"*Achieving the Vision*"

Geo-statistical integration addressing South Africa's Developmental Agenda

'Geo-statistical analysis'

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Inspire - Geo-spatial World Form (Session: Geo-Statistics)
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- **SA Developmental Agenda – impetus for tight integration**
- **Focus on USABILITY through geo-statistical analysis:**
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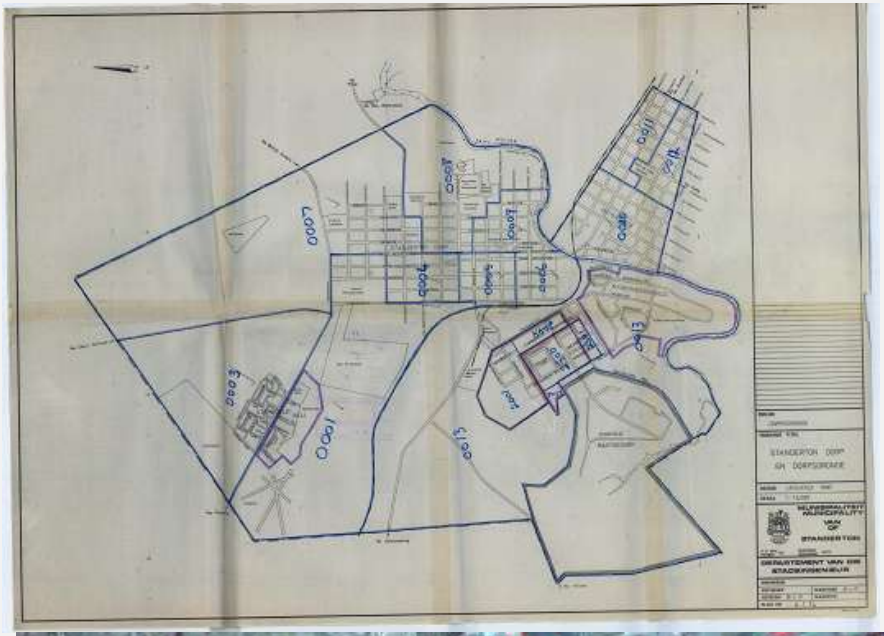
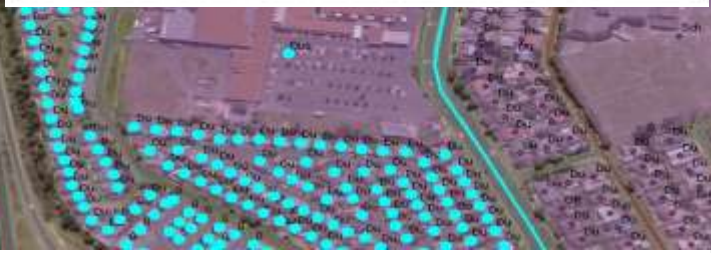
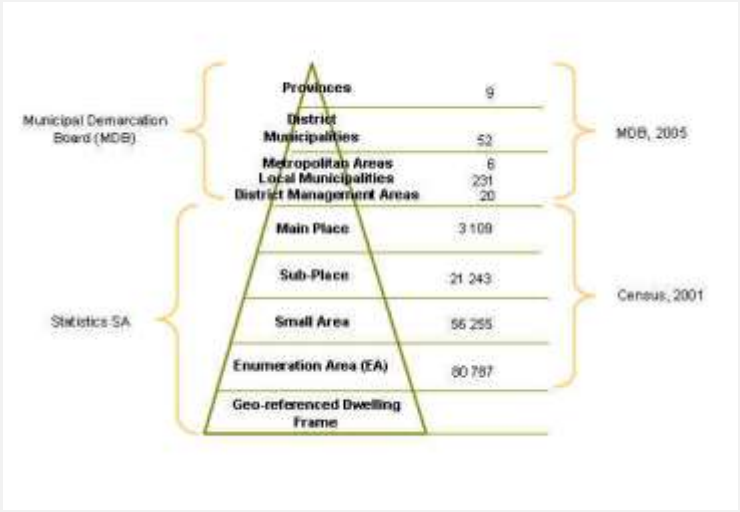
  - **Municipal capital spending patterns & the reshaping of urban structure in South Africa;**
  - **Estimating population;**
  - **Predicting and classifying urban & rural areas in South Africa.**
- **Concluding remarks**

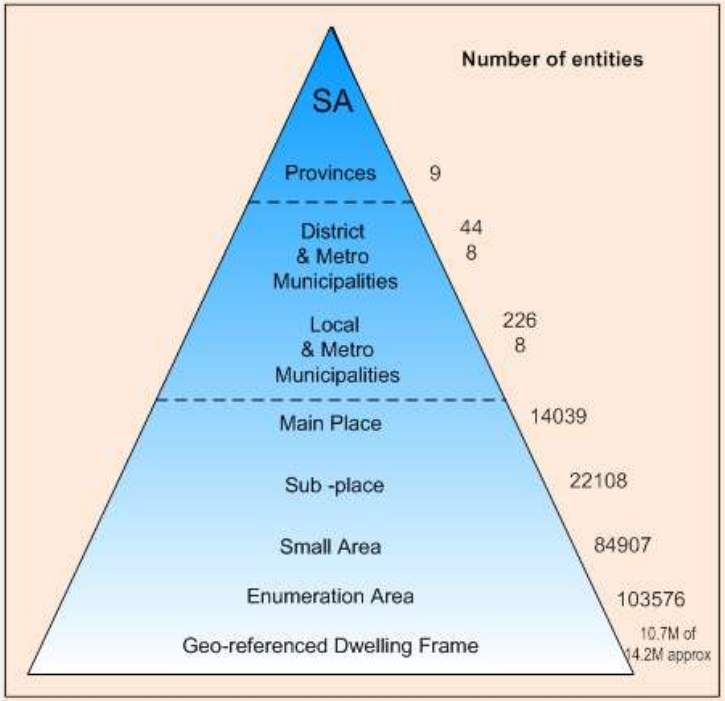
From paper maps to geo-statistical frames …





Statistical geography a key strategic direction for Stats SA …





Standard Geographic Frame (consistent & stable over time)

Geo-statistical Building Block against which information can be collected & rolled up for dissemination

Updated & reliable fundamental sampling frames: Dwelling/ Address Frames; the Business Frame

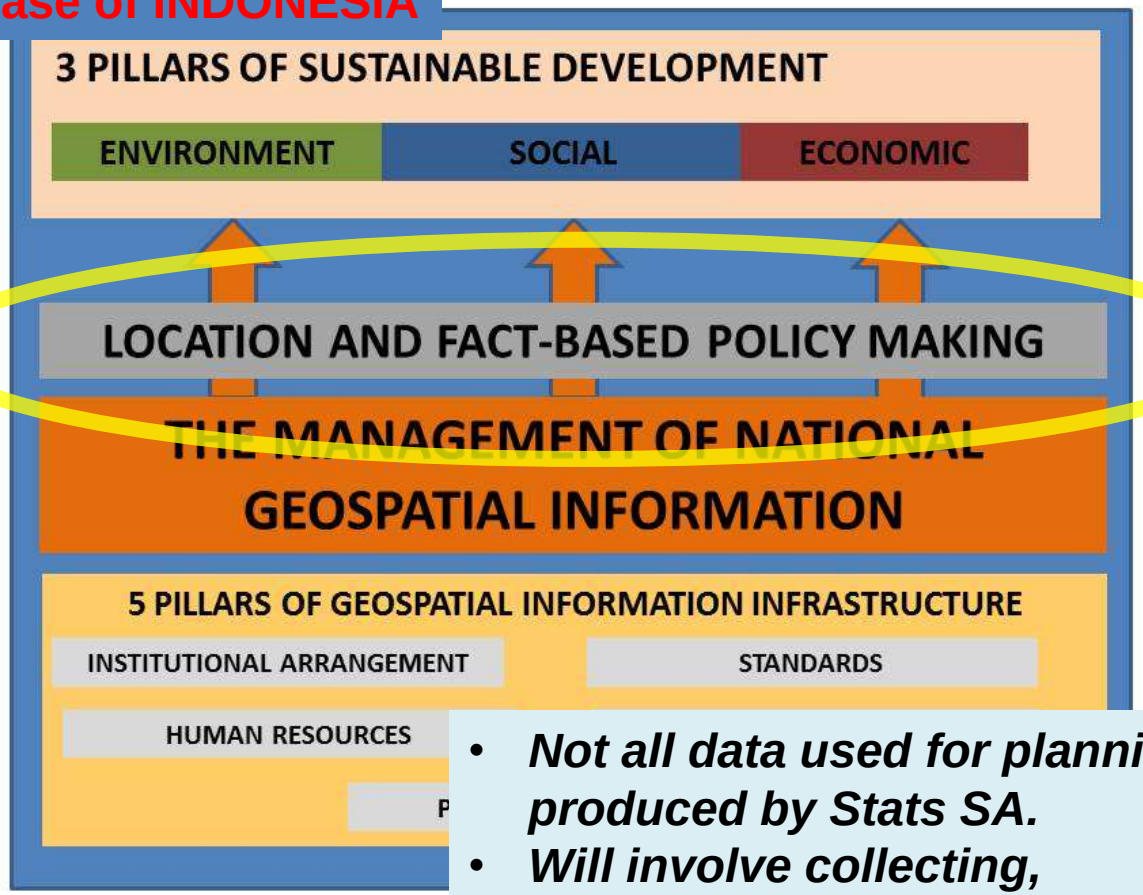
Built a dependency on other data suppliers/ producers. We want quality data from them. Dependency on a functioning SASDI. Therefore statistics supports the SASDI development.

Geo-statistical analysis

South Africa's National Development Plan (NDP) - Vision 2030

- *Evidence-based. Spatial & Statistical information basis for planning, monitoring and evaluation – South Africa's Developmental Agenda*

Case of INDONESIA

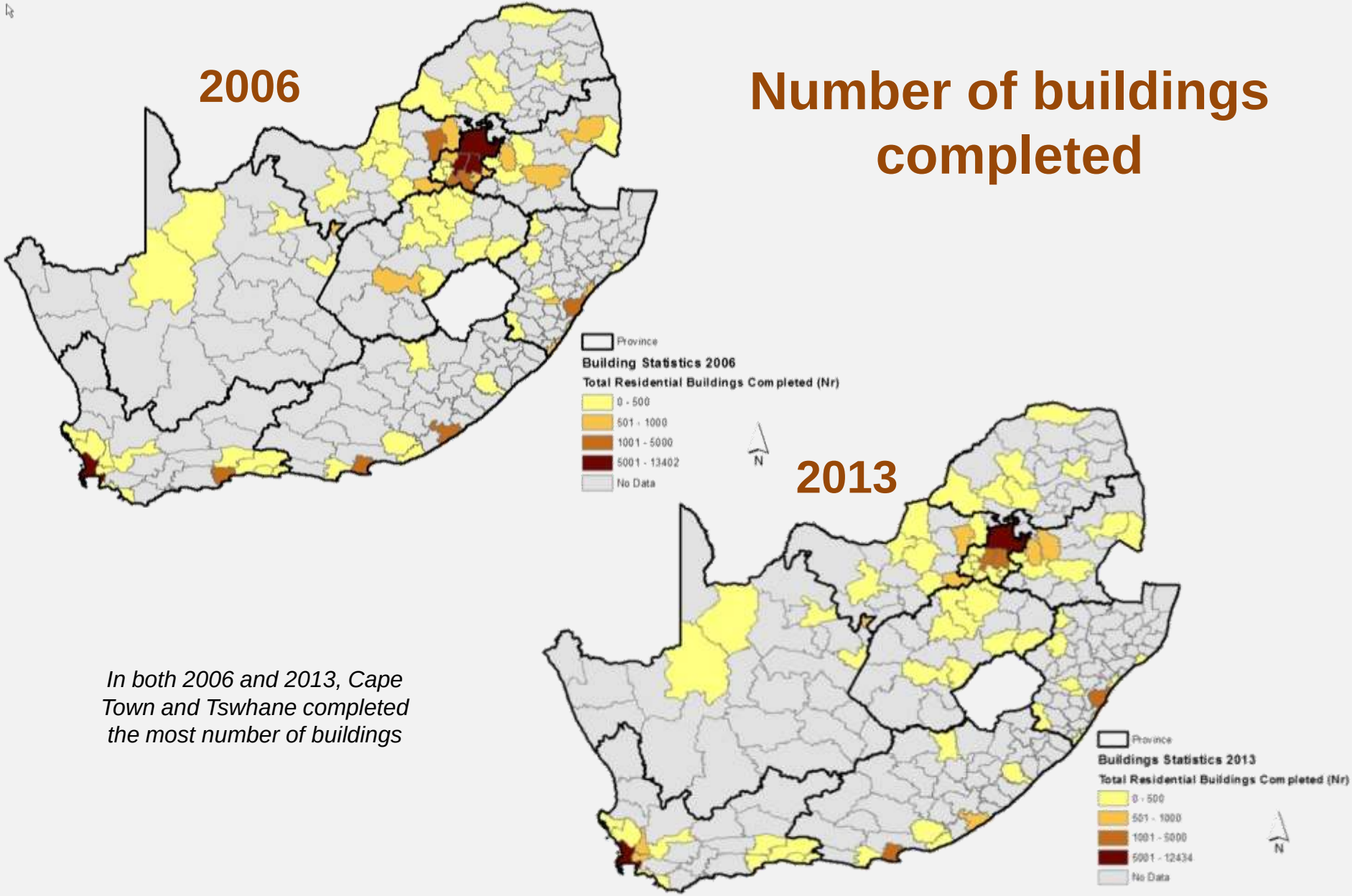


- *Clear statement priorities.*
- *Adopted by Cabi*
- *Alignment of short-term, medium-term & long-term planning*

- *Not all data used for planning is produced by Stats SA.*
- *Will involve collecting, standardizing, utilizing important information from other sources.*
- *Dependency on a functioning NSS.*

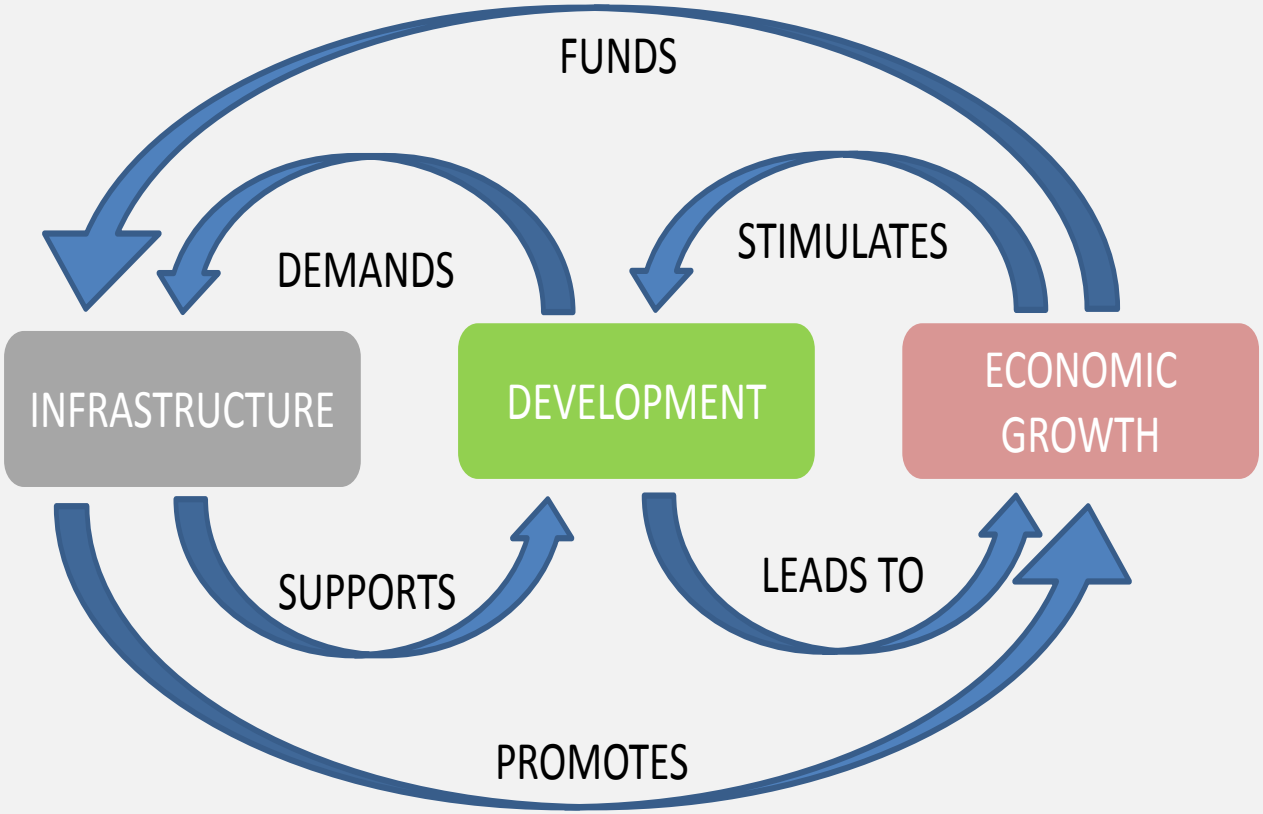
Policy Analysis = Geo + Stats

Number of buildings completed



In both 2006 and 2013, Cape Town and Tswhane completed the most number of buildings

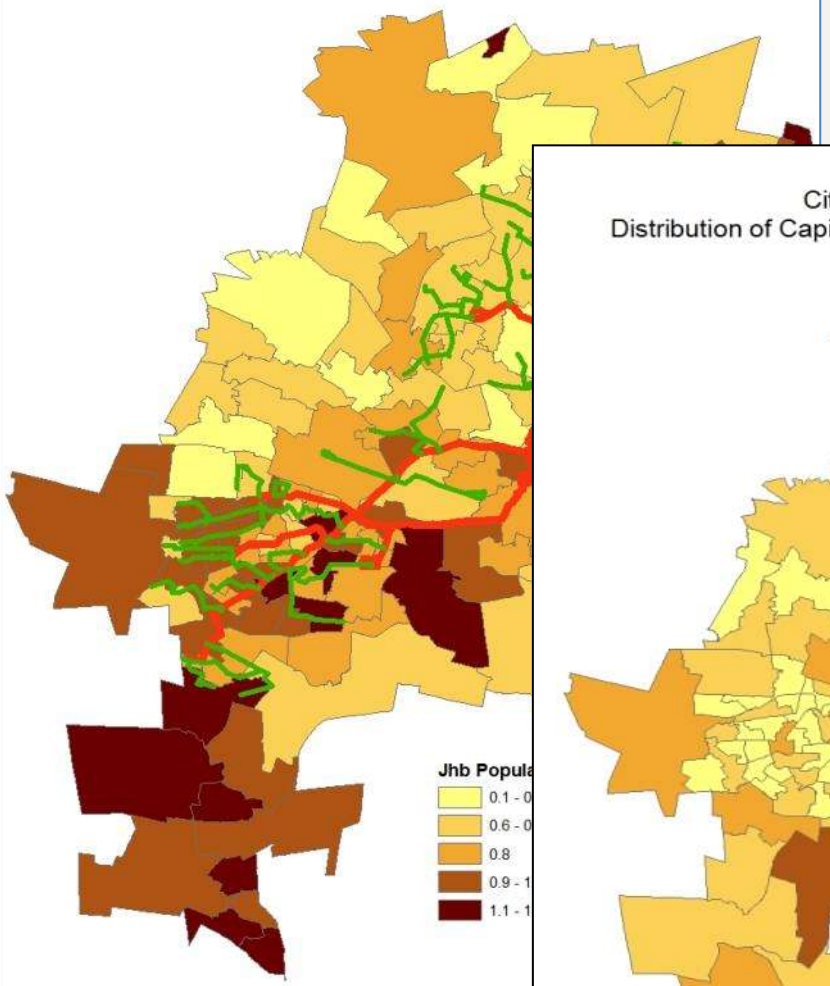
Role of infrastructure in growing the economy

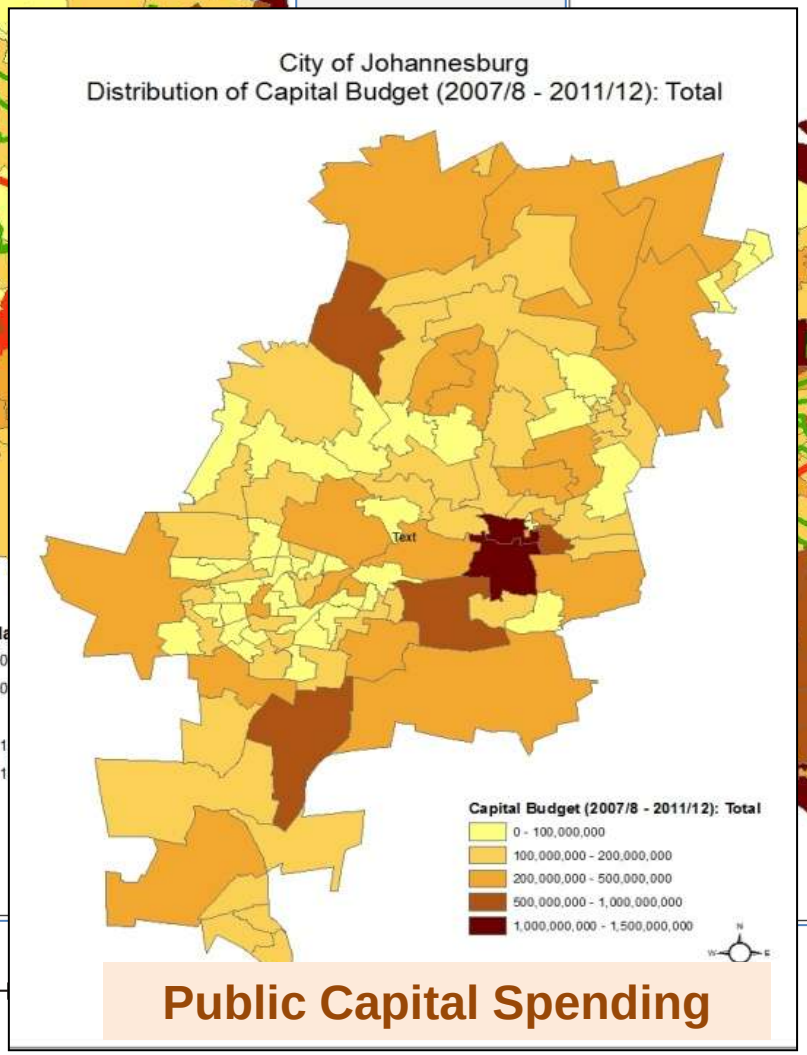


Source: GIIMP (Gauteng Integrated Infrastructure Master Plan Framework), 30 March 2015

Municipal Capital Investment Framework & Spatial Development Frameworks

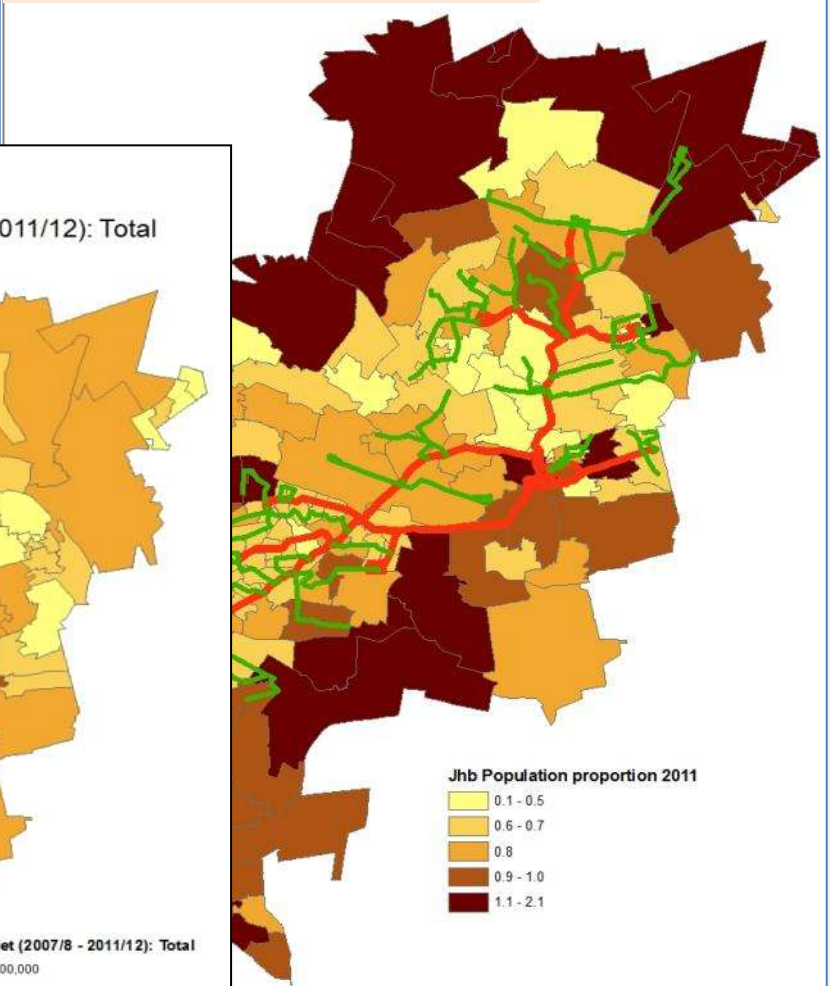
Census 2001 Population





Public Capital Spending

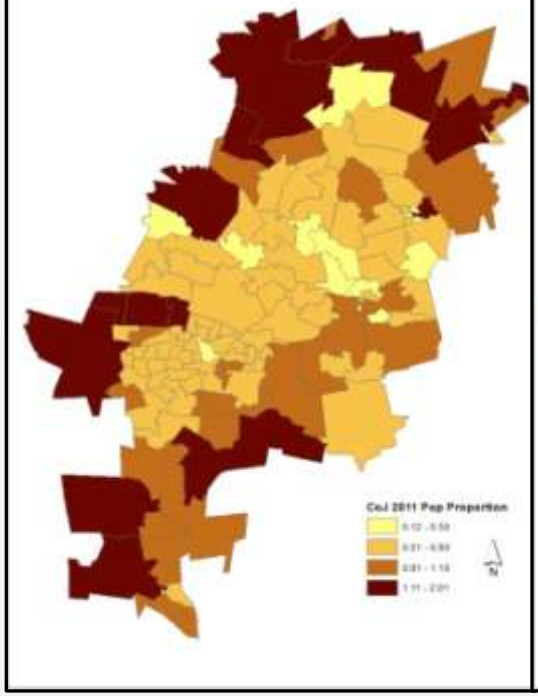
Census 2011 Population



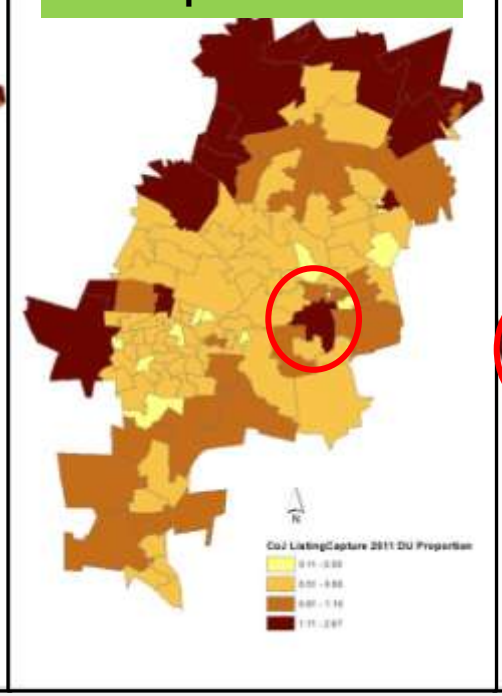
Estimating

Vision – “ taking infrastructure to the people “

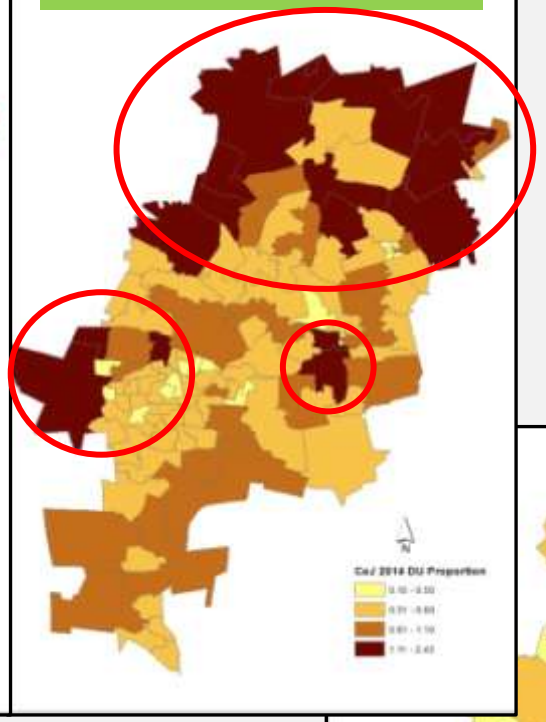
Census 2011: Population

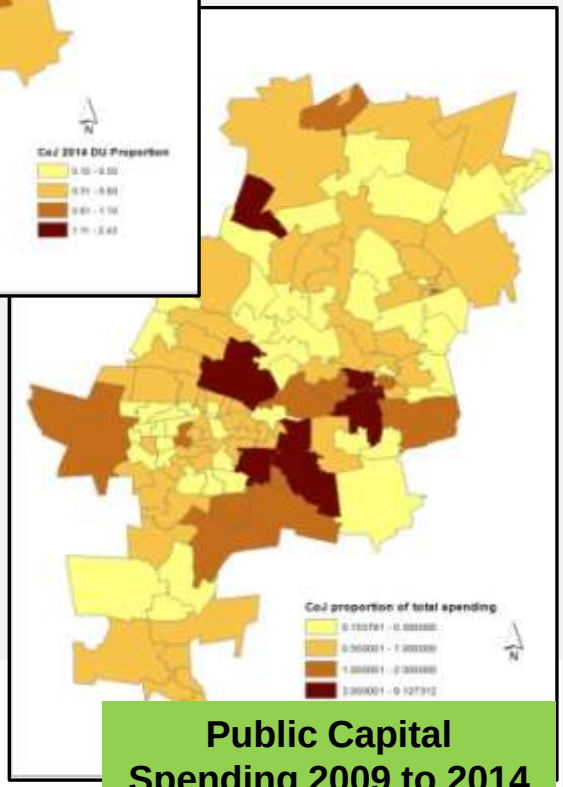


DU Count Listing Capture 2011



DU Count 2014





Trends in population distribution over space & time

City of Jo’Burg

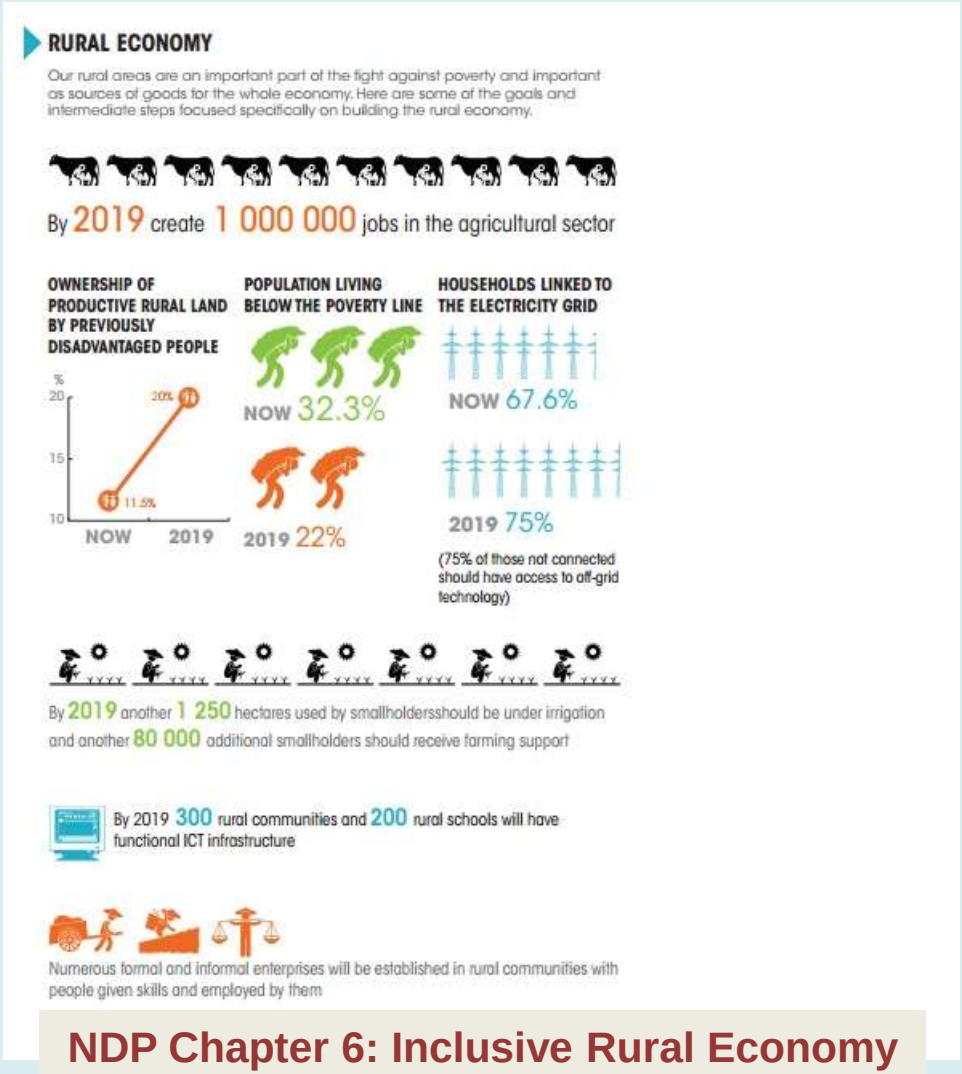
Next steps … $P_t = (H_t * PPH_t) + GQ_t$

Source: Public Capital Spending Data supplied by City of Jo’Burg, Census & Dwelling Unit Count supplied by Stats SA, Maps created by Stats SA

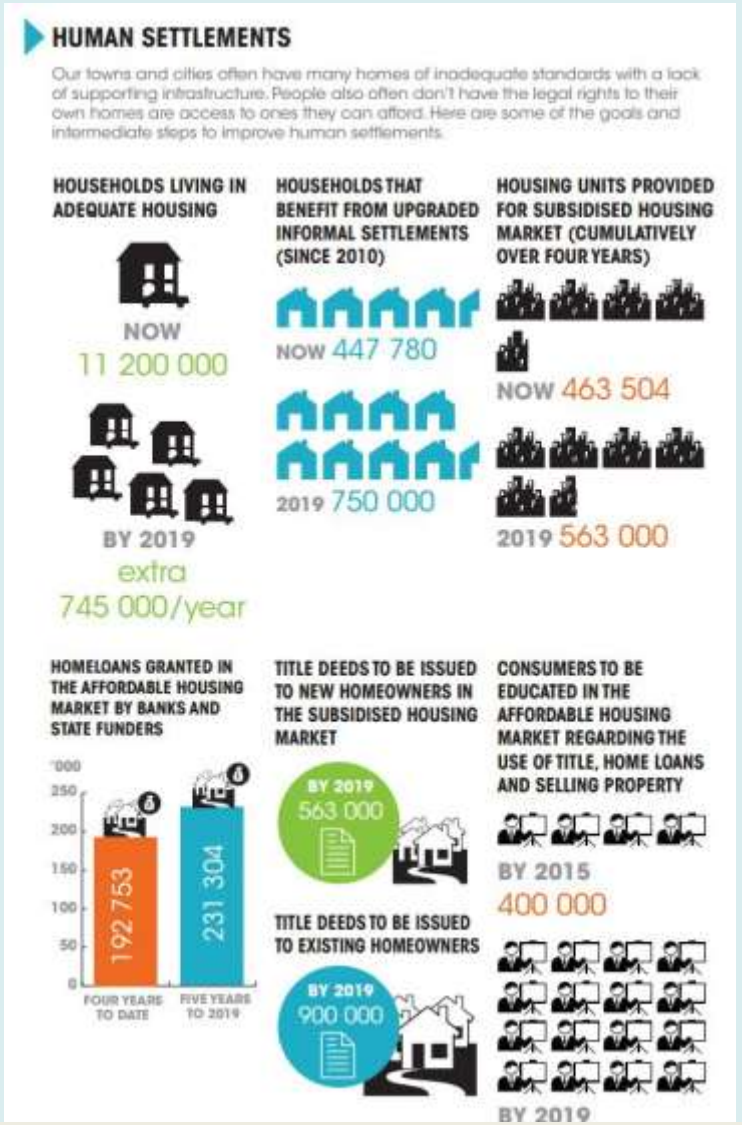
Public Capital Spending 2009 to 2014

Predicting & Classifying

NDP key priority areas



NDP Chapter 6: Inclusive Rural Economy



NDP Chapter 8: Human Settlements

Classifying areas into urban & rural using spatial statistics

This paper is co-authored with Mr. Sulaiman Salau, University of Witwatersrand, Johannesburg, RSA

Statistics South Africa

Data sources: Socio-demographic (Census 2011); Environmental (Dwelling Frame & satellite imagery)

Census 2011

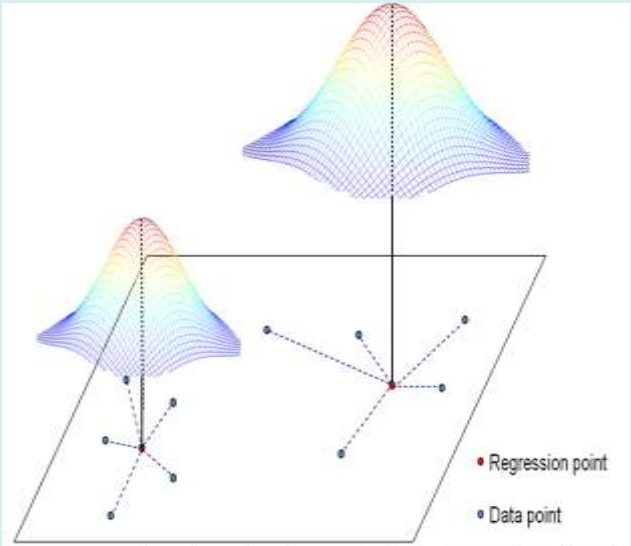
Population density
%Females
%0 to 6 year old
%7 to 18 year old
%19 to 34 year old
%35 to 64 year old
%65 plus
%No or some schooling
%Unemployed
%No income
%Working in the formal sector
%In-migration
%Basic services (water, electricity, sanitation, refuse)
%Traditional dwellings
%Dwelling owned, not paid up
%Rented
Etc.

Dwelling Frame

%Residential Dwelling points
%Commercial points

Classified satellite imagery

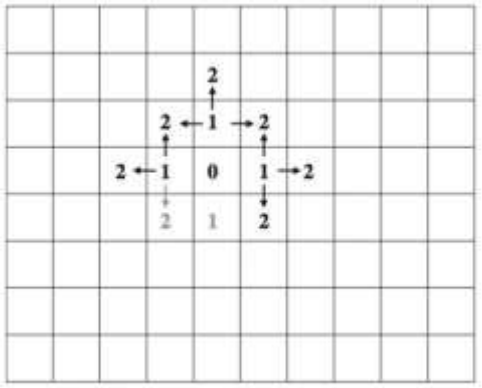
%Built-up dense settlements
%Roads & rail
%Natural water & wetlands

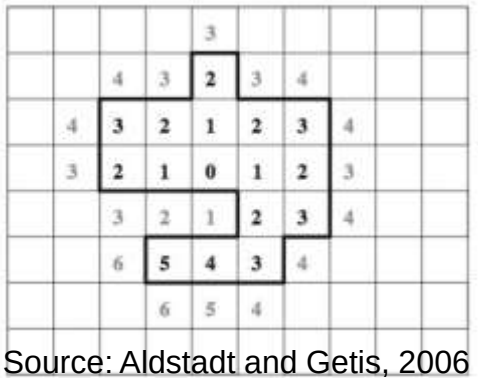


Methodology:

LLR, PCA, GWR, AMOEBA algorithm

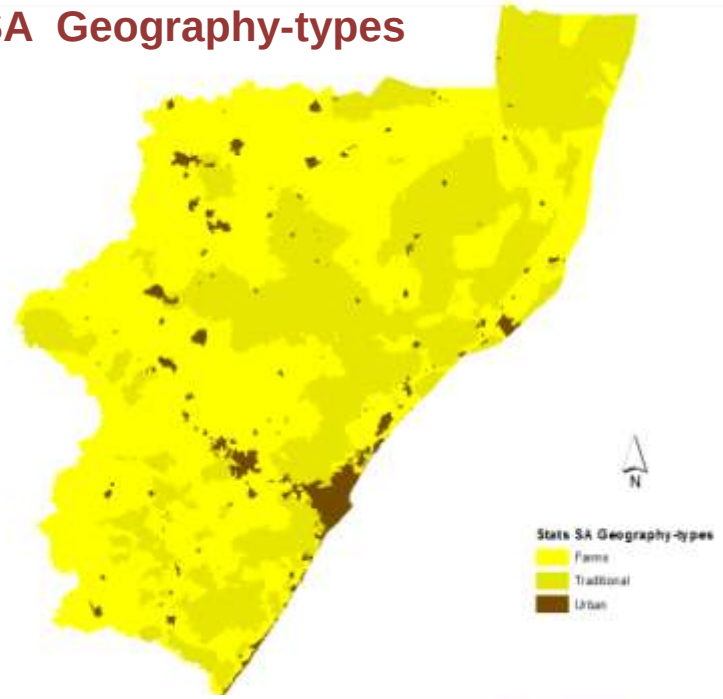
Population Density was modeled.



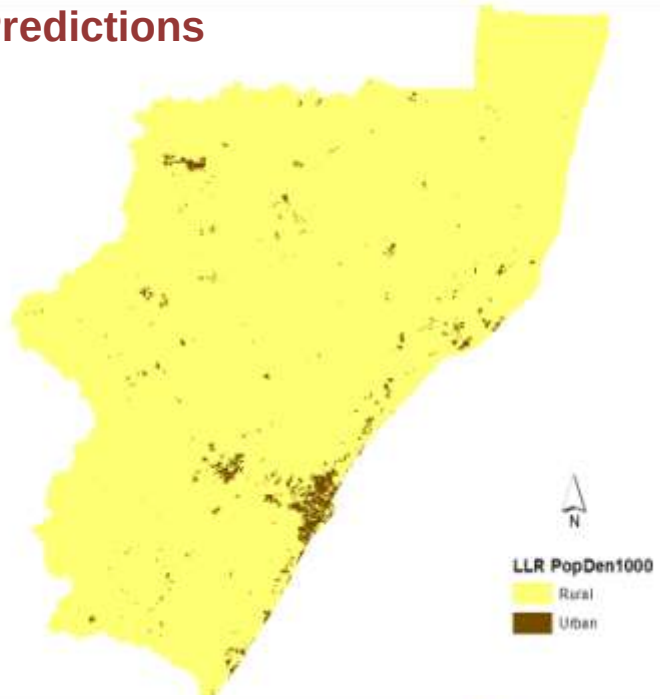


Source: Aldstadt and Getis, 2006

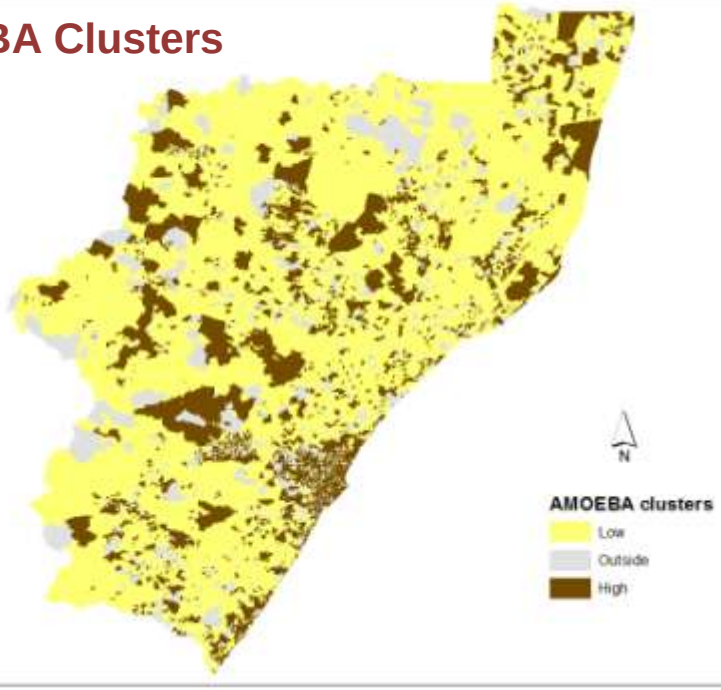
Stats SA Geography-types



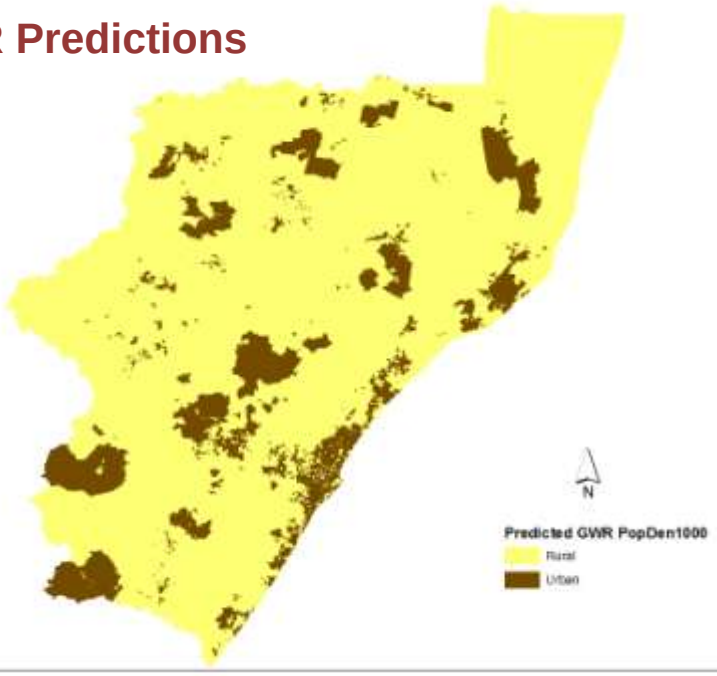
LLR Predictions



AMOEBA Clusters

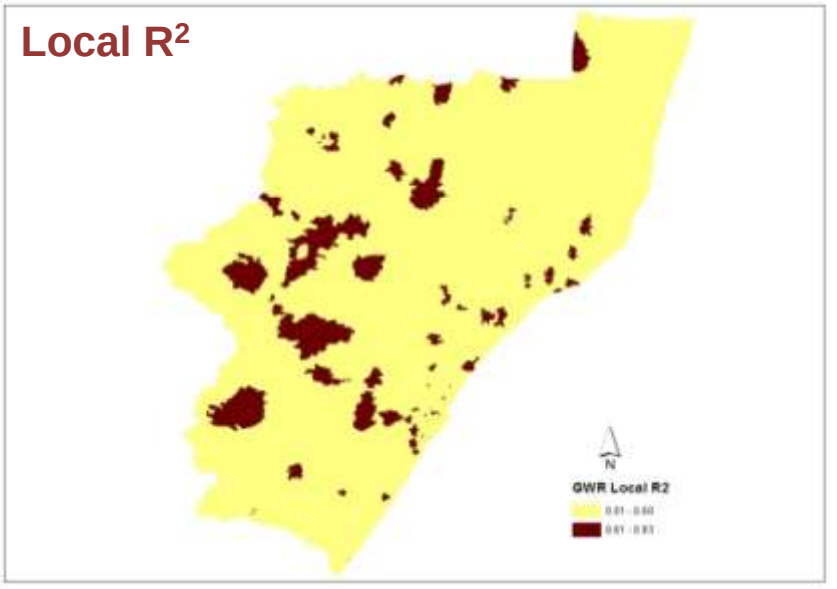


GWR Predictions

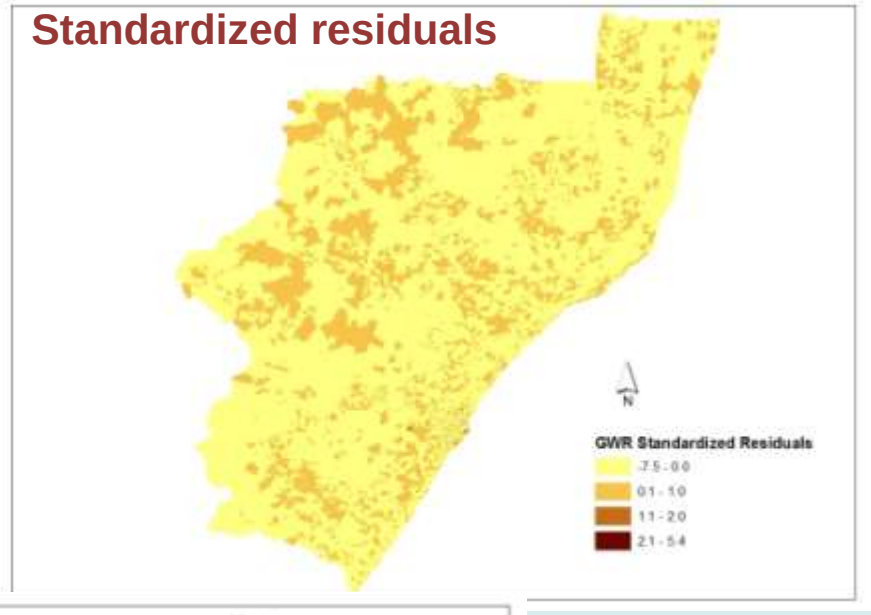


GWR detail analysis

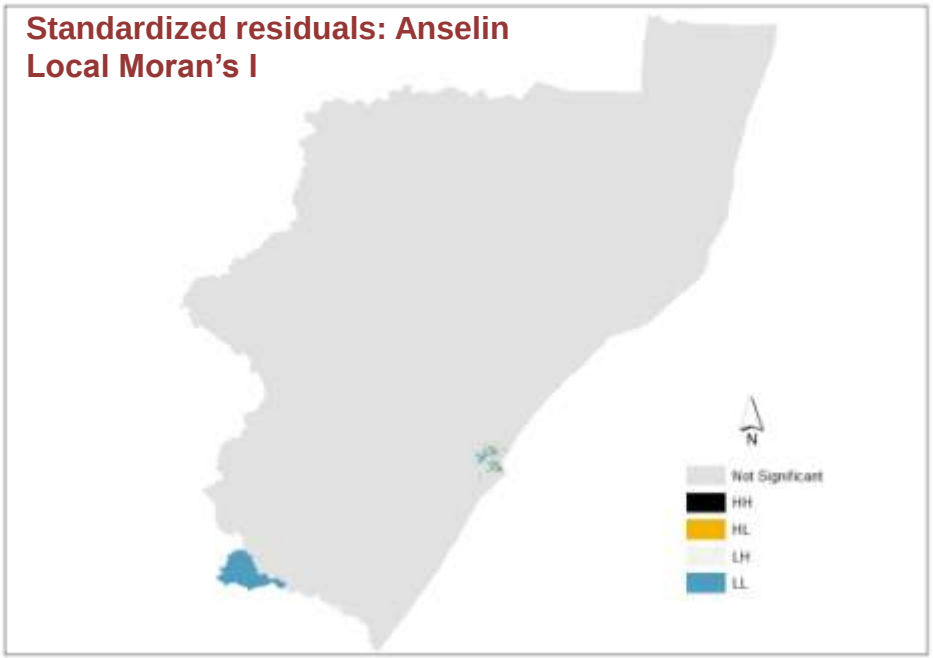
Local R^2



Standardized residuals



Standardized residuals: Anselin Local Moran's I



Statistics South Africa

Concluding remarks . . .

- **We want seamless integration.**
- **Every statistic must have a geography. Never collect statistics without its geography, always carry its geography.**
- **Geography must be collected at the point where the event has occurred (unit level).**
- **Consider National Geo-statistical System, instead of National Statistical System.**
- **Focus on USABILITY through geo-statistical analysis for the evidence-based.**

Thank U

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