



# Measuring Progress Achieving Smarter Cities



metaspatial



OSGeo

Your Open Source Compass

# Standard Open Source Software for the Social Tenure Domain

**Arnulf Christl: metaspatial**

Cyprian Celebalo: UN Habitat

Danilo Antonio: UN Habitat

FACILITATED BY:

**UN HABITAT**  
FOR A BETTER URBAN FUTURE



**GLTN**

GLOBAL LAND TOOL NETWORK

# CONTENT

- The Global Land Tool Network
- Introduction to STDM
- The STDM Software Stack
- Positive Impact of Open Source
- Future Development
- Conclusions

# The Global Land Tool Network (GLTN)

- The Global Land Tool Network (GLTN) is an alliance global regional and national partners.
- The main objective is to contribute to poverty alleviation through land reform, improved land management and security of tenure.
- UN-Habitat through GLTN works with partners including civil society organizations, finance institutions, research and training institutions, donors and professional bodies.

**Most developing countries use conventional land administration systems which cover less than 30 per cent of the country, leaving up to 70 per cent of citizens looking to informal and/ or customary approaches for their tenure security.**

# STDM – The Social Tenure Domain Model

The Social Tenure Domain Model (STDM) is a pro poor land information tool following GLTN's core values and principles:

- Pro poor;
- Equitable;
- Sustainable;
- Affordable;
- Systematically large scale /scalable; and,
- Gender-sensitive

While taking into consideration:

- Good governance;
- Subsidiarity; and,
- The Continuum of Land Rights.

# STDM – The Social Tenure Domain Model

The land information tool STDM focuses on three facets:

1. STDM as a Concept
2. STDM as a Model
3. & an Information Tool



# The STDM Concept

The concept of the Social Tenure Domain Model is to bridge this gap by providing a standard for representing:

**‘people <~> land’**

relationships independent of the level of formality, legality and technical accuracy.

**Bridging the Gap:**

**A Complimentary approach to customary and informal tenure.**

# The STDM Model

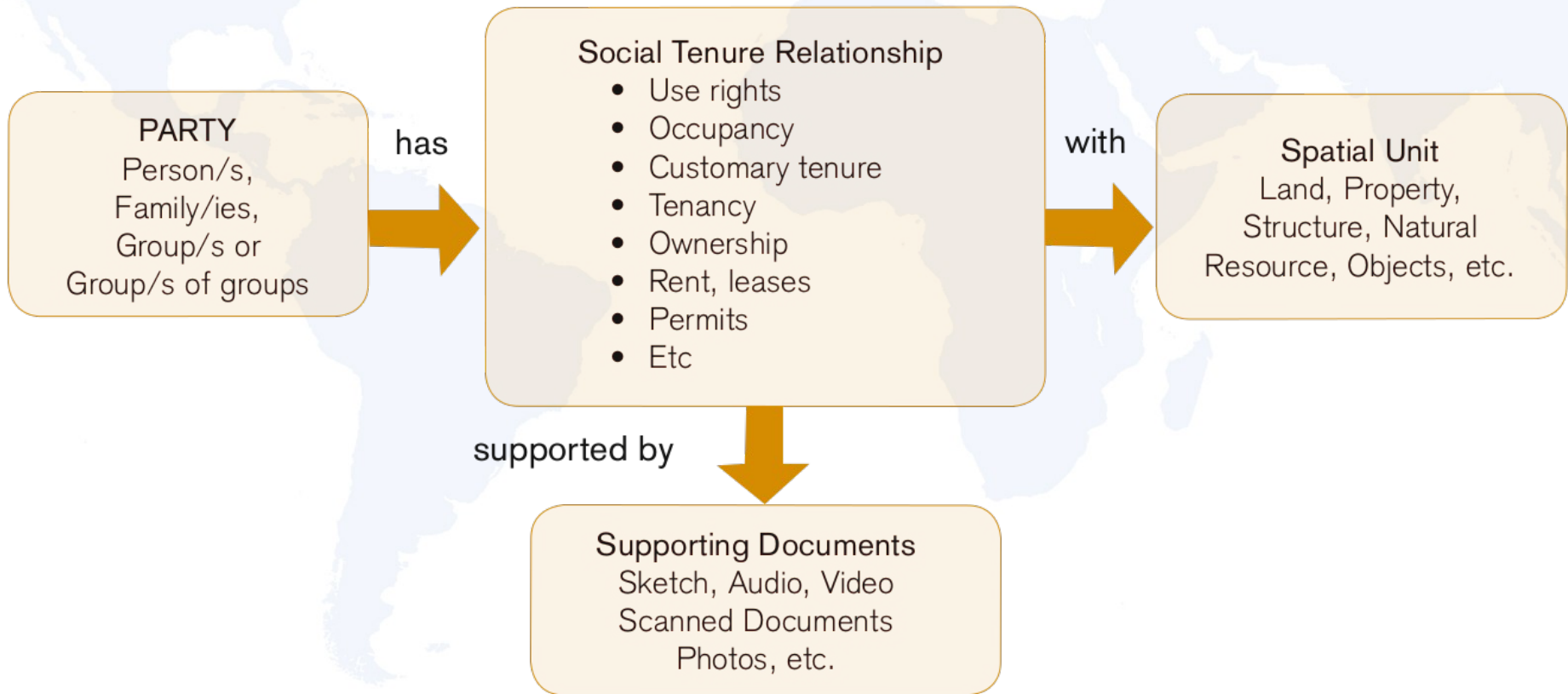
STDM is a 'specialization' of the ISO-approved Land Administration Domain Model (LADM). LADM development took place in parallel of the STDM concept and model development.

## Bridging the Gap:

**Any form of right, responsibility or restriction in a formal system is considered as a social tenure relationship in STDM.**



# STDM: The Conceptual Model



# The STDM Information Tool

The STDM information tool provides the front-end interface for testing and applying the STDM concept and model. The tools are used in a variety of application areas ranging from informal settlement upgrading to natural resource management.

## Applying the STDM concept and model:

- **Open Source lowers the entry barrier**
- **Open Standards ensures longevity and sustainability.**

# The Software Stack

Instead of reinventing the wheel, STDM leverages existing packages:

- The desktop GIS **QGIS**
- The object-relational database **PostgreSQL**
- The spatial data extension **PostGIS**
- Geraldo Reports
- SQLAlchemy



**OSGeo, Quality Assured Software:**



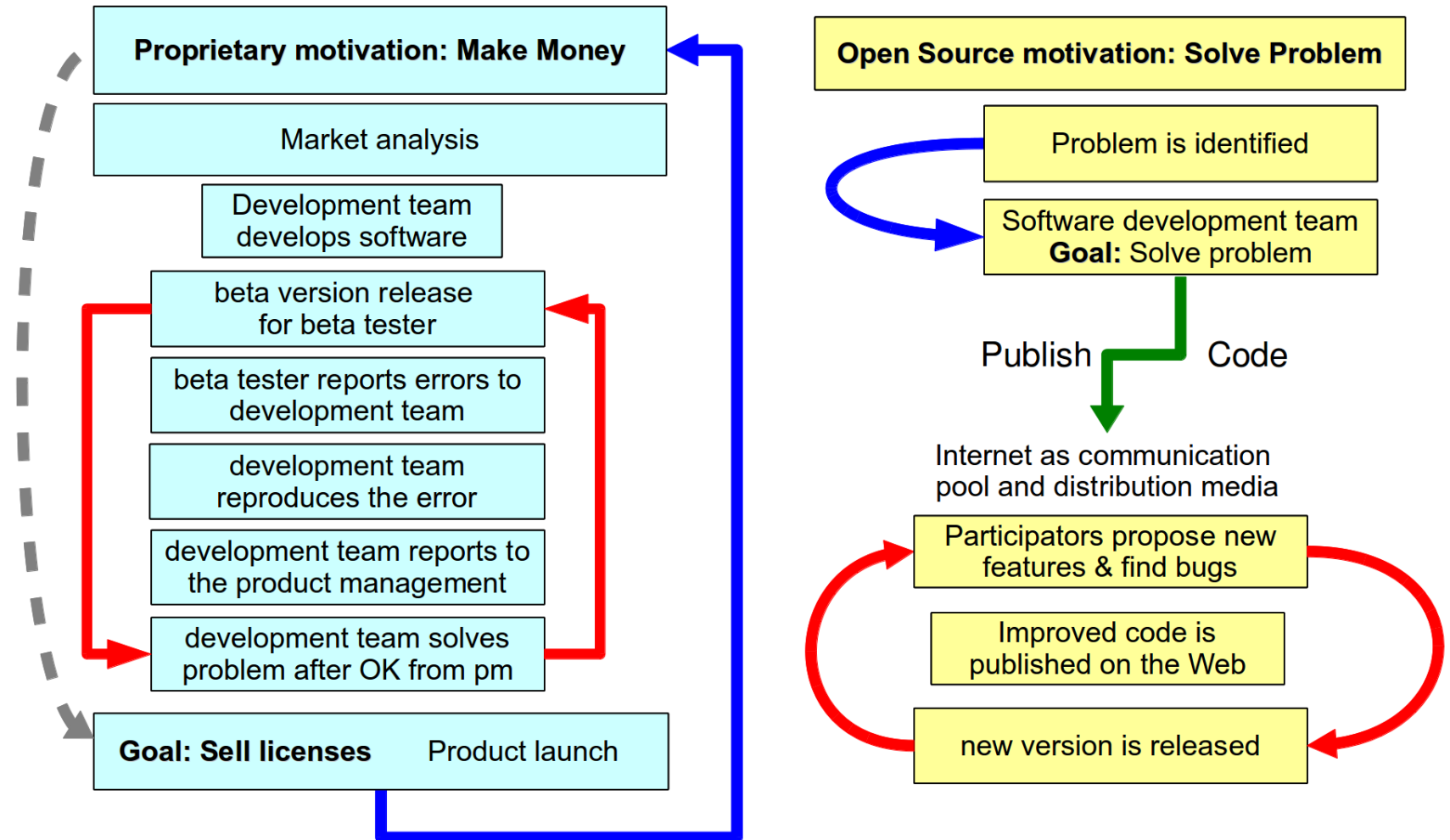
# Why Open Source?

Especially for the people on the ground Open Source considerably lowers the entry barrier. On top of this Open Source has a proven history of improving collaboration:

- Open Source Development Model
- Open Source Licenses
- Community

**Leverage Open Source Models**

# The Open Source Development Model



# Open Source Licenses



Open Source Licenses are proven and reliable:

- GNU GPL and LGPL
- The Postgres License
- MIT license



**ODbL**

Share

Create

Adapt

Data and Document Licenses:

- Open Database License (ODbL)
- Creative Commons (CC by SA)



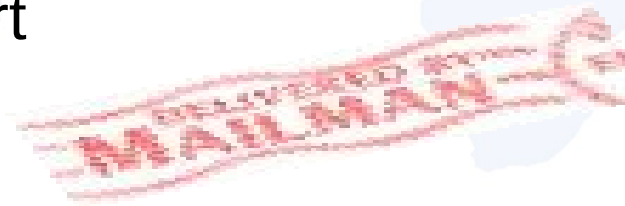
## Approved Licenses

# Open Source Communities

It is impossible to "build" communities.

They have to grow by:

- Providing an open development environment
- Operating a community infrastructure
- Leveraging Social Networks
- Providing support
- Training



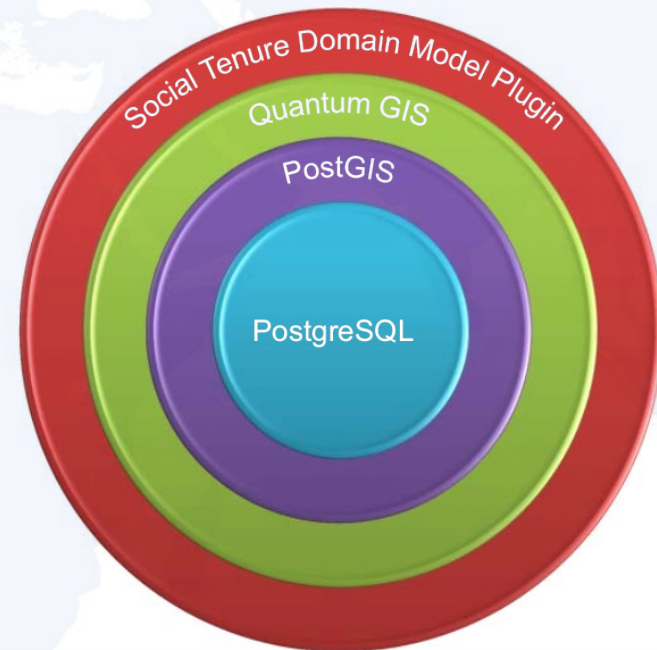
**Great collaboration starts with communication!**



# What can the STDM Software do for You?

STDM provides tools for:

- Vector and Raster Data Import
- Data Management
- Record Household information
- Mapping and Digitizing
- Building Reports and Analysis
- Linking Spatial and Administrative Data



**Customize to Fit your Needs**



# Defining a new Social Tenure Relationship

### New Social Tenure Relationship


Property information  
Select the land and building information.

1221

**Property Information**

- Identifier: 1221
- Locality
- Property Use Type:
- Description:
- Number of Floors: None
- Type of Building Roof:
- Nature of Walls:
- Type of Boundary:
- Number of Rooms: None
- Land Value: None
- Building Value: None
- Combined Value: None
- Type of Land Accession:
- Land Accession Year: None
- Type of Building Accession:
- Building Accession Year: None

**Preview Property:**



Choose Base Layer

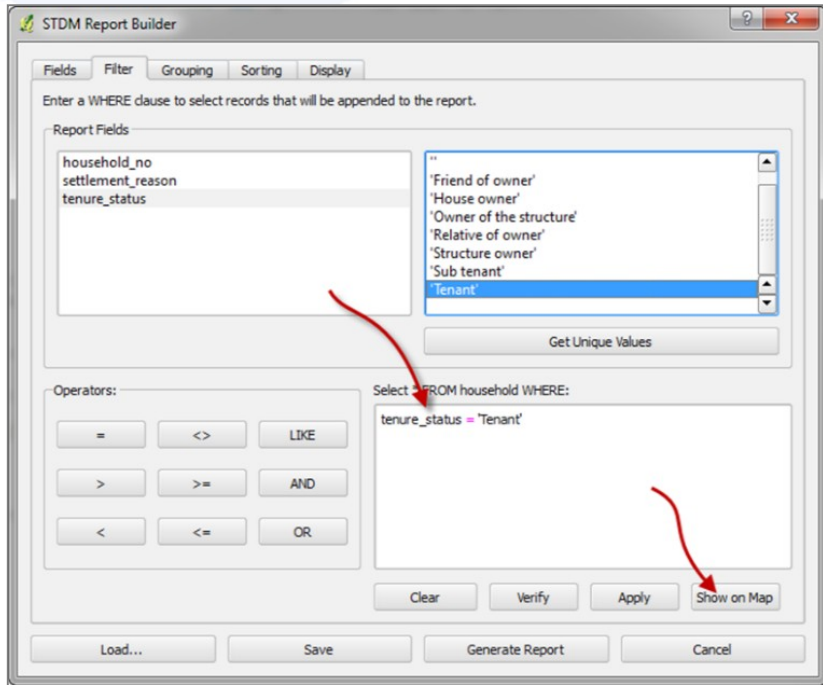
Google Maps  Open Street Maps

Zoom

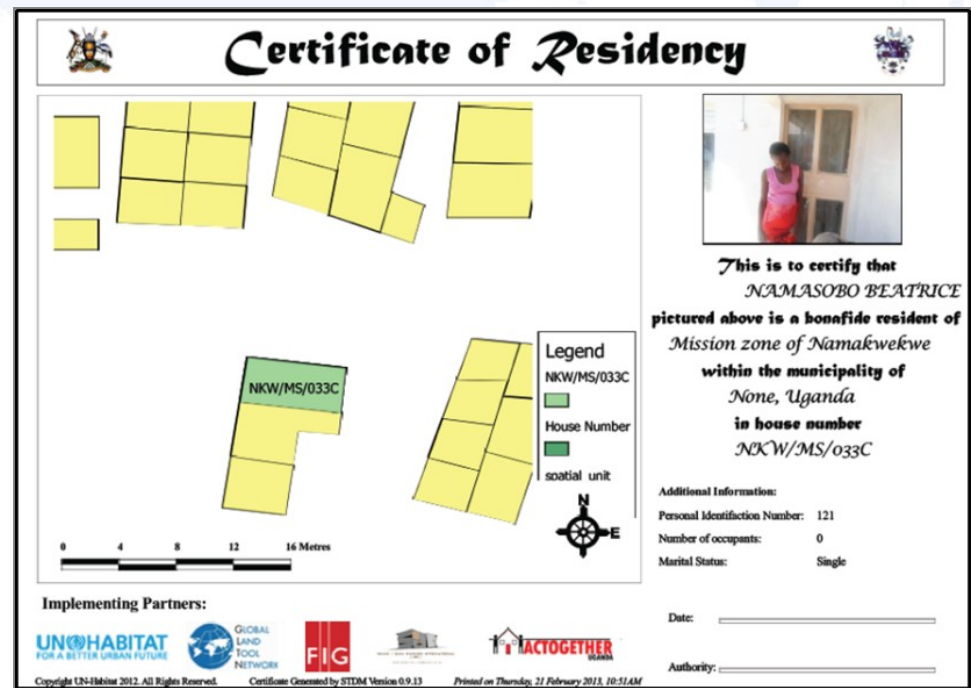
Reset Map

< Back Next > Cancel

# Report Builder



# Certificate of Residency



## Future Development

The future development of STDM is to "Go Online".  
The work to get there entails three main aspects:

- Data and data model
- Security and privacy
- Online interfaces

**Going Online...**

## Data and Data Model

The data model has to be sturdy and simple and easy to import and export:

- Keep aligned with LADM
- Support [OpenStreetMap](#)
- Open Data Licenses

Going Online...

## Security and Privacy

Exposing the data on the Web requires a highly secure environment, transparent policies and good governance.

- Secure Architecture
- Open Governance
- Transparent Terms of Service

Going Online...

## Online interfaces

Use state of the art technology, minimize web traffic, support older hardware and any platform.

- Record Household Information
- Mapping components
- Report Generation

**Going Online...**

## Conclusions

The Open Source development model has proven to be the right choice for STDM.

- Easy to Use
- Powerful Functionality
- Extendible and Customizable
- Transparent and Secure
- Accessible and Affordable

**Community Building is in Full Progress**



# Do you want to know more? Contact us!

**Arnulf Christl**

arnulf.christl@metaspatial.net | @sevenspatial

<http://www.stdm.gltn.net/>

<http://metaspatial.net/>

<http://osgeo.org/>



FACILITATED BY:

