What does a Global Address Framework look like?

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Abstract

Short abstract:

An address is much more than a representation of a property: when included as part of a nation's infrastructure, an address helps to provide social and legal identity. By providing a fundamental knowledge base to inform decision making and action, addresses help to develop, implement and support other critical national policies such as:

- Governance
- Urban development and management
- Migration and social integration
- Security
- Economy and commerce
- Environmental sustainability, risk and disaster management

Addressing the world: an address for everyone co-ordinated by the Universal Postal Union documents in detail the problems that poor address infrastructure and address interoperability pose. As part of the solution this white paper neatly summarises the *state of the art* in addressing and advocates approaches to improve addressing aimed at nation states. Key to this is the assumption that an address requires a *road network*, a *street name* and a *house number*. This *national address infrastructure* can be a significant barrier to implementation and can starkly highlight the division between urban and rural communities.

This paper examines the assumption that *credible addresses* require an underlying *address infrastructure*. By removing the need for address infrastucture (and conflation of national address systems) it is possible to define the characteristics of a *global address framework*. This is encapsulated within the acronym DAIS (Determining Addresses which are Independent of infrastructure using a Spatial algorithm). DAIS is a work in development but aims to represent the key characteristics of any global address framework so that it can have maximal impact.

This document has been written in CommonMark: an unambiguous implementation of Markdown for scholarly writing.

1 Extended Abstract

In most industrialized countries, physical addresses are part of the fabric of society, just like roads, running water and health provision. In these countries addresses facilitate the provision of public and private services, improving the response of aid and emergency services in tackling disease and natural disasters for example, while fostering social and economic development in general. Benefits extend across borders, contributing to regional connectivity and well-being.

By provide a mechanism to conduct cross-border activities addresses are a significant enabler to globalism. Hence, national addresses form a *public good* at the national level and through interoperability with international systems the totality of addressing networks can be determined as a global public good.

Within this context physical addresses are often taken for granted: it is almost inconceivable to consider that other countries may not have well developed address infrastructure. Yet, in developing countries, physical addresses frequently exist only in major cities. In such countries, many streets have no names and properties are not numbered. It is therefore difficult or impossible for public services and businesses to reach their target customers. For the postal business, an accurate and complete address is the key to providing quality service, so that correspondence, documents and goods reach their destination as quickly as possible.

Within this context an address, or lack thereof, has important ramifications. An address is much more than a representation of a property: when included as part of a nation's infrastructure, an address helps to provide social and legal identity. By providing a fundamental knowledge base to inform decision making and action, addresses help to develop, implement and support other critical national policies such as:

- Governance
- Urban development and management
- Migration and social integration
- Security
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Those people without addresses can be disenfranchised from a range of social and legal activities. The report Making the Law Work for Everyone ('Commission on Legal Empowerment of the Poor' and 'United Nations Development Programme' 2008) estimated that four billion people do not have addresses and many of these cannot enjoy their full rights as citizens because they often lack a formal identity.

A range of global stakeholders[1] have recognised the problems that poor address infrastructure and address interoperability pose. In 2012 they put forward a white paper to outline the problems and potential solutions (UPU 2012). This white paper neatly summarises the *state of the art* in addressing and advocates approaches to improve addressing aimed at nation states. Key to this is the assumption that an address requires a *road network*, a *street name* and a *house number*. This *national address infrastructure* can be a significant barrier to implementation and can starkly highlight the division between urban and rural communities.

This paper examines the assumption that *credible addresses* require an underlying *address infrastructure*. By removing the need for address infrastucture (and conflation of national address systems) it is possible to define the characteristics of a *global address framework*. This is encapsulated within the acronym DAIS (Determining Addresses which are Independent of infrastructure using a Spatial algorithm). DAIS is a work in development but aims to represent the key characteristics of any global address framework so that it can have maximal impact.

[1] For example, African Union (AU), EURopean ADdress INfrastructure (EURADIN), International Organization for Standardization (ISO), International Telecommunication Union (ITU), United Nations Development Programme (UNDP), United Nations Educational, Scientific and Cultural Organization (UNESCO), United Nations Settlements Programme (UN-HABITAT), Universal Postal Union (UPU) and the World Bank (WB)

2 Bio

Anthony Beck has been undertaking GIScience research in the utility and heritage sector since 2000. This has encompassed large scale data integration in the Utility sector (the award winning UK Water Industry Research projects Mapping the Underworld and VISTA) and heritage remote sensing research utilising hyperspectal imaging. He is a passionate advocate of Open Science and sees this as a way to increase the impact of science in society.

During the last year he has been working on ontologies and semantic mapping at 1Spatial and has just moved on to Nottingham University as part of a smart cities project.

References

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