

The South African address standard and initiatives towards an international address standard

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Outline of the presentation

- Overview of addresses
- Overview of address standards
- Previous attempts at an international address standard
- Benefits of an international address standard
- The South African address standard
- ISO workshop on address standards
- The way forward
- Conclusions and acknowledgements

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Overview of addresses [1]

- Earlier, we compared various characteristics of ten address standards, including their definitions of 'address'
- Identified commonalities to define *address*:
 - *A structured, unique, complete, common reference for actual or potential service delivery to a location*
- An address is broader than just a set of directions for delivering post or for courier services
 - Also used for a wide range of public and private service delivery
 - Goods delivery, planning infrastructure, connecting utilities, billing, emergency dispatch, household surveys, serving summonses, and land and property registration
 - Rates and taxes, opening bank accounts, buying on credit, securing an identity document, voting, obtaining employment, conducting household surveys, and providing a reference context for presenting other information

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Overview of addresses [2]

- An address can also give people a status
 - Can receive services on demand because they can be ‘found’
- Having an address places one in the ‘surveillance society’
 - One only exists if the system can put one under surveillance
- Addresses don’t live in isolation
 - Widely recognized as being a key form of geospatial information
 - INSPIRE Directive for an SDI for Europe
 - ‘Addresses’ one of nine priority spatial data themes
 - Addresses are used every day by citizens, businesses and government as a human understandable description of the location of a specific piece of information

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Overview of address standards [1]

- Various countries have, or are developing, address standards
 - Eg: Australia and New Zealand (joint effort), Denmark, Korea, South Africa, UK and USA
- Also, some international organizations
 - INSPIRE Thematic Working Group (TWG) on Addresses
 - European Address Infrastructure, through EURADIN Project
 - Universal Postal Union (UPU)
 - S42: *International postal address components and templates*
 - Organization for the Advancement of Structured Information Standards (OASIS)
 - Suite of XML specifications for party related data, including addresses (physical locations or mail delivery points)

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Overview of address standards [2]

- Generally, address standards:
 - Include geo-referencing by coordinates
 - Describe all kinds of addresses (as opposed to only postal addresses)
 - Provide data models
 - Use UML to describe their data models
 - Use XML as an encoding format
 - Include metadata and some info on data quality
 - Trend is to use a separate standard for data quality

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Overview of address standards [3]

- Framework for spatial referencing:
 - ISO 19111:2007, *Geographic information – Spatial referencing by coordinates*
 - Structured metadata (both human and computer readable) required for using coordinates
 - Coordinate systems, coordinate reference systems, coordinate transformations, types of coordinates
 - ISO 19112:2003, *Geographic information – Spatial referencing by geographic identifiers*
 - Link something to a location without explicitly using coordinates
 - Through a relationship to a location defined by a geographical feature
 - I.e: something with a name or identifier

Overview of address standards [4]

- Computers might 'prefer' addresses expressed as coordinates
 - For humans, an address should be a form of spatial referencing by geographic identifiers
 - , i.e. containing intelligible names and context, such as a hierarchy of names (e.g. street, suburb, town, province and country)

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Previous attempts at an international address standard

- Few attempts to date
 - ISO 11180:1993, *Postal addressing* (withdrawn 2004)
 - Dimensions and location of the postal address on forms
 - UPU's S42: *International postal address components and templates*
 - CEN's EN 14142-1:2003, *Postal services – Address databases – Part 1: Components of postal addresses*
 - Several from industry consortia that use only simple address lines without trying to interpret international addresses
 - OASIS's suite of XML specifications for party related data
 - ISO 19133:2005, *Geographic information – Location based services – Tracking and navigation*
 - Tentative address model to describe a location
 - ISO 19148, *Geographic information – Location based services – Linear referencing* (under development)

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Benefits of an international address standard [1]

- Enabling address interoperability across national boundaries
- Reducing the costs of service delivery
- Generating downstream economic activities
- Enabling vendors to develop addressing tools
 - Especially open-source tools
- Assist those countries with inadequate addressing systems (as is the case in much of Africa) to implement and maintain comprehensive addressing systems

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Benefits of an international address standard [2]

- The key driver for address standards is providing wider access to what already exists
 - Eg: many European countries restrict their address registers
 - Results in public sector registers not being used effectively
 - Aging of society
 - Need to simplify rapidly current activities to be able to sustain services as the work force shrinks
 - Key to this is releasing resources currently deployed
 - Eg: the duplication in building and maintaining address registers because they are not shared

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The South African address standard

- **SANS 1883, *Geographic Information – Address Standard***
 - *Part 1: Data format of addresses*
 - *Part 2: Guidelines for addresses in databases, data transfer, exchange and interoperability*
 - *Part 3: Guidelines for address allocation and updates*
- **Definition of an address**
 - An unambiguous specification of a point of service delivery
- **Twelve address types**
- **Caters for all types of address in South Africa, not just postal addresses**
 - Officially assigned and commonly in use
 - Formal and informal
 - Urban/rural
 - Geo-referenced location of an address

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ISO workshop on address standards [1]

- *Overview of an address and purpose of the workshop, Antony Cooper, Convenor of ISO/TC211's WG 7, Information Communities*
- *Addressing the Needs of INSPIRE: The challenges of improving interoperability within the European Union, Andrew Coote, INSIPRE Address Thematic Working Group*
- *A general approach to addressing, Rob Walker, United Kingdom*
- *Ubiquitous public access and address standards, Sang-Ki Hong, Convenor of ISO/TC211's WG 10, Ubiquitous public access*
- *Address data exchange in South Africa, Serena Coetzee, Chair of ISO/TC 211's Programme Management Group*
- *AS/NZS 4819:2003, Geographic information – Rural and urban addressing and AS/NZS 4590:2006, Interchange of client information, John Hockaday, Australia*
- *A conceptual framework for the description of Place Identifiers, Reese Plews and Shigekazu Kawano, Japan.*
- *Developing a Comprehensive Standard for US Address Data, US Address Standard Working Group*
- *Universal Postal Union (UPU) – International Postal Addressing Standards, Ruth Jones and Joe Lubenow, Universal Postal Union (UPU)*
- *Addresses as an infrastructure component: Danish experiences, Morten Lind, Denmark*
- *ISO/TC211 perspective on an international address standard, Olaf Østensen, Chair of ISO/TC211*

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ISO workshop on address standards [2]

- Cooper
 - Gave an overview of an address
 - The combined definition given above
 - Preliminary taxonomy of addresses
 - Models for developing an international address standard
- Coote
 - Key issues for international standards development initiatives
 - Language
 - Distributed Team
 - Cross-theme Overlaps
 - Adoption and implementation
- Walker
 - Issues are about data management, not data formats
 - Need a definitive dataset of addressable objects
 - Rules required for naming and numbering properties, streets and the geospatial areas used in addressing
 - Maintenance of a standard address datasets

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ISO workshop on address standards [3]

- Hong

- Challenge of extracting unambiguous location information from the maze of different address formats
- Location information of a feature is easily discoverable in ubiquitous geographical information (UBGI) environment
 - Using a geo-labelling mechanism, such as u-position

- Coetzee

- Countries such as South Africa would benefit from an international address standard in several ways (discussed above)
- Proposes using a data grid for address data bases
 - Service-oriented architecture free from centralized control
 - Allows data from multiple organizations and their administrative domains to be presented as a single virtual dataset

- Hockaday

- Consistent method of locating and addressing addresses
- Automatic sorting for national and international mail
- Help emergency services provide quicker responses
 - Re-aligning the catchments

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ISO workshop on address standards [4]

- **Plews & Kawano**
 - Conceptual framework for describing Place Identifiers (PIs)
 - Allows each community to use their own identifiers
 - Facilitates representing common places between communities
 - Services for the registration, management, conversion, discovery and exchange of PIs
- **US Address Standard WG**
 - Address elements and attributes needed for database records, data validation, documentation, exchange and creating mailing lists
 - Classify addresses by their internal syntax, not their business purpose
 - Address elements vary little from country to country but syntaxes will vary more
- **Jones & Lubenow**
 - S42 uses templates to define an address in a destination country for use by postal operators
 - Described in a human-readable notation and in XML
 - Base international address standard on address elements
 - Avoid customized parsing of elements

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ISO workshop on address standards [5]

- Lind
 - Address system is democratic because it is in the public domain
 - Useful even for those without technical devices
 - Known and recognized across all age groups, professions, branches of public management, and national boundaries
 - Common data format does not ensure that the address content is the same across the registers
 - Authority of the address system needs to be clearly defined
 - Custodianship of address data needs to be transparent.
- Østensen
 - Need to address and respect cultural and lingual differences
 - Could require a framework (abstract) standard at a sufficiently high level
 - Should be globally relevant
 - Should not aim to replace working standards;
 - Should ensure that the domain is mature enough for standardization
 - Clear scope and justification for the standard

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The way forward

- Various organizational routes towards developing an international address standard
 - Eg: industry consortia, inter-governmental agencies or open standards generating bodies
- Three models that could be used:
 - A toolset, the superset of all other address standards, or the universal interface between other address standards
- Exploring the options for establishing an ISO mechanism for international address standards
 - Could start with four parts
 - Reference model for address data
 - Terminology for addresses
 - Turning UPU's S42 into an ISO standard
 - Standard on electronic exchange of name and address data
 - UPU initiative

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Thank you!

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