UNIVERSITY OF TWENTE.

GEOSPATIAL TECHNOLOGY, RESILIENCE

WHOSE KNOWLEDGE? WHOSE VALUES?

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Key Messages

- Resilience…and other values
- Wicked policy problems in the global South
  - Dissensus on values
  - Knowledge uncertainty

- Geospatial technology → problem recognizer
- Citizen science → reduces knowledge uncertainty.

- Extracting citizens' personal data may seriously harm vulnerable communities
- Move towards ethical Data for Development (D4D)

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Resilience … and other values

Security
Efficiency
Equity
Privacy
Accountability
Sustainability
Transparency
Resilience

(click on line/label for focus)
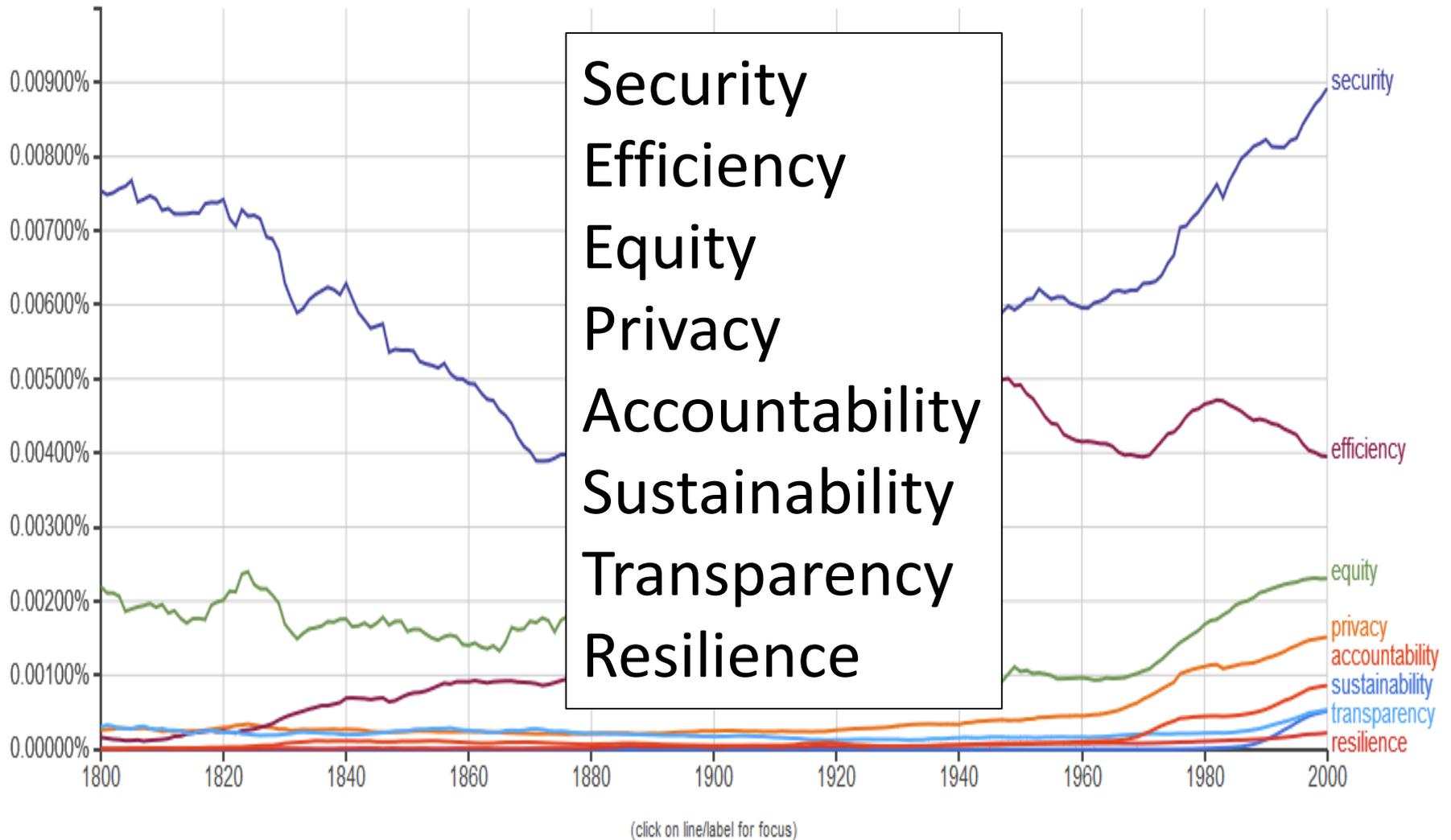
Policy Problems and Knowledge

Knowledge	Values	
	Consensus	Dissensus
- Certain		
- Uncertain		

Policy Problems and Knowledge

Knowledge	Values	
	Consensus	Dissensus
- Certain	Debate on technicalities	Debate on values
- Uncertain	Debate on knowledge	Endless debate

Policy Problems and Knowledge

Knowledge	Values	
	Consensus	Dissensus
- **Certain**	Debate on technicalities (e.g. roads)	Debate on values (e.g. welcoming refugees)
- **Uncertain**	Debate on knowledge (e.g. clean energy)	Endless debate (e.g. climate change)

Policy Problems and Knowledge

Knowledge	Values	
	Consensus	Dissensus
- Certain	**Tame problems**	**Complex problems**
- Uncertain	**Complex problems**	**Wicked problems**

Geospatial technology as …

Knowledge	Values	
	Consensus	Dissensus
- Certain	**Tame problems** (problem solver)	**Complex problems** (mediator)
- Uncertain	**Complex problems** (analyst → citizen science)	**Wicked problems** (problem recognizer)

Policy problems and Knowledge

Knowledge	Values	
	Consensus	Dissensus
- Certain	Tame problems	Complex problems
- Uncertain	Complex p	

Wicked problems

- **Land admin**
- **Disaster Risk**
- **Urban developm.**

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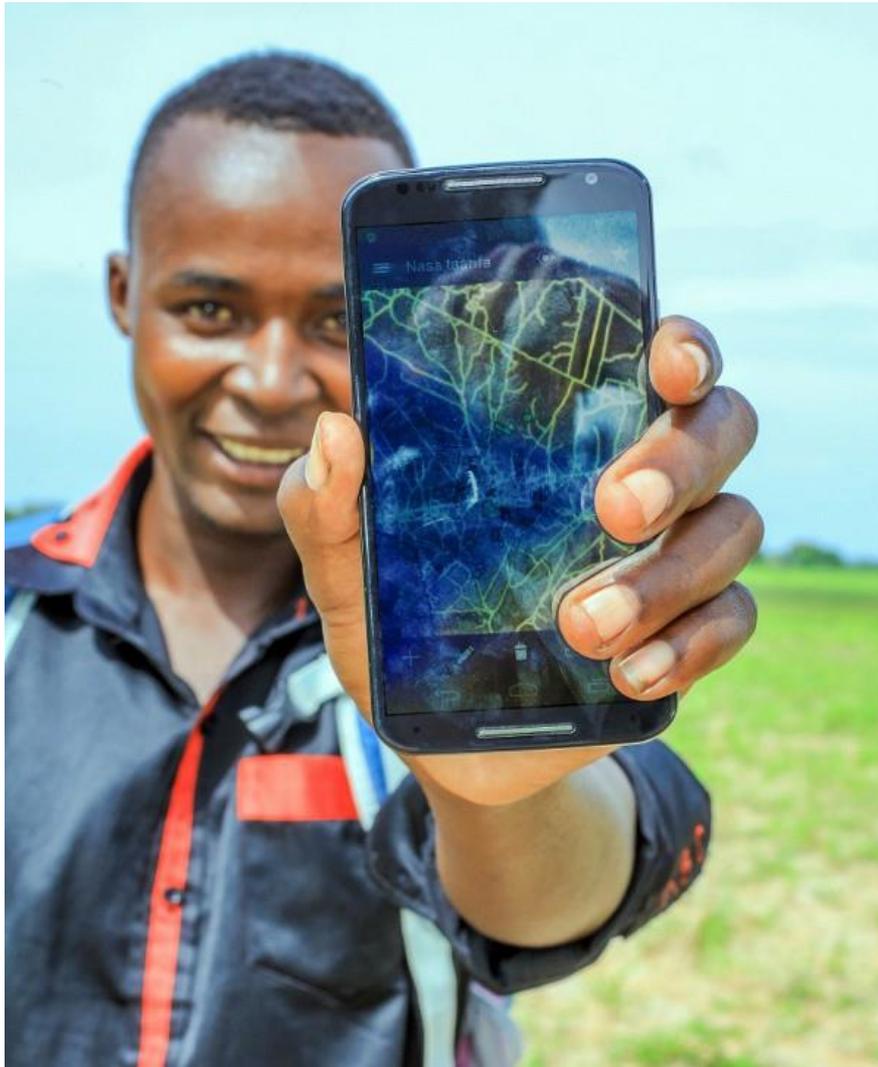
MAST Framework

The key component of MAST Framework is an Android-based **Mobile Data Capture Application** that captures land rights information

Data collected and stored on the users' handheld device

Data sent to the cloud

Context

2. Procedures and rules	**1.** Adjusting STDM to AF and CCRO
3. Outreach and training; Field adjudication and data processing	**4.** Dispute resolution; data verification and validation

	DISCRETION	
	Little	**A lot of**
TRANSACTIONS		
Few	**2.** Procedures and rules	**1.** Adjusting STDM to AF and CCRO
Many	**3.** Outreach and training; Field adjudication and data processing	**4.** Dispute resolution; data verification and validation

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ICT

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ICT

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General
Person Type
Number of signatory(s)
Witness 1
Witness 2

Property
Existing Use
Proposed Use
Right of Way/Other Use
Land Type
Neighbor North
Neighbor South
Neighbor East
Neighbor West

Person
First Name
Last Name
Middle Name
Gender
Mobile No.
Occupation
Education Level
Age
Marital Status
Owner
Administrator
Citizenship
Resident
Institution name
Address
Phone Number

Type of Tenure
Type of Tenure (single occupancy, multiple occupancy (joint), multiple occupancy (in common), tenancy in probate, and tenancy with (guardian or administrator)
Occupancy Type/Right (Certificate of Customary Rights of Occupancy, Derivative Right)
Resident

20 cm versus 3 cm pixels

Existing Orthophoto (2008, 20 cm pixels)

UAV Orthophoto (2015, 3 cm pixels)

Richard Sliuzas (2016)

Who controls access to the original images and derived products?

Richard Sliuzas (2016)
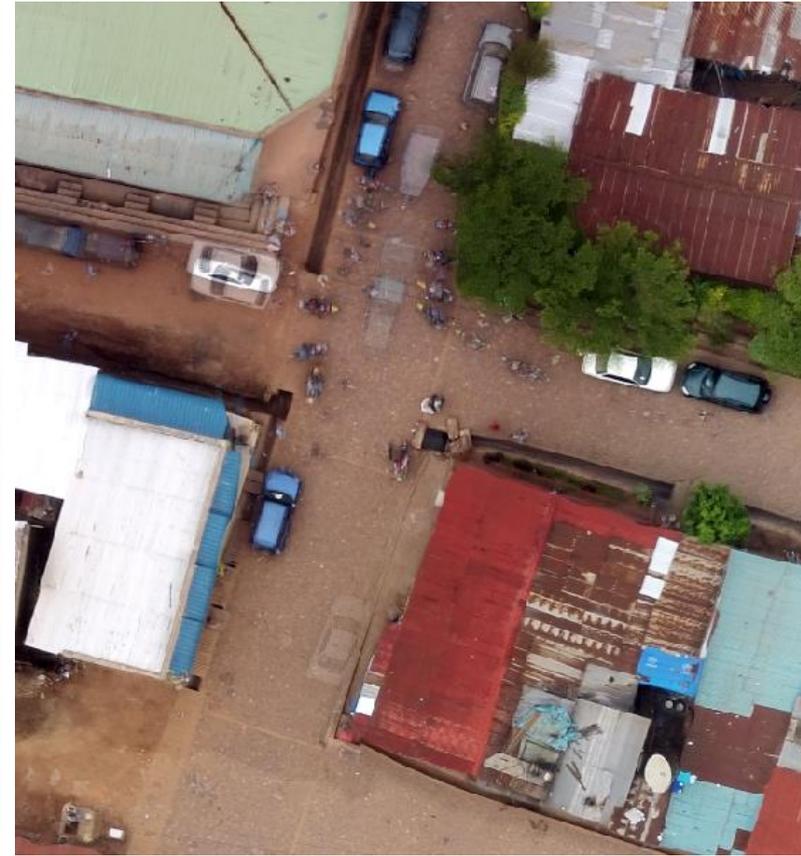
Street scene from original image before adjustment and mosaic

Richard Sliuzas (2016)

Very high resolution images can be very intrusive

Richard Sliuzas (2016)
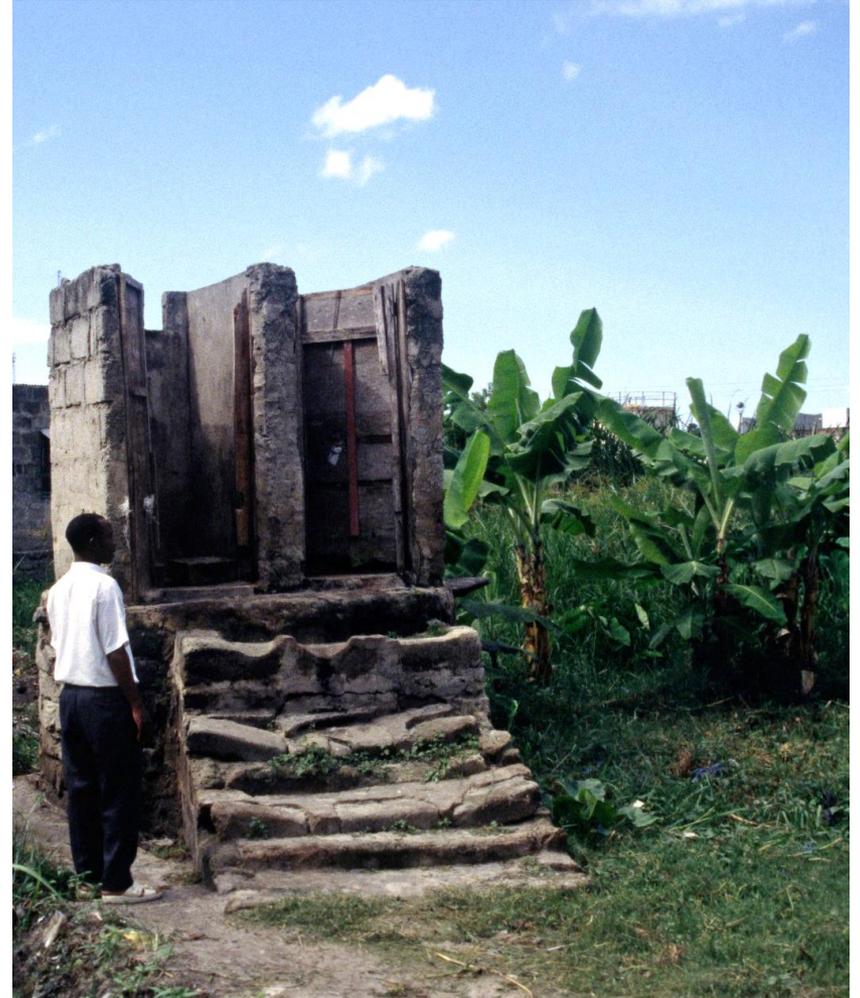
Personal data in the global South

Context: weak local and national bureaucracy where; data companies emphasizing greater data emission, personalisation and centralisation

Purpose binding: Who will guarantee the purpose of data processing?

Consent: Can citizens give their informed consent?

Personal data

Countries	Who classifies?	Who is classified?	Who defends privacy?
High income	Nation-state	Population and territory	Trias politica
(e.g. EU)	Data companies	People and location	EU DPD (1995) EU GDPR (2016)

Personal data

Countries	Who classifies?	Who is classified?	Who defends privacy?
High income **(e.g. EU)**	Nation-state Data companies	Population and territory People and location	Trias politica EU DPD (1995) EU GDPR (2016)
Low income **(e.g. Africa)**	Donors Nation state (?) Data companies	People and territory	**Who thinks about:** - Context? - Consent? - Purpose binding?