

Positioning as a Service for Fit-For-Purpose Applications

Stephanie Michaud (USA)

Key words: Access to land; Cadastre; Capacity building; Digital cadastre; Geoinformation/GI; GNSS/GPS; Implementation of plans; Informal settlements; Land distribution; Land management; Land readjustment; Low cost technology; Positioning; Quantity surveying; Security of tenure; Spatial planning; Urban renewal; Valuation; Young surveyor; Fit-for-purpose, Geomatics, Data, Soft GNSS, Geospatial, Technology

SUMMARY

Traditionally, the value and cost of positioning technology has been placed into physical hardware devices, making it challenging to gain high spatial accuracy or vary the required accuracy needed for a project without facing significant equipment transition costs. This paper seeks to present the new Soft GNSS technology concept and provide real world examples where positioning-as-a-service can provide technology solutions versatile enough to be an essential fit-for-purpose tool.

In general, high-accuracy GNSS solutions require three components; 1) antenna: hardware that can receive high fidelity (quality) signals from GNSS satellites, 2) receiver: signal processing and generation of position solution, 3) corrections: a data stream that aids the receiver in creating a high accuracy position solution. Traditionally, these three components are all bundled in to the same physical unit. Soft GNSS technology introduces a new concept to accuracy, where each component of the traditional GNSS solution is decoupled into individual, and in some cases, non-physical objects. Combined with the proliferation of smartphones and the bring your own device (BYOD) model, it is now possible to bringing positioning technology to more areas and users than ever before.

As smartphones have become increasingly more powerful, and our access to cellular or satellite delivered signals and cloud solutions becomes even more common, technology is able to leverage this improved processing power. In this way, the physical GNSS receiver chip can be moved into a purely software-based algorithm, powered by the smartphone device. With the shift of the receiver components to be software based, this allows for a smaller, lighter weight antenna to be introduced purely for receiving high-quality satellite signals. The third component of the GNSS solution, correction services, can also be moved to be software based and cellular

delivered.

With this modified configuration involving software and connectivity comes the opportunity for new delivery mechanisms, such as subscription-based as-a-service models, which can be leveraged to create the concept of positioning-as-a-service. By introducing versatility through flexibility in service and ongoing customization options instead of a one-time fixed solution, the needs of land administration projects can be more acutely met.

Positioning as a Service for Fit-For-Purpose Applications (9941)
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FIG Working Week 2019
Geospatial information for a smarter life and environmental resilience
Hanoi, Vietnam, April 22–26, 2019