

## Evolving Registration - How Do Established Registrars Embrace Change

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### **SUMMARY**

A Land Register should evolve to meet the changing social and policy needs of citizens, government and business. Evolution is about constant change. When there is a significant mismatch between the register and need then reform is required. Reform affects more than just legislation; reform disrupts policy, practice, networks and people. Effective reform is sensitive to this disruption and implements change across the social fabric.

Whilst it is expected that the legislative framework evolves to reflect need, the same can not always be said for the supporting Land Registration infrastructure: especially the IT infrastructure. In some respects change is avoided - systems are replaced in big upgrade cycles of ten, fifteen or twenty years. The driver for these upgrades can be simply obsolescence of technology, but frequently the change is connected to a business driver triggered by legal change or by aspiration to offer more, and typically more “digital” services to the customers of the land authority.

Upgrade projects of this form are frequently large, high-cost, high-effort programmes of work that last several years. They involve substantial data migration from old data models to new ones – carrying high risk of data error, and resulting in large “big-bang” style go-lives. There is significant evidence that these improvement projects too often fail to deliver any benefits in a reasonable timeframe.

Furthermore, where these projects are successful, what is delivered is often obsolete almost before it goes live. We suggest that carrying out an “en masse” transformation and migration of data every time change is required is no longer necessary or desirable given the need to deliver change more frequently. We further suggest that in fact, to deliver change at the frequency that is becoming commonplace, it is unrealistic to attempt these large migrations given the volume and complexity of the transformations.

The Land Administration Domain Model (LADM (ISO TC/211, 2012) helps bring conceptual clarity to a data model. LADM is a conceptual model which supports the modelling of social relations with land articulated through rights. There are three principal concepts within LADM: the party (the who) that has a rights relationship (the what) with a plot of land (the where). As an abstraction the party-right-land model makes it easy to conceptualise the state of real rights (all real rights are rights in land). LADM indexed party-right-land primitives are further used to represent state change (or deeds).

Clearly LADM is a powerful way of describing Land Registration process and conceptually aligning legal need, conveyancing practice and digital architecture. Such control provides

clarity for data model definition and supports structured evolution against a core data model. Whilst LADM can support interoperable concept definition and migration, the supporting IT platforms need to do likewise. Whilst it is conceivable that a single data-model could be defined that is suitable for all potential registration scenarios, it is also unlikely. This means that Land Registers need to migrate data models or embrace an architecture which allows the seamless integration of multiple data models. The former is the current situation, we believe that the latter is a better option.

In the workshop, we shall present a case for a fundamentally different thinking in the approach to both delivering and operating land administration systems. This change in thinking is driven by the need to create sustainability in the delivery of the land authority's services, and to enable the land authority to evolve the services they offer over time. The drive for new services will in turn drive a need for additional and better codified data. The arrival of new legislation and policy will change the processes that are in use to perform land transactions. Maturing and evolving technology will make new approaches feasible, potentially leading to the widespread adoption of, for example, 3D cadastre. Key to the near future is the efficient re-use of land data to improve decision making and create innovative business opportunities.

These changes drive us to reconsider the fundamental data models underpinning systems – looking backwards we can see endless examples of where jurisdictions manage “old” data alongside “new” data – such as scanned paper records alongside vectorised maps; and looking forwards we can see the advent of 3D bringing with it yet another data model. Rather than seeing these things as a problem that the land authority would rather not have to deal with, we should accept that this kind of change is unavoidable: every land authority will have a mix of new and old data to manage. Today’s cutting edge data model will be a legacy within a few years.

## REFERENCES

ISO TC/211. (2012). ISO 19152:2012. Geographic information - Land Administration Domain Model (LADM). <https://www.iso.org/standard/51206.html>

## BIOGRAPHICAL NOTES

Ordnance Survey is the national mapping agency for Britain, and a world-leading geospatial data and technology organisation. Accurate location data is used for smarter solutions to the world's most complex problems including resource management, urbanisation and population growth. As a trusted partner to government, business and citizens across Britain and the world, our expertise and technology helps customers in government, business and infrastructure deliver efficient services.

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**Dave Stow** is Senior Architect at Ordnance Survey where he is enabling the business to implement its strategy of delivering managed digital services across the globe. Having live and operated internationally, Dave has experience spanning thirty-five years, ranging across utilities, finance, a technology startup, not-for-profit and public sector.

Dave has a particular interest in how technology enables new capabilities – and how they can positively impact the lives of people. His current area of focus is on effective Land Administration, and the deep affect it has on the economic well-being of a country. He has spoken at a number of conferences on this topic, including a keynote at the Middle East / Africa Esri User Conference and at the World Bank, and has been integral to the creation of the Ordnance Survey's Managed Land Solution value proposition and technology platform.

**Michael Hill** is a whole life geospatial lead engineer with technical and team lead consultancy, Michael has responsibilities across a geographically distributed team spanning four continents specialising in land administration and cloud security. Michael is a land administration subject matter expert with international technical consultancy experience in Saudi Arabia, US, South Africa, India and the UK and represents the UK on the ISO19152 standards committee. Highly focused on ensuring the security, integrity and sovereignty of cadastral data, Michael has previous experience in processing and managing large scale national datasets ensuring personally identifiable information is managed in accordance with data protection and GDPR policies.

**Anthony Beck** is a geospatial and analytics professional with a strong mix of technical, commercial, academic and policy skills. He has experience of delivering repeatable solutions using an inclusive and interdisciplinary approach, involving GI-Science, Knowledge Engineering, and Data Modelling. One of Anthony's key skills is demonstrating the link between concepts, data, policy, and practice. Anthony is a Concept and Data architect. He is lead author on many academic journal publications that cover different domains: these include land administration, utilities, heritage, smart cities, and addressing. He holds a PhD in heritage remote sensing applications and advises specialist, policy, and standards bodies. He has won a number of industry awards including work on the integration of underground utility assets and the PAS128 utility standard. He was short-listed for the Institute of Civil Engineers entrepreneur of the year award. Anthony is fluent with ISO19152 (Land Administration Domain Model (LADM)) and is contributing to the ISO19152 version 2 revision. He is interested in approaches that improve registration automation and first-order logic modelling of the registration domain.

**Laura Alderson** is passionate about innovation and technology and the ways they can transform businesses and shape society. Laura is qualified to MBA level achieving a masters' degree in strategic leadership with a dissertation on stakeholder management. Previously responsible for Ordnance Survey's Geovation start-up accelerator programme for geospatial innovators, Laura was responsible for helping geospatial start-ups build their businesses through the use of agile methodologies and product management skills. Currently, Laura is Product Manager for Ordnance Survey's Managed Land Solution product with responsibility for owning and managing the solution through all phases of its development lifecycle.

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