

Mayor Sayles-Belton: We used a number of vehicles. The city of Minneapolis during that time began to use more of the Internet, which was just evolving then. But we still needed to find vehicles to make sure that the information was available to the public, so we networked with the public libraries and with the nonprofit community in the city and with our neighborhood redevelopment organizations. Our city council members produced individual newsletters and communication documents that we then pushed out into the neighborhood. We wanted to make sure that everyone understood that they were deriving a benefit and that everyone's community was going to improve. And while some people never stopped assigning fault, as a whole the community came to believe that this was a strategy that worked well for the city and for them.

Q. What was the most important lesson you learned in respect to this program?

Mayor Sayles-Belton: One of the key elements that kept so many of our citizens informed of the strategy and objectives of our program were our partnerships with neighborhood organizations. It was a process that we tried to advance at every level because at its very core it recognized the importance of citizen engagement and citizen involvement. That is a lesson we learned in Minneapolis, and one which still applies to this day.

THE NEW STANDARD FOR LAND ADMINISTRATION

By Christiaan Lemmen of the University of Twente (ITC) with Peter van Oosterom of Delft University of Technology, The Netherlands

Businesses and governments throughout the world have long reaped the economic benefits from universally standardized systems of measurements such as ISO 9000 Quality Management (QM); ISO 14000 Environmental Management (EM) and dozens of others. Until late last year, the "standards' world" lagged behind in the establishment of a land administration domain model (LADM). However, in November of 2012, under ISO/TC 211 Geographic information/Geomatics, The Land Administration Domain Model (LADM) was approved as an official International ISO Standard: ISO 19152. It defines terminology for land administration, based on various national and international systems. We were both main contributors to the development of LADM.

The field of knowledge on land administration is called the land administration domain. This knowledge is used to define a model that contains all possible people-to-land relationships. Unlike conventional systems that are not designed to include customary or informal tenures, LADM facilitates the development of global cadastral coverage, not based on dogmatic practice, but rather on a wide range of standardized and well-defined options, which can be adapted to local situations. It covers the whole range from survey, via (2D and 3D) spatial representations to spatial units (parcels) and administrative units, to rights, restrictions and responsibilities that the parties (persons) have.

The Importance of LADM

Many countries have developed individual and specialized land administration systems with intricate levels of complexity between required data and process data. So when new technologies are introduced or new requirements need to be supported, in the traditional system development approach, the software is not easily extended for future needs. In addition, less developed countries often lack the knowledge and technology needed to design the essential data models and develop and implement the required applications and systems. Also, it is common practice during the development process to disregard “informal relationships” between people and land due to informalities not recognised or seen as “illegal.” As a result, when new systems are implemented or when changes are needed, the wheel is reinvented and the same lack of functionality is reimplemented over and over again. This cycle has considerable impact on the continuity of development and maintenance and operation of systems. To remedy this situation, a data model standard was needed to make the process less daunting and adaptable locally. LADM is such a tool. It can be used for the efficient system development, according to the principles of the model driven architecture (MDA), resulting in realization of modern land administration systems and supporting good governance.

The Global Impact of LADM

The great majority—75 percent—of people-to-land relationships worldwide are not documented. This represents approximately 4.5 billion cases globally. This lack of documentation often results in land disputes or land grabbing. This is one of the reasons that propelled

and efficient setup of land registries. The LADM also provides support in the development of national information infrastructures in situations where land administrations are organized with distributed, central or decentralized responsibilities. In addition, LADM can be used everywhere, both in developing countries and developed countries. The European Union is using it to build up the INSPIRE data infrastructure for spatial information (theme cadastral parcels). It will help to make spatial or geographical information more accessible and interoperable for a wide range of purposes supporting sustainable development.

Dr. Christiaan Lemmen holds a MSc and Ph.D. degree in geodesy from Delft University of Technology, The Netherlands. He is an assistant professor at the Faculty of Geo-Information Science and Earth Observation (ITC), University of Twente, and an international consultant at Kadaster International.

He is chair of the Working Group 7.1 'Pro Poor Land Management' of FIG Commission 7, 'Cadastral and Land Management', and contributing editor of GIM International. He is director of the FIG International Bureau of Land Records and Cadastre OICRF.

E-mail: Chrit.Lemmen@kadaster.nl

Dr. Peter van Oosterom obtained an MSc in Technical Computer Science in 1985 from Delft University of Technology, The Netherlands. In 1990 he received a PhD from Leiden University for this thesis 'Reactive Data Structures for GIS'. From 1985 until 1995 he worked at the TNO-FEL laboratory in The Hague, The Netherlands as a computer scientist. From 1995 until 2000 he was senior information manager at the Dutch Cadastre, where he was involved in the renewal of the Cadastral (Geographic) database. Since 2000, he has been professor at the Delft University of Technology (OTB institute) and also Head of the Section 'GIS Technology.' He is the current chair of the FIG joint commission 3 and 7 working group on '3D-Cadastres' (2010-2014).

E-mail: P.J.M.vanOosterom@tudelft.nl

AUTHOR

Megan Wierenga