

# Lessons Learnt in Reviewing Technologies Utilised to Improve Capacity and the Spatial Integrity of the “One Map Project” in Indonesia or Other Fit-For-Purpose Land Administration Systems.

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**Key words:** Capacity building; Digital cadastre; Land management; Fit-For-Purpose; 3D Cadastre

## SUMMARY

Fit-For-Purpose (FFP) solutions have provided cost effective ways to build a title database. Modern spatial technologies, particularly the latest imagery options, provide new tools to upgrade the spatial integrity of existing FFP databases.

FFP outcomes prepare a strategic digital map of land ownership and other RRRs for the benefit of more efficient land administration and title security for land owners. One challenge is in the detail and the statutory relationship of that digital map to existing land titles/rights that exist in document form. Digital cadastral database mapping & modern accurate imagery is accessible to more stakeholders but where mapping does not approximately match the apparent land occupied, uncertainties exist in the minds of the Title holders. That is against the objective of FFP.

Historically, cadastral surveyors have been trained with a local focus to define land title by a plan or map of the parcel geometry. In most GIS databases, parcels are represented by a series of individual vectors defined by the coordinates of each end point, more commonly known as a “spaghetti” data model. The presentation will discuss the transition to a topological data model which provides considerably more capacity to spatially upgrade cadastral databases.

Digital topology outcomes support a strategic solution that require even experienced surveyors to understand that recording parcel relationships with adjoining land and spatial location are as important to cadastral database management as accurately measuring land title boundaries.

Good governance sets standard data formats and workflows. Across large jurisdictions like Indonesia, mobilising trained resources for digital data capture and to enforce those standards and governance is a challenge. To begin with, that can compromise data but good practice and training

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will overcome this in time.

Smarter data, smarter data models (topology) and basic quality control is the key to building capacity. Modern technology can shorten the 'Field to Finish' outcome but relies on the content at the early stage of field capture and data output. Data does not have to be of high spatial integrity but it must contain attribution to digitally identify the level of spatial integrity. This is critical for higher levels of digital database management efficiencies.

This presentation is based on a review of some of the above issues encountered in the Indonesian "One Map Project" and how to progress with that background knowledge towards implementing:

- Greater efficiencies in digitisation and automation
- options to spatially improve the existing FFP cadastral model using different applications and recently developed survey and spatial technologies (drones, etc.,)
- 3D cadastre – there is limited 3D data available but FFP solutions can be applied to populate data for powerful 3D visualisation technologies

The Indonesian project issues identified will also be compared with Digitisation Projects in Australia.

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