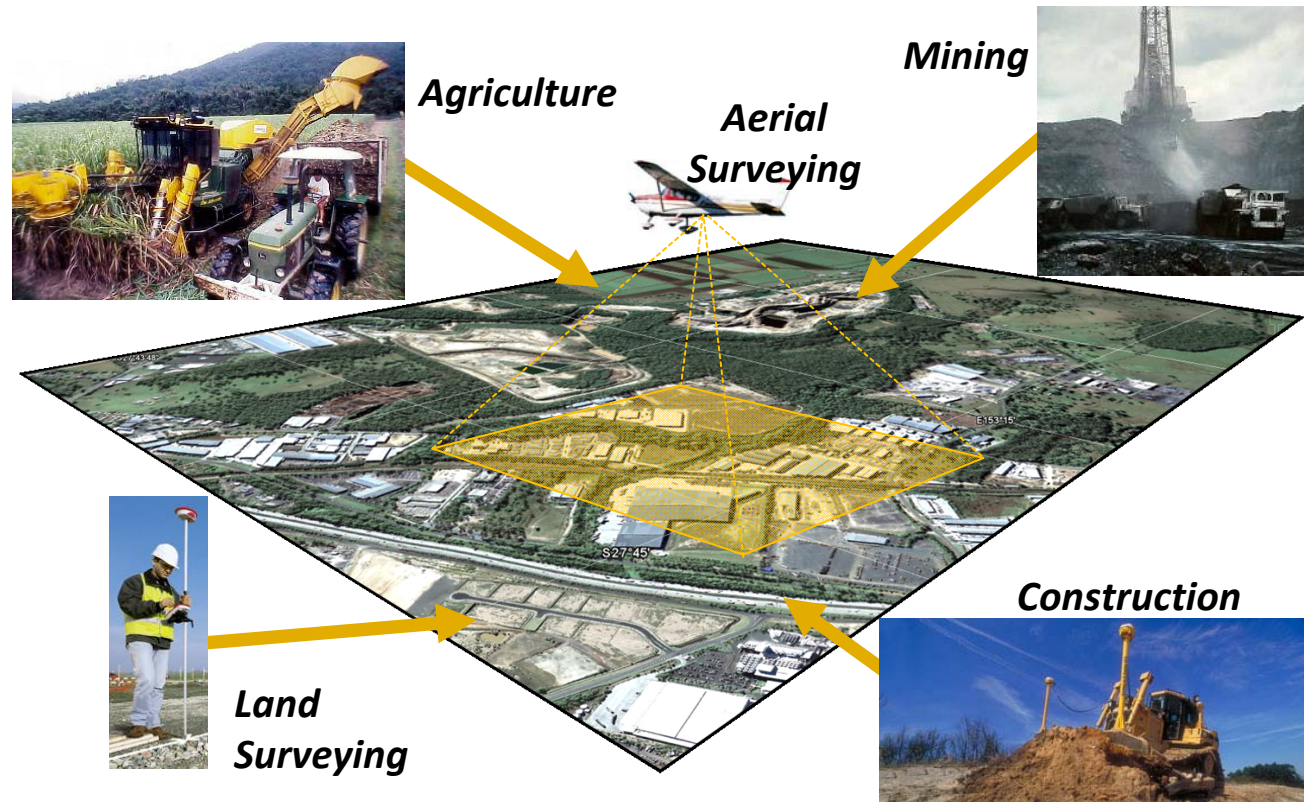
Source: USGS

*Use of Airborne and Terrestrial
Laser Scanners is exploding*

Individual point clouds need to join and/or overlay

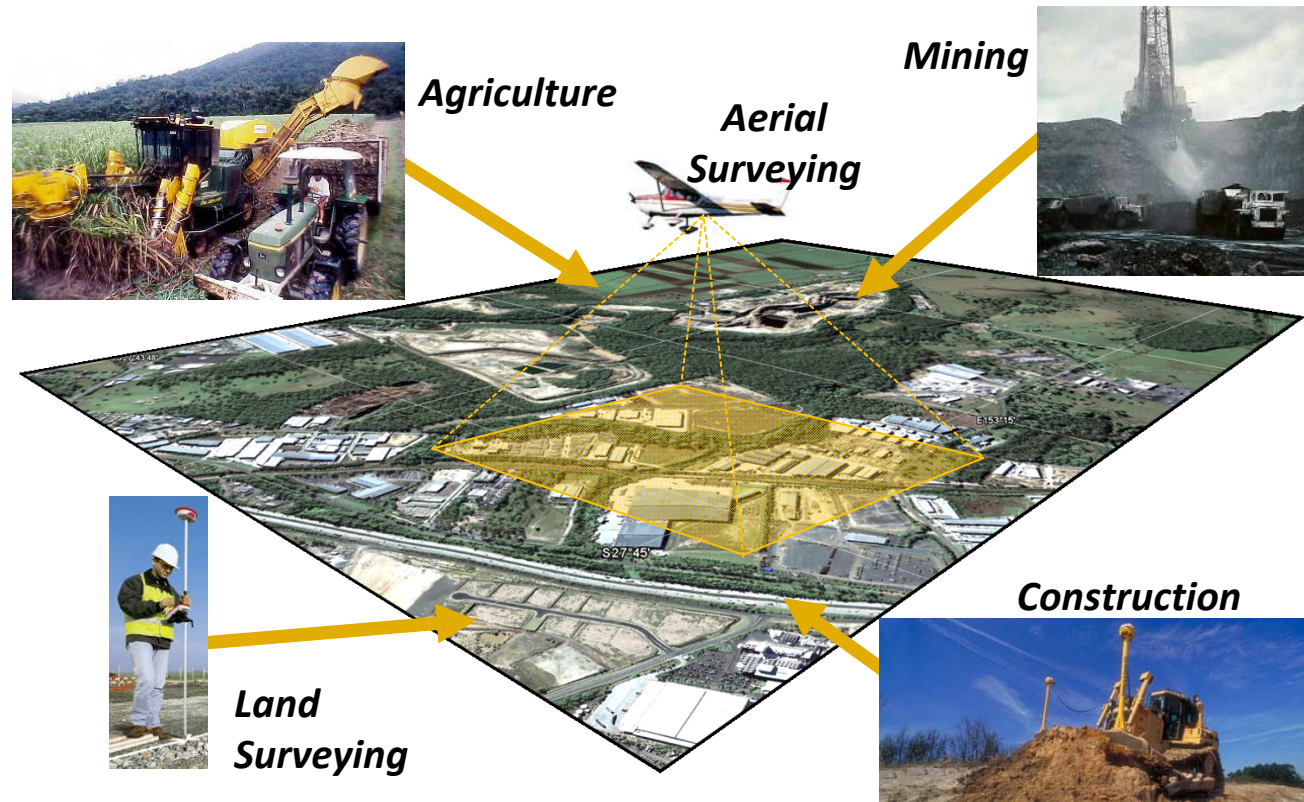
From presentation by Higgins at ICG-5 Torino October 2010

From Static to Dynamic



From presentation by Higgins at ICG-5 Torino October 2010

From Post Processed to Real Time

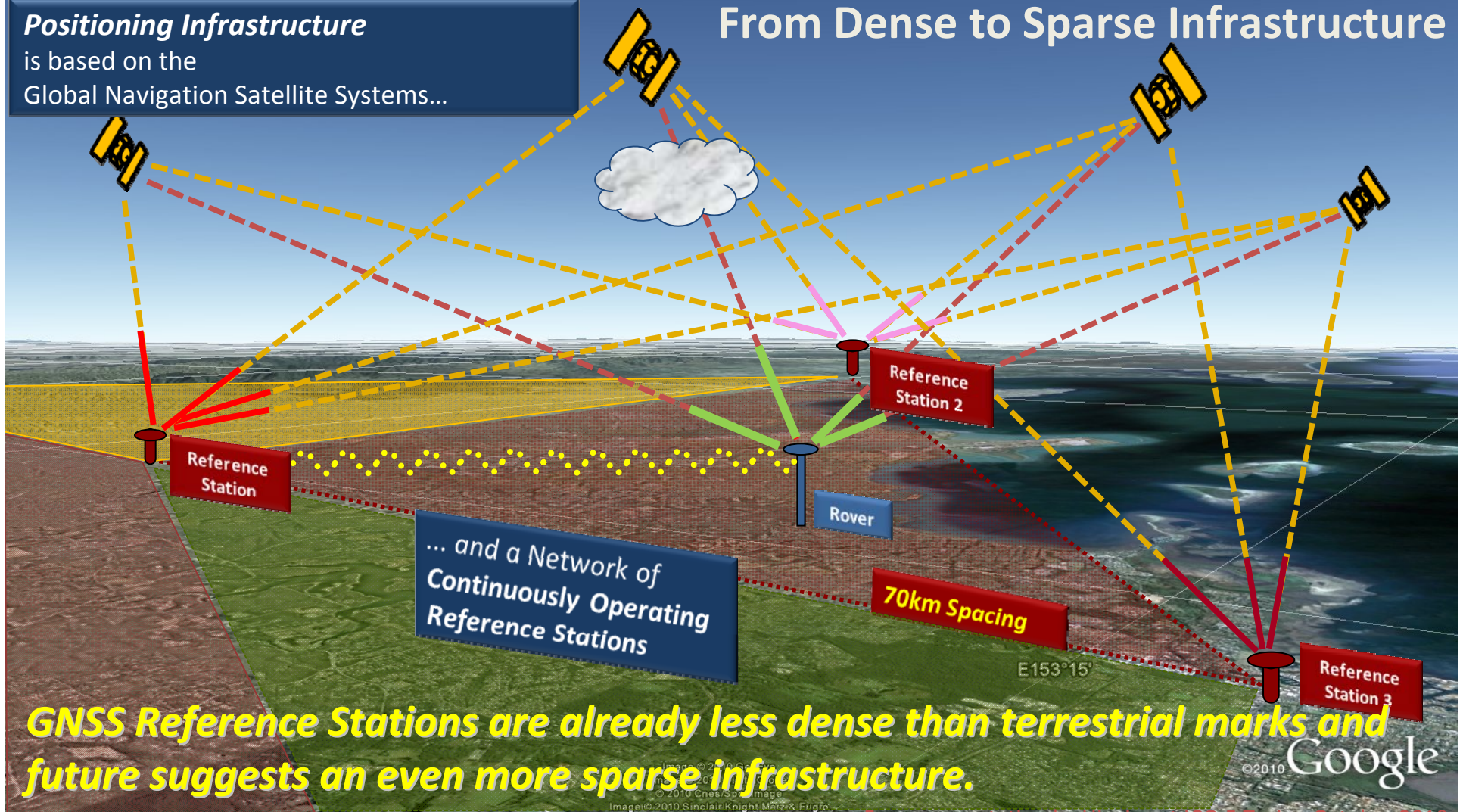


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Positioning Infrastructure

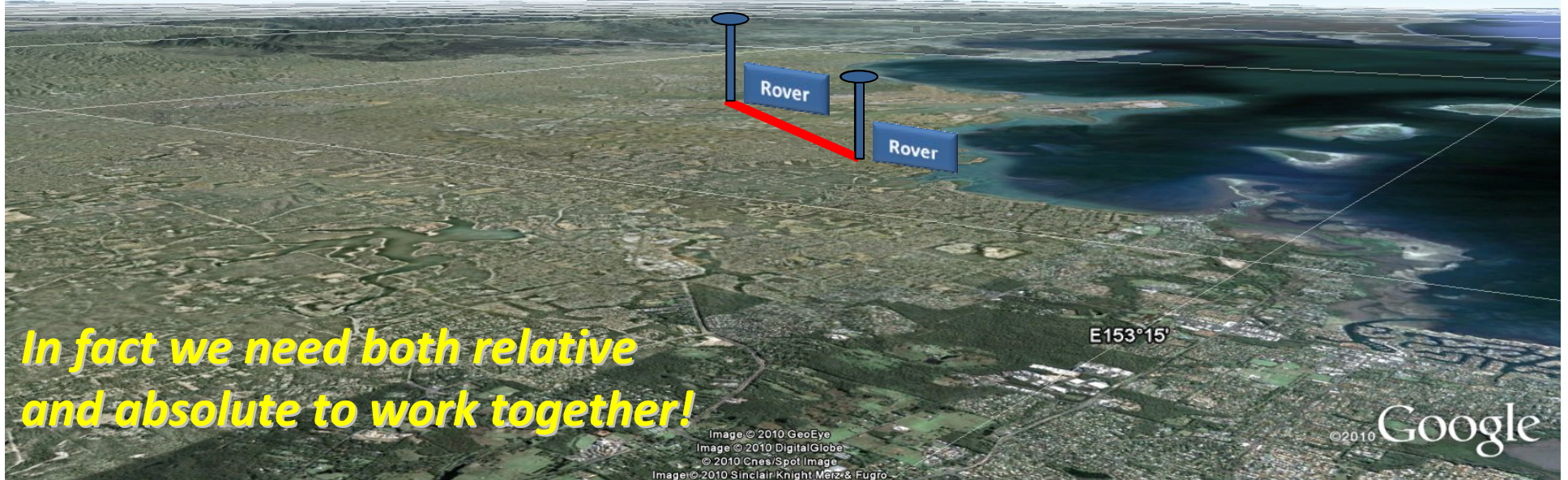
is based on the
Global Navigation Satellite Systems...

From Dense to Sparse Infrastructure

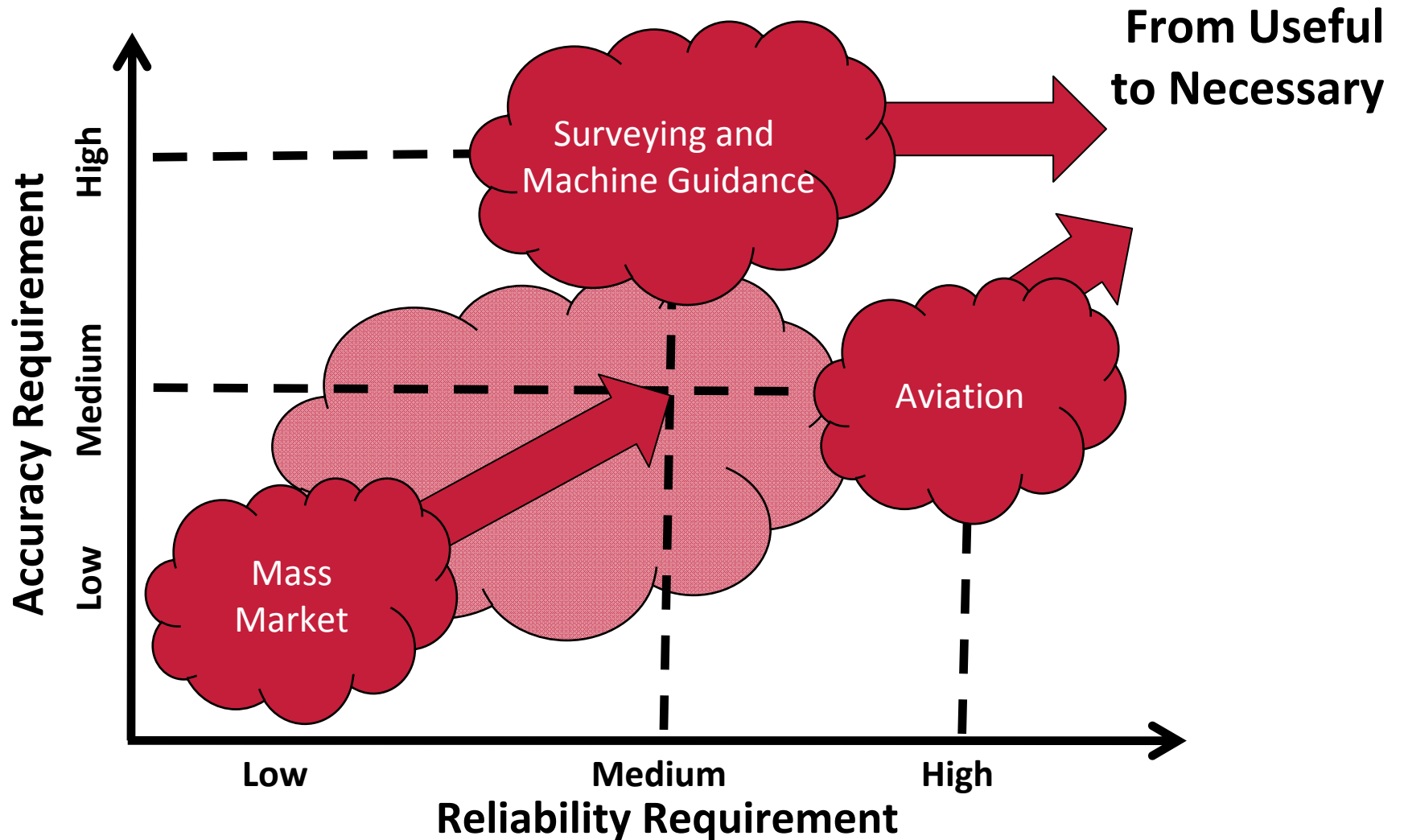


From presentation by Higgins at ICG-5 Torino October 2010

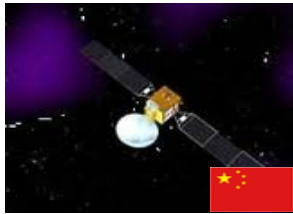
From Relative to Absolute



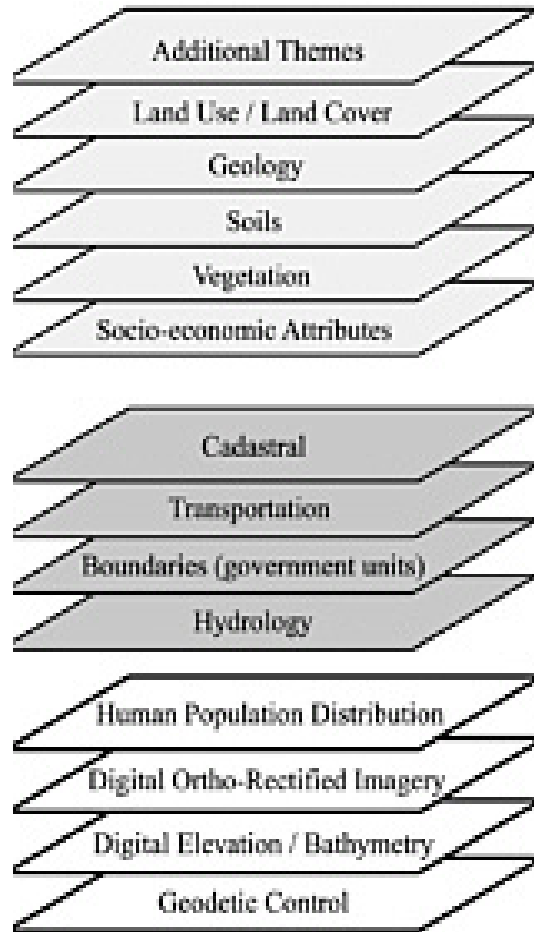
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Positioning Infrastructure based on
Global Navigation Satellite Systems



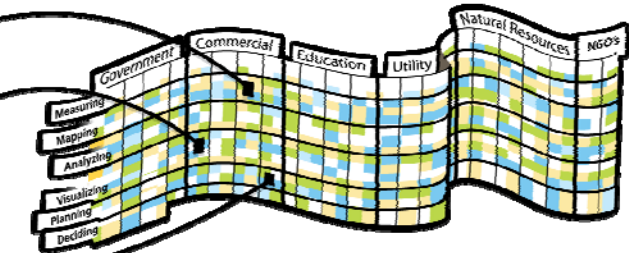
Other
Thematic
Data



Framework
Thematic
Data

Framework
Foundation
Data

Place-based information provides the reliable foundation . . .



. . . encouraging mobile applications and servicing many in the community



. . . allowing informed, responsible and sustainable decisions and actions

Good Coordination starts with Good Coordinates

- Dave Doyle
 FIG Regional Conference, Costa Rica, 2007

