

UNIVERSITY OF TWENTE.

PROMISING TECH ADVANCES FOR TENURE SECURITY ?

PROF.DR. J.A. ZEVENBERGEN, MSC, LL.M
PROFESSOR IN LAND ADMINISTRATION AND MANAGEMENT
(SEVERAL PPTS FROM PROF.DR. YOLA GEORGIADOU)

HOW TECH INNOVATION CAN HELP SECURE LAND RIGHTS
ACROSS AFRICA (ROUNDTABLE AT CLPA 2017)



FACULTY OF GEO-INFORMATION SCIENCE AND EARTH OBSERVATION

Land Registration

- open system:

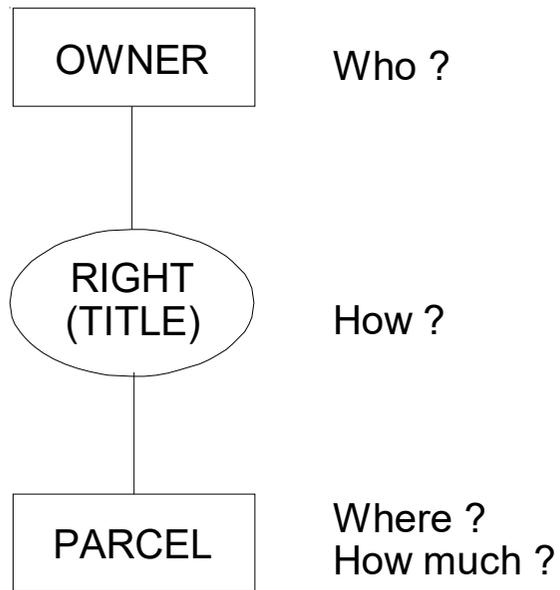


- definition: **process of recording** legally recognized interests (ownership and/or use) in land

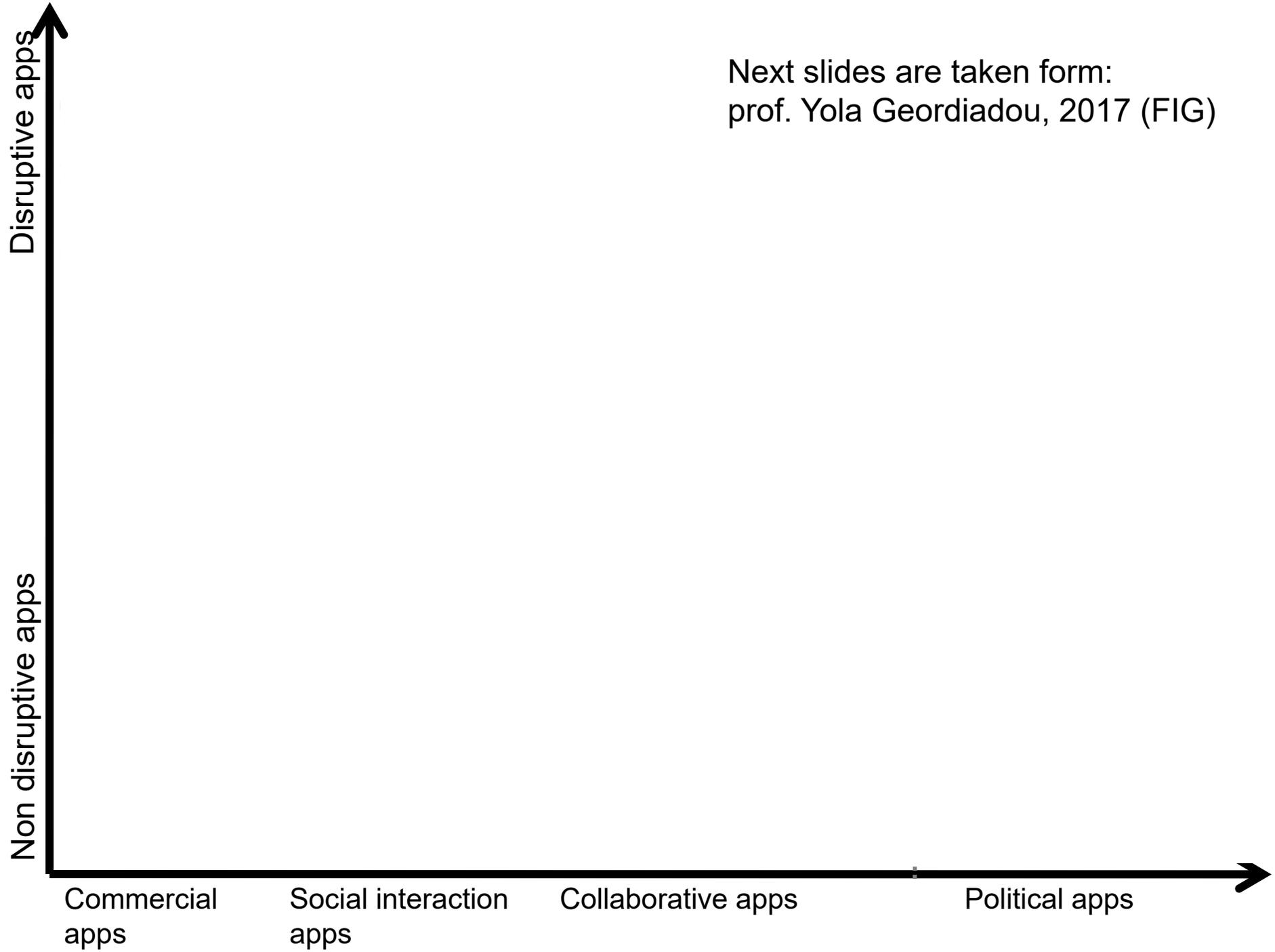
(McLaughlin/Nichols 1989)

Land Registration

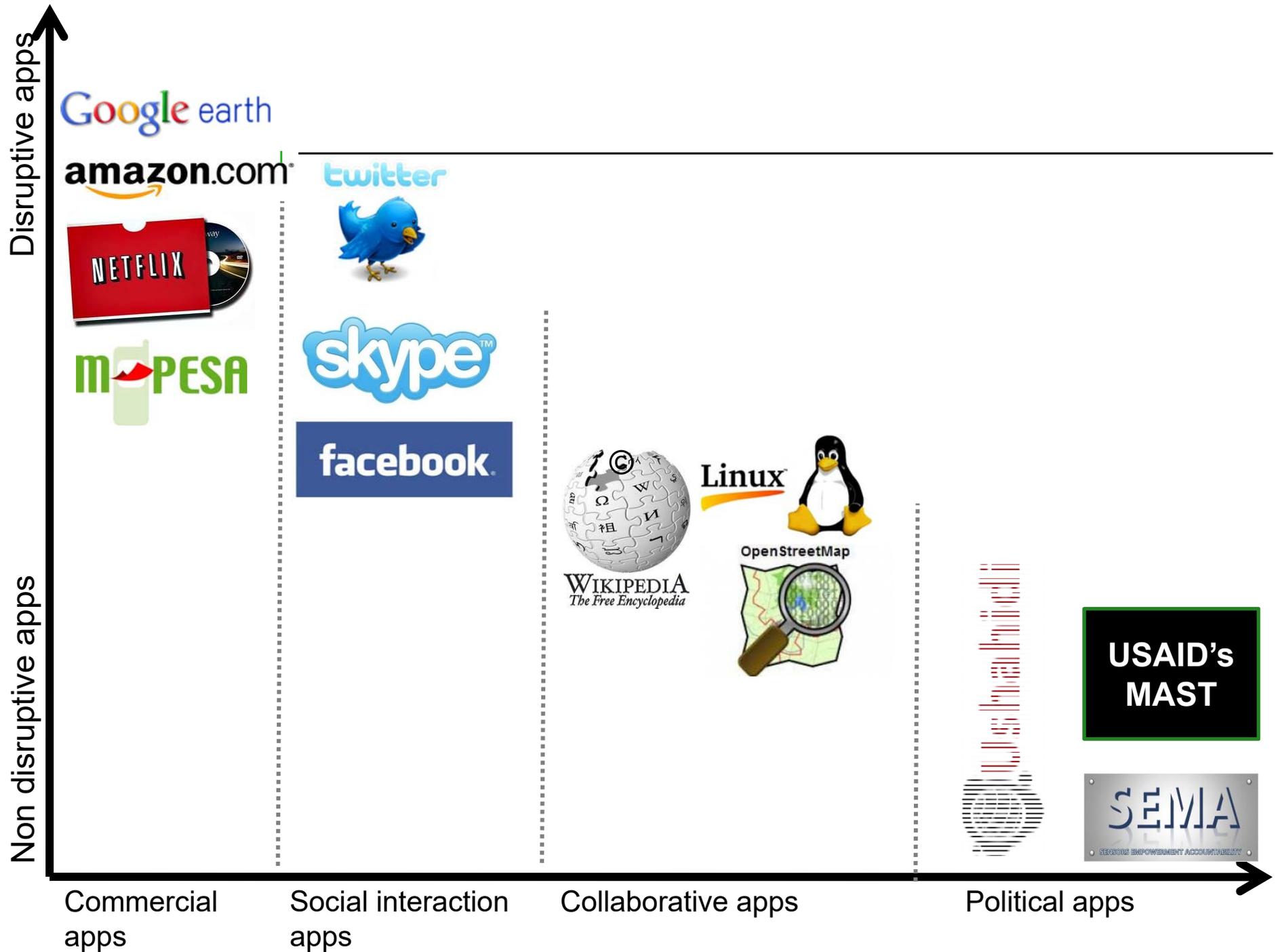
- The 'black box' needs to be unpacked

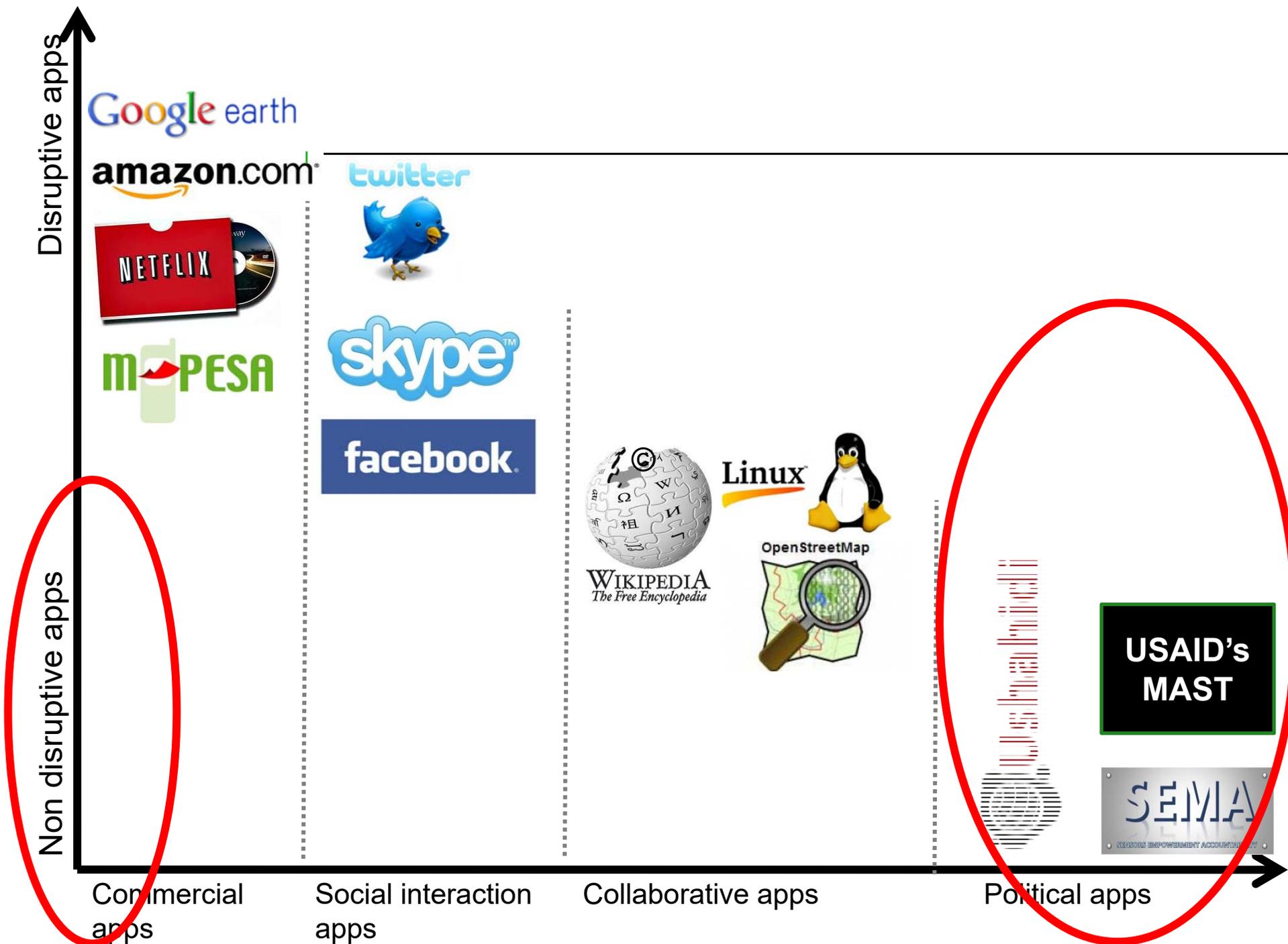


- We need to **determine** the who, the how and the where !
- ICT can help – but to which extend ?



Next slides are taken from:
prof. Yola Geordiadou, 2017 (FIG)





Durable

Political
Apps



Social
Media



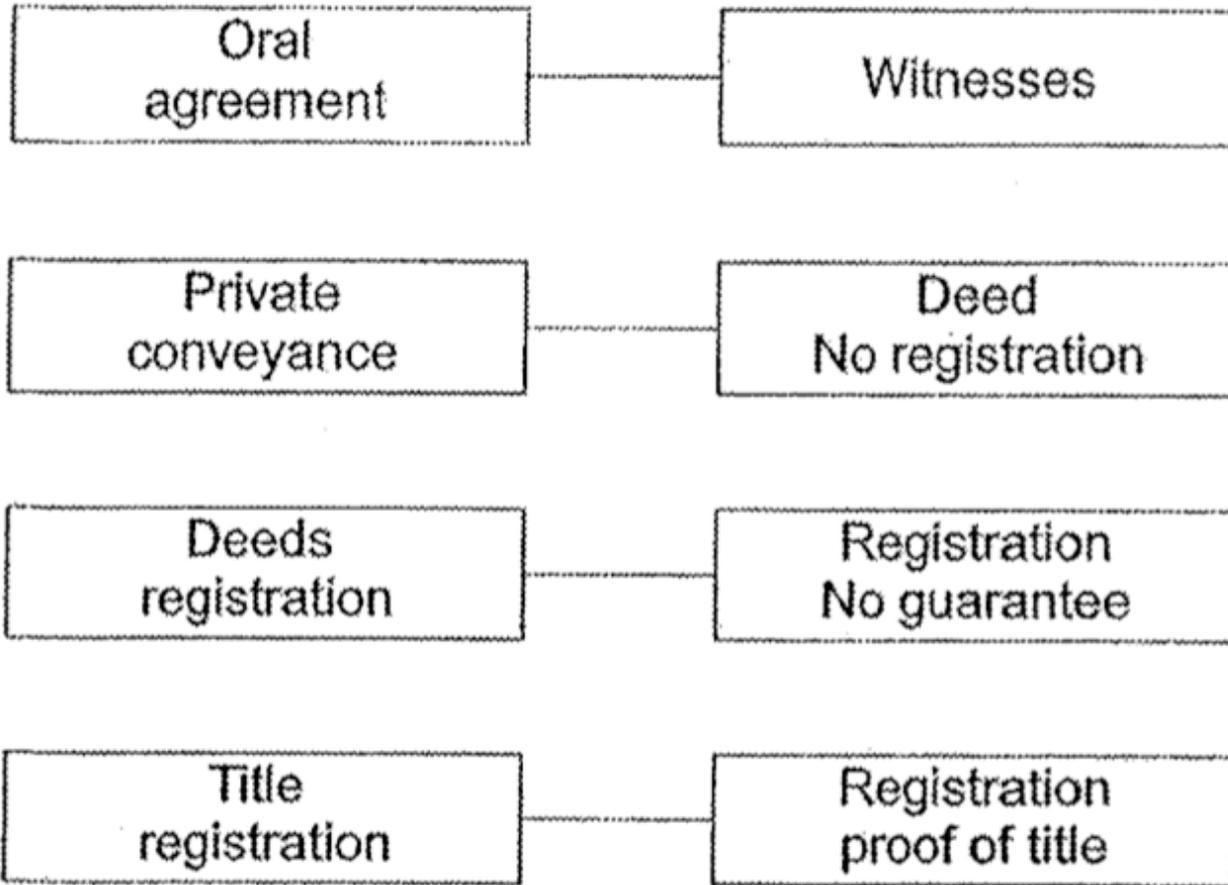
Disruptive



Land Registration development ?

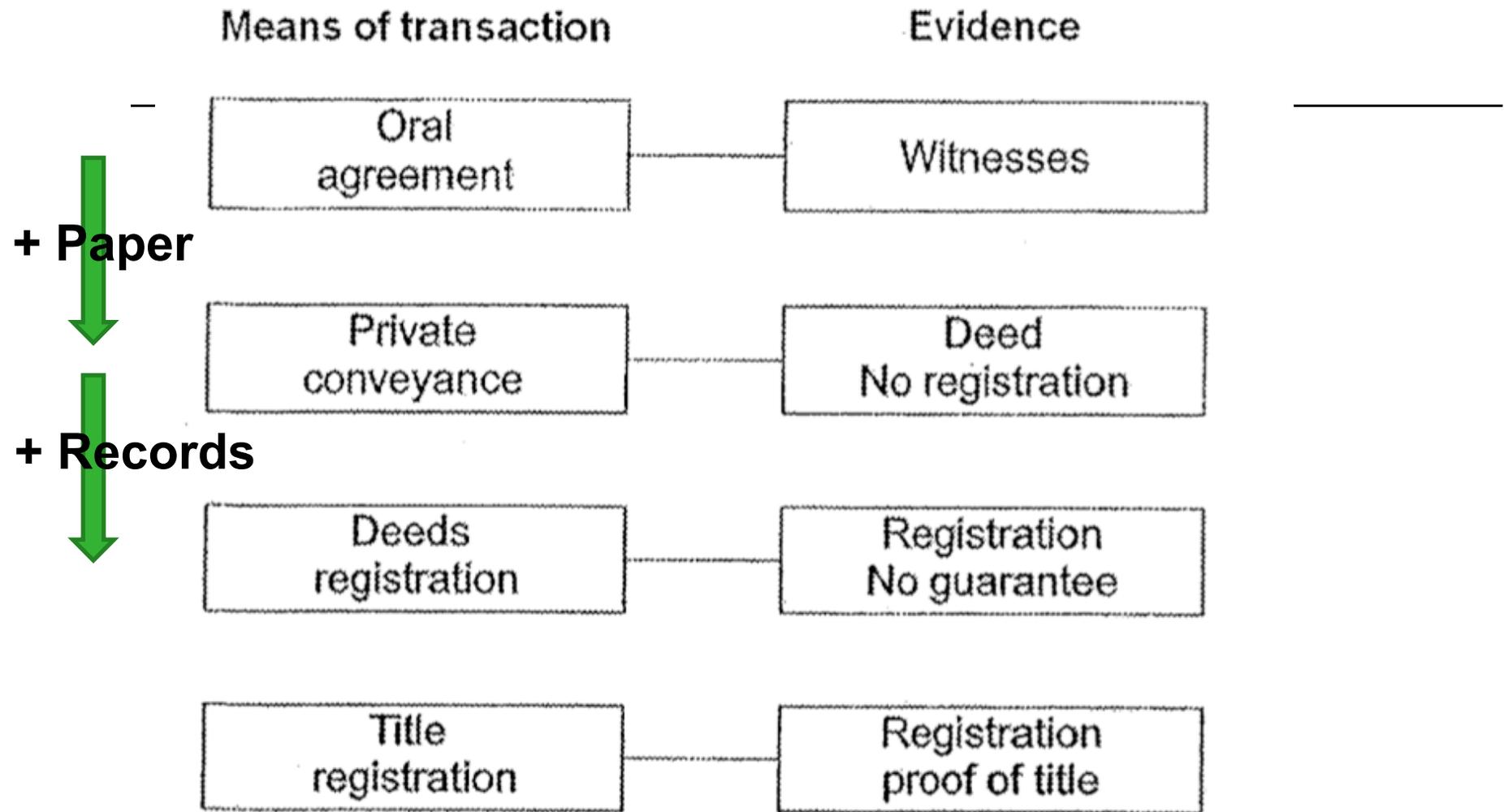
Means of transaction

Evidence



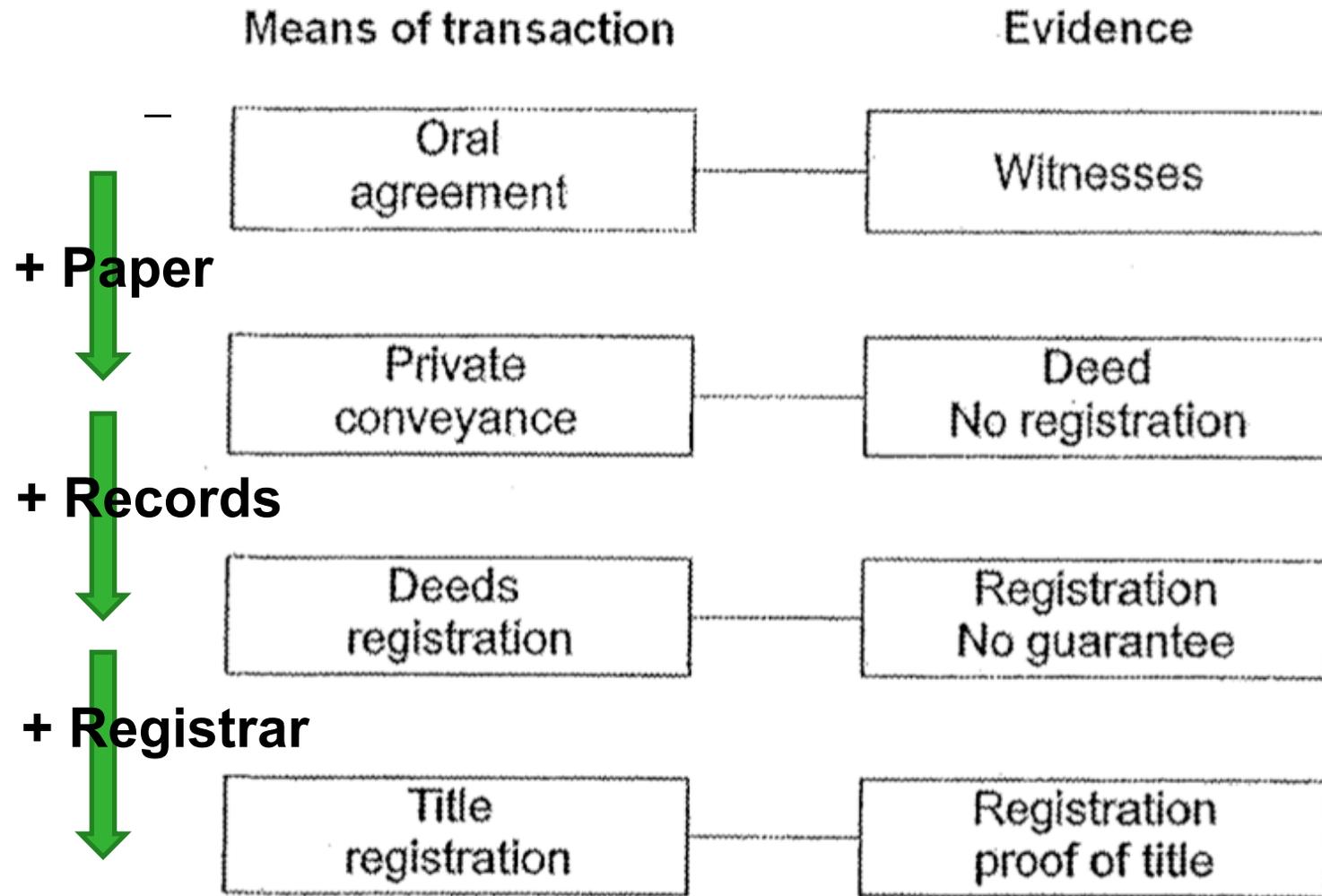
*Types of transaction evidence
(taken from Larsson 1991: 17)*

+ Middle 'man' adds security / trust

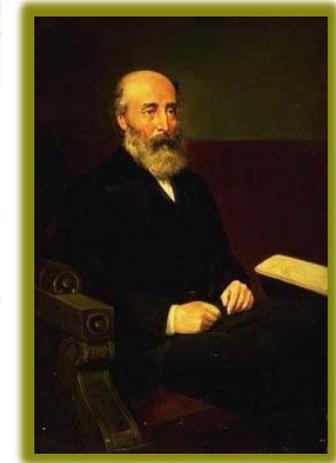


*Types of transaction evidence
(taken from Larsson 1991: 17)*

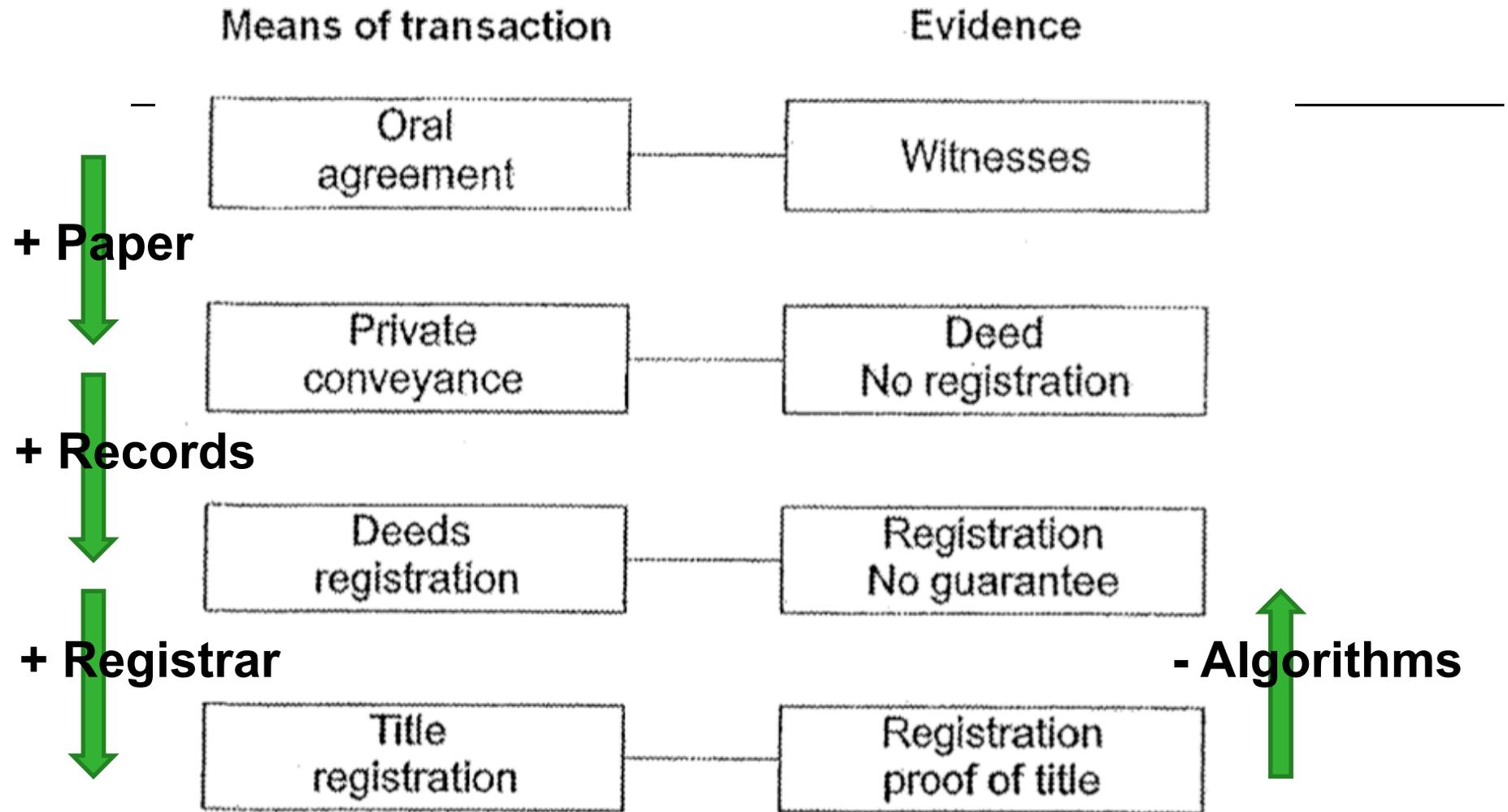
+ “final” step to ‘Title Registration’



*Types of transaction evidence
(taken from Larsson 1991: 17)*



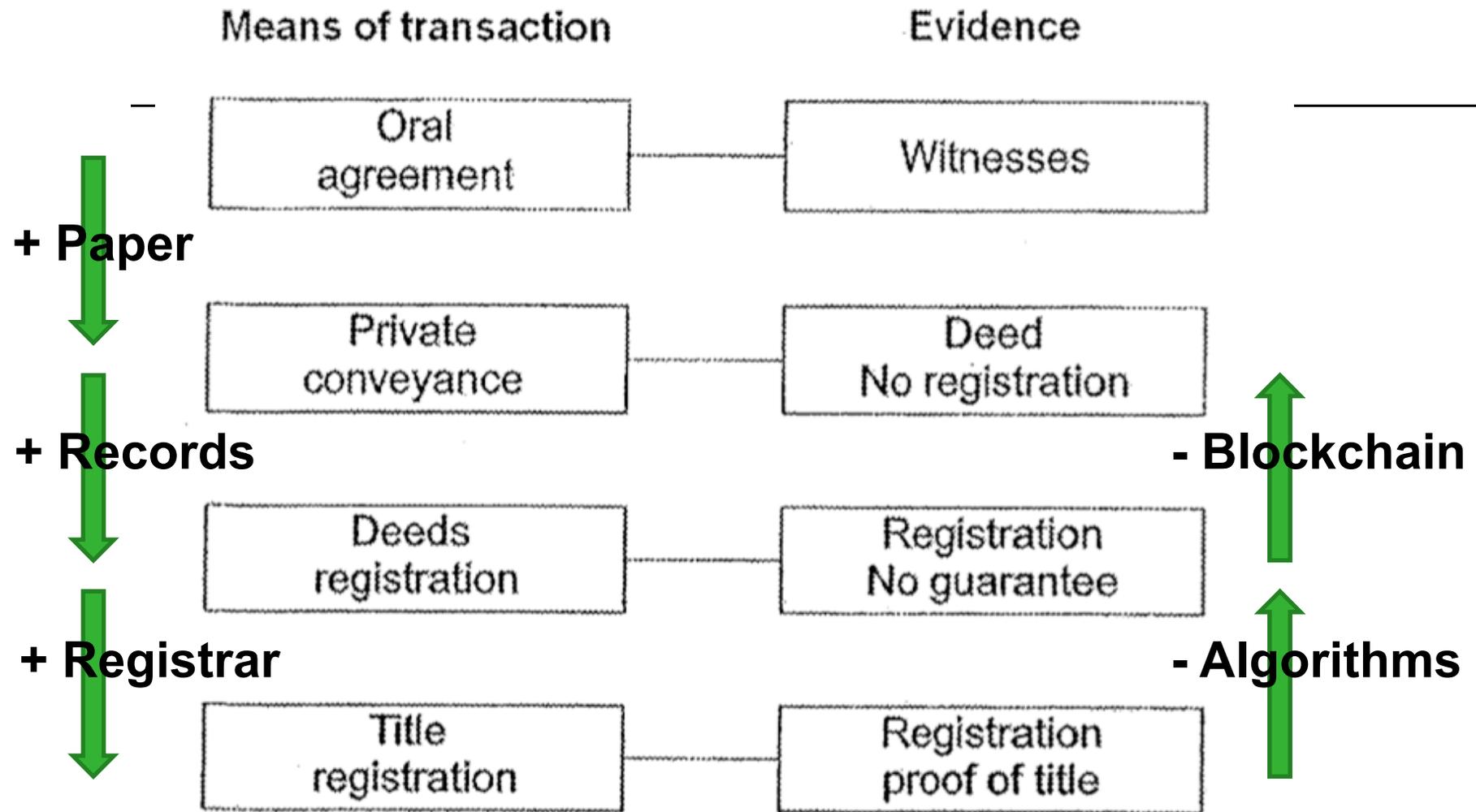
+ almost 90% of transactions in DK



*Types of transaction evidence
(taken from Larsson 1991: 17)*

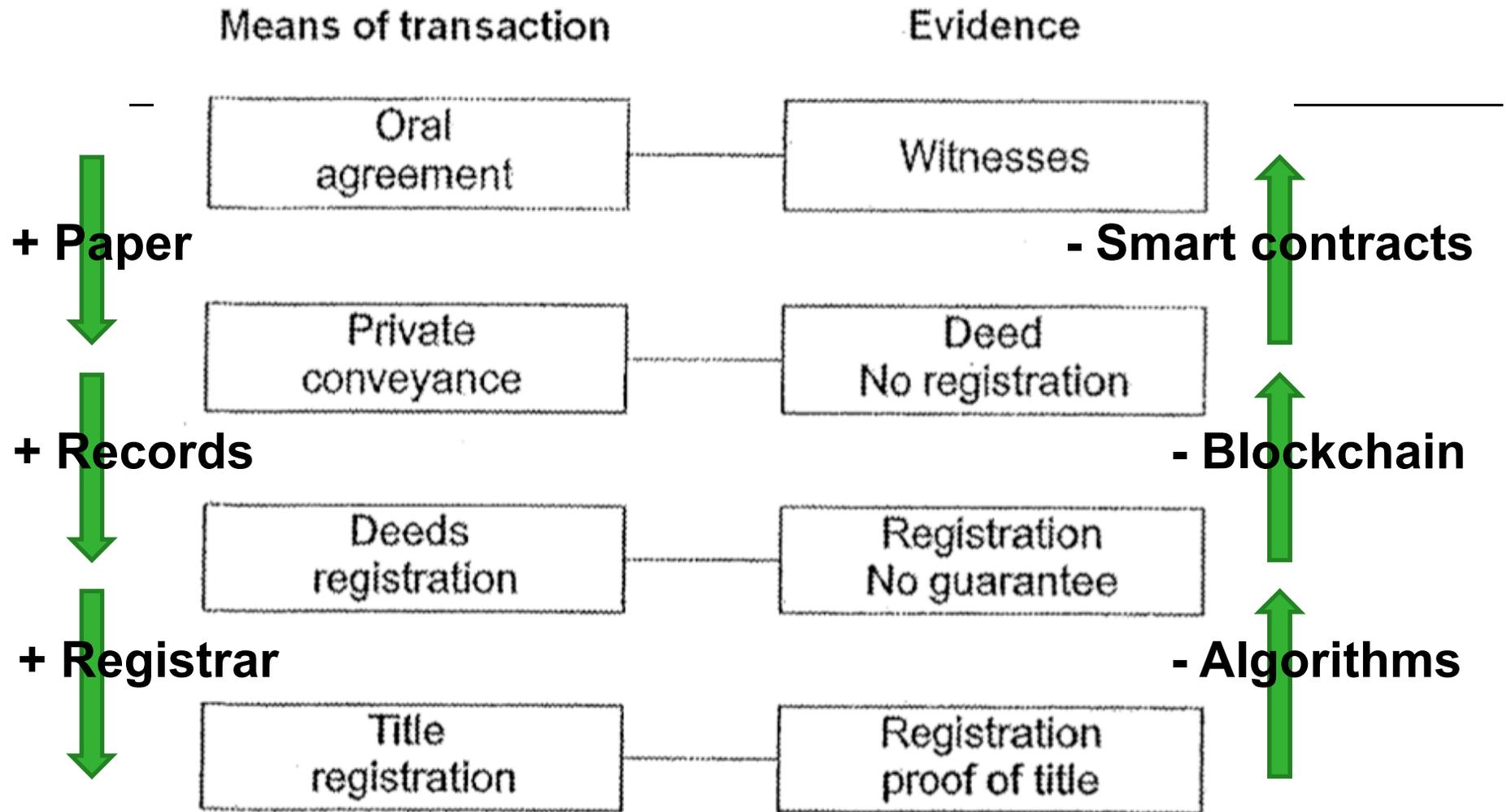


+ start ups working on this, LR trials in Georgia, Ukraine, ..



*Types of transaction evidence
(taken from Larsson 1991: 17)*

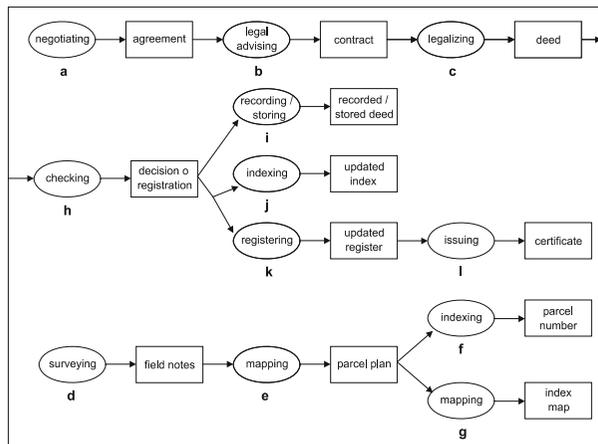
+ only parties need to be involved - no control ???



*Types of transaction evidence
(taken from Larsson 1991: 17)*

Land Registration

- Many (almost) generic steps



- Every country assigns the steps to different actors ('similar tasks, different roles', Zevenbergen, 2004 (e.g. FIG))
- Technology can **support** the actor in the step
 - But can technology **replace** the actor (or even the step) ?

'MAP MY RIGHTS'

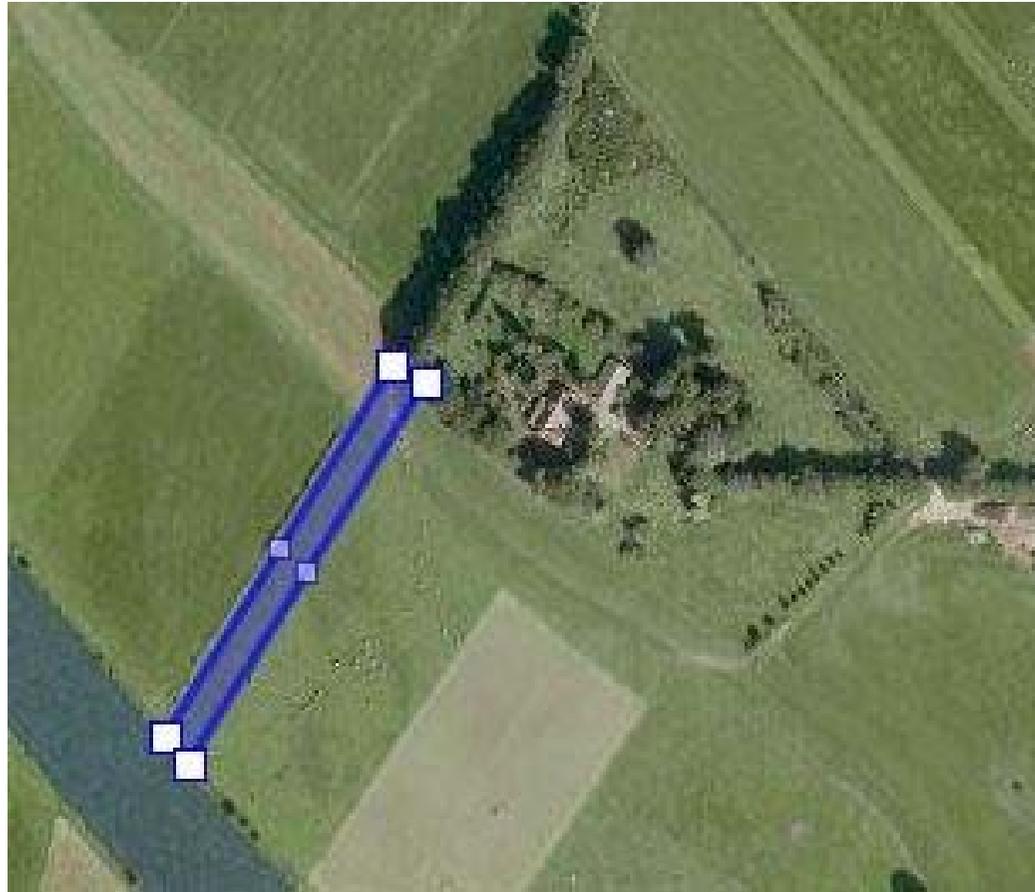
Crowd and cloud sourced via smartphone

- Mobile telephones widely spread every where and influencing many things like the position of middleman between farmer and market
- Wikimapia/Google mapmaker allow to put handheld device tracked 'polygon' on a website (on top of a 'base' map / image)
- OpenStreetMap was created in such a way with polygons representing esp. roads and houses





POLYGON ON LINE TO CAPTURE A ROAD





OPEN STREET MAP

- Volunteers map 'whole' world:
 - Volunteered/Voluntary Geographic Information VGI; crowdsourcing; web 2.0,
 - Volunteers not representative sample of population (crowdsourcing, only 8-11% contribute overall)
 - Both formal and informal, what they accept
 - E.g. slums are now included on these maps to a large extent, even if local government never put them 'on the map' (→ Kibera)



OpenStreetMap

Bewerken



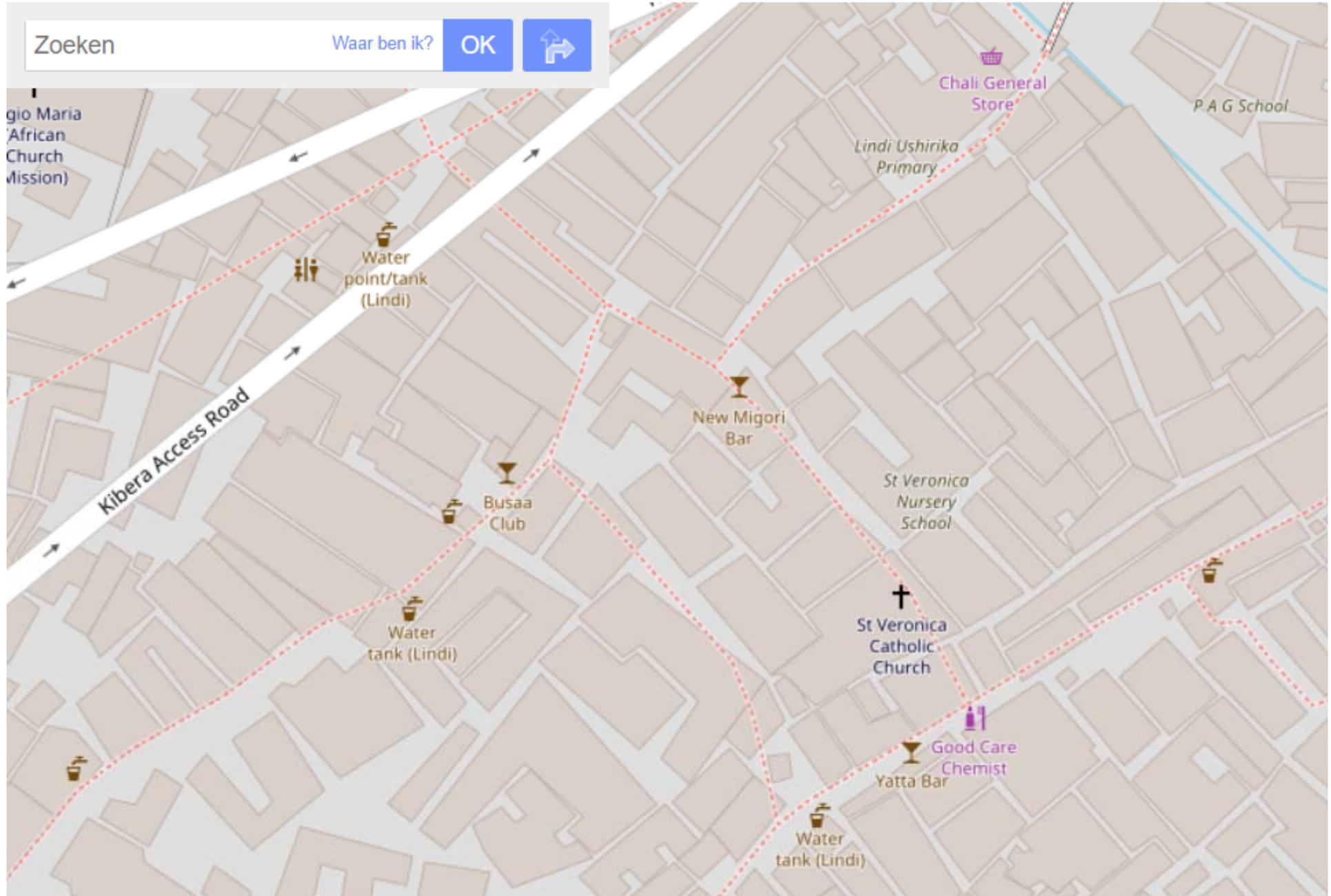
Geschiedenis

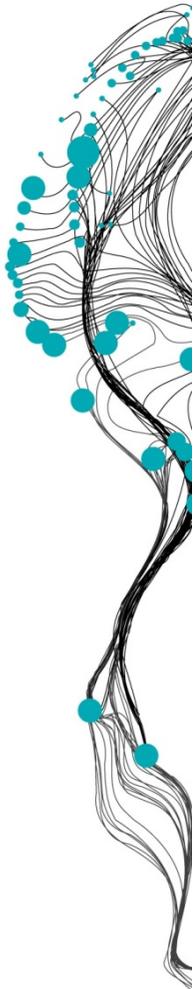
Exporteren

Zoeken

Waar ben ik?

OK





POLYGON ON LINE

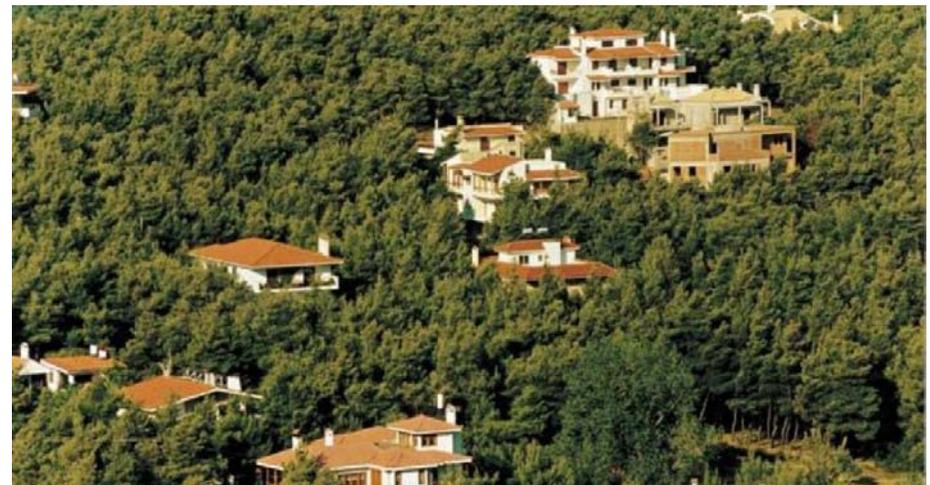
- Polygons can also represent 'boundaries' of a field





'MAP MY RIGHTS'

- Open street map → 'open cadastre map' ?
 - upload your claims on an international webbased platform
 - more transparent for Corporate Responsible Business investors in large land deals
- Any claim or NGO's do this after participatory projects ?
- With or without embedding in 'official system' ?
- Ethical issues ?
Conflicting values ..

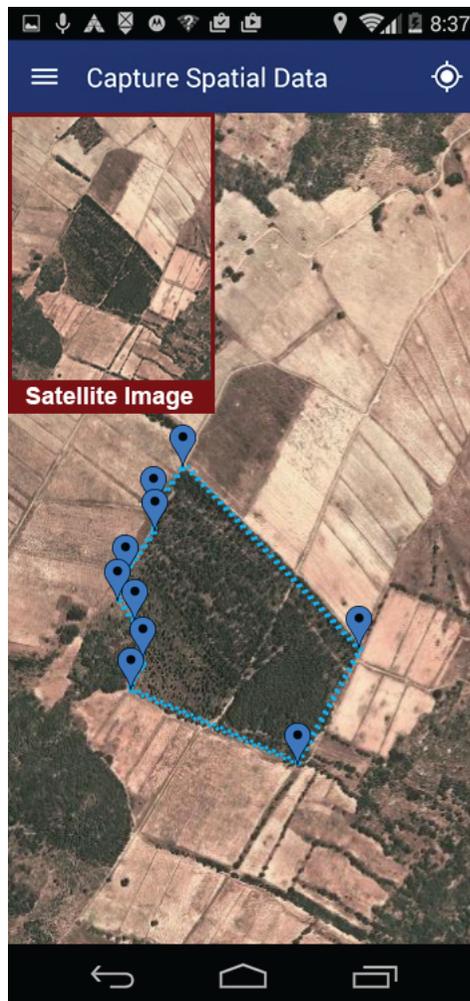
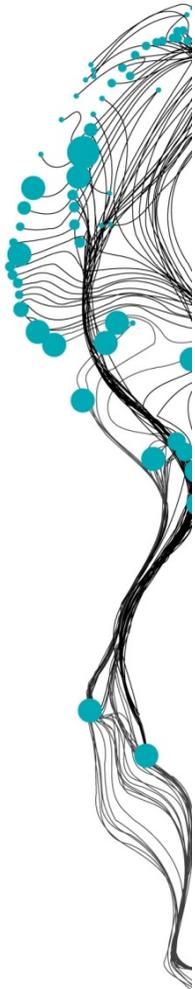


'MAP MY RIGHTS'



- Fast developing; **research** on needs, design, evaluate, critique ..

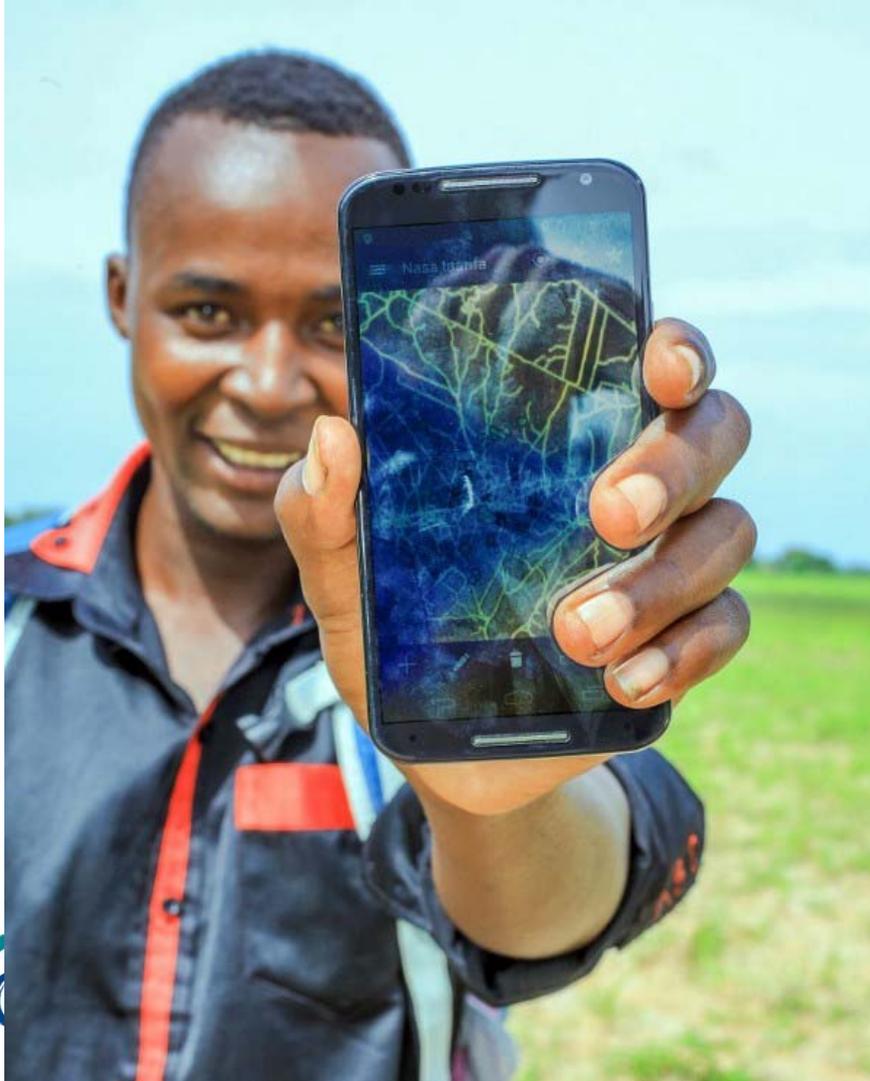
MOBILE APPLICATION TO SECURE TENURE (MAST)



- Mobile Data Capture Application
- Developed as a USAid project in Tanzania (Cloudburst implemented)
- To capture (legal, but customary) land rights
- Data collection 1 of 5 components







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**

4. Dispute resolution; data verification and validation



TRANSACTIONS	DISCRETION	
	Little	A lot of
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

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

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

ICT



Durable

**Political
Apps**



Context: Digital incrementalism
Simplification of rules

Purpose: Data controller liable

Consent: Algorithmic transparency

**Social
media**



Disruptive





MORE TECHNOLOGIES ..

- Increasingly cheaper and better GPS solutions
- Increasingly higher resolution satellite imagery (VHRSI)
- UAVs, drones as platforms for sensors
- (semi) automatic feature extraction
- (other) artificial intelligence, deep learning
- ..





WHAT SHOULD GOVERNMENTS DO ?

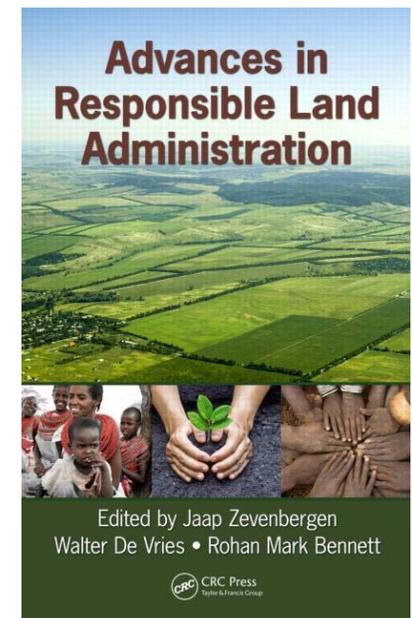
- Don't remain or get stuck in a certain solution
 - overcome **vested interests** (e.g. fragmented departments, land professionals, 'solution' companies)
 - (re)write laws and regulations to focus on the outcomes (**what**), allow flexibility in the **how** (e.g. only in instructions)
 - educate higher tier of (land) experts beyond the current 'system', equip them to be **change agents**
 - keep thinking about the **citizens** who are the end-user of 'tenure security'
 - design (and keep designing) to meet their needs
 - cooperate and share between departments
 - use private sector, NGOs, citizens .. to contribute

'Smart land management'

- Smart land management refers to the various kinds of land governance, land policy, and administration processes
- “that use social **technologies**, volunteered geographic information, and crowd sourcing in combination with technical drivers of intelligent information systems and big, linked, and open data”
- **to drive solutions for land-related challenges**
- (Zevenbergen, de Vries and Bennett, 2016: p.274).



UNIVERSITY OF TWENTE.



Thank you



UNIVERSITY OF TWENTE.