



# Organisational and digital transformation of land administration ecosystems - how do changing legislation and technology affect the LA ecosystems?

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## Theory of Land Administration Ecosystems – land administration systems

Land administration systems (LAS) are:

1. (inter-)organizational systems
2. guided by the institutional procedures and regulations (and institutionalized practices)
3. ensuring that the land information is kept up-to-date and accessible.

The organizational system refers to:

1. A set of professionally educated actors (including surveyors, notaries, lawyers, conveyancers), and
2. organizations (including 'cadastres', 'land registries', municipalities, courts, land offices, land ministries)
3. responsible and accountable for land administration activities, workflows
4. for maintaining land information systems.

## Theory of Land Administration Ecosystems – land administration ecosystem

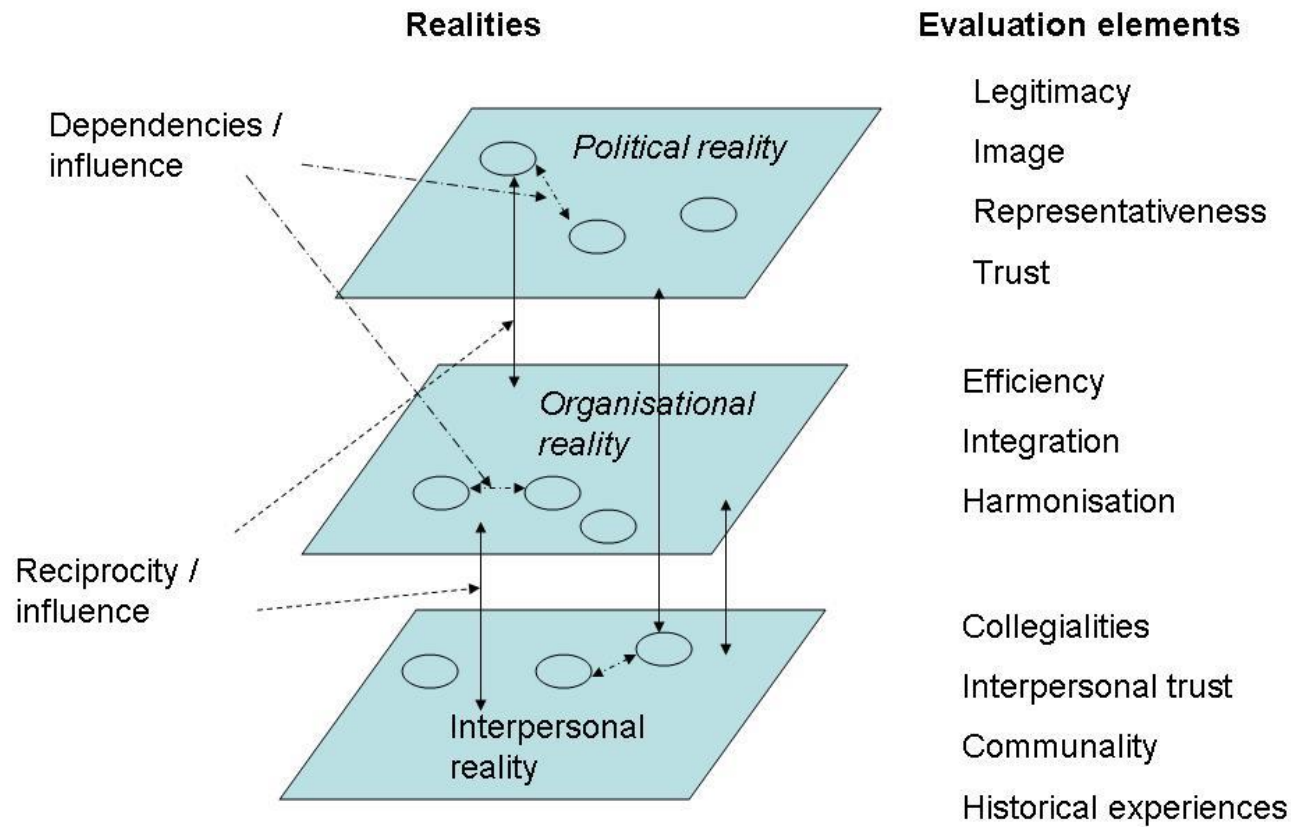
Land administration **ecosystems** refer to:

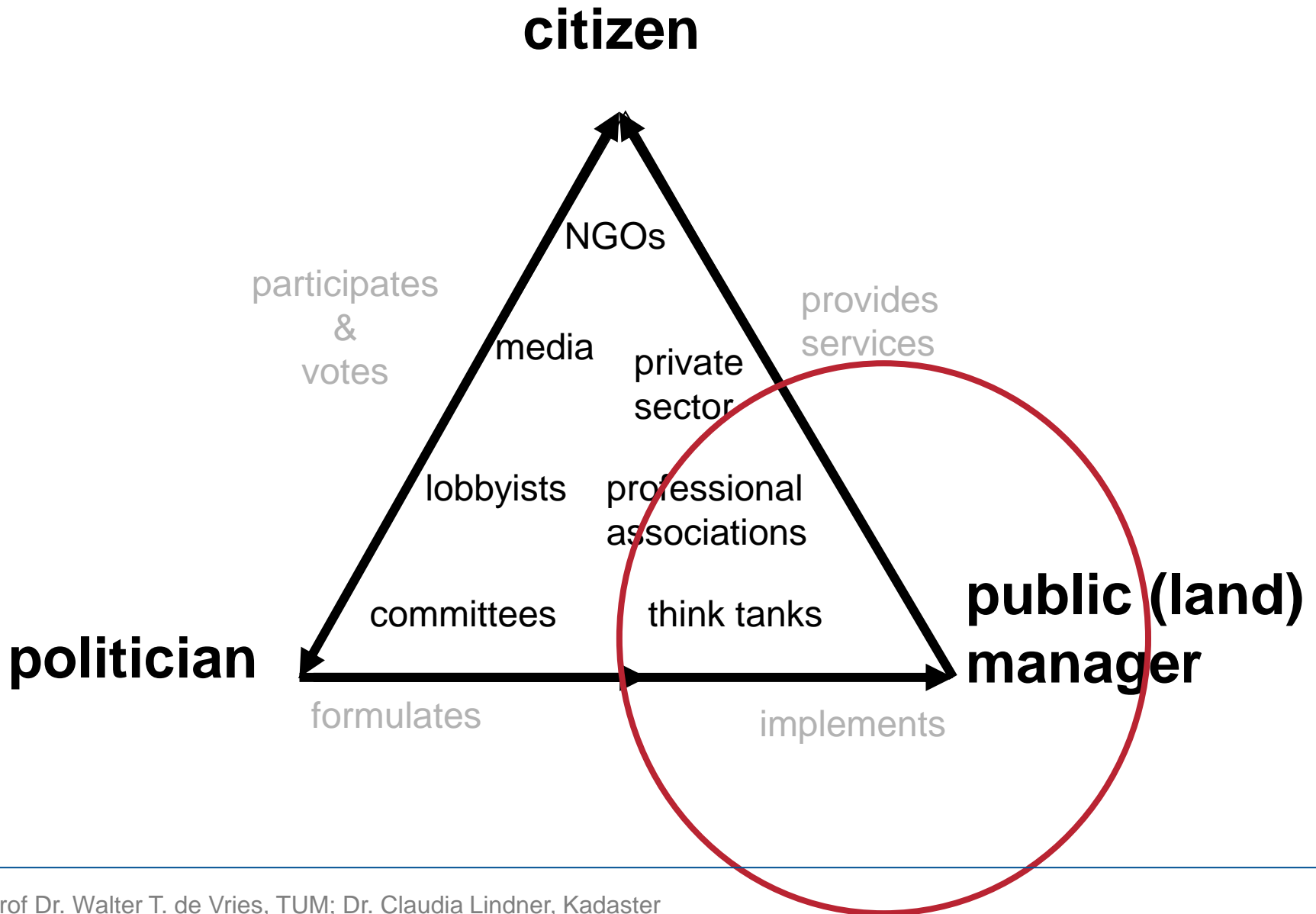
1. **Institutional and socio-political context** in which LASs operate
2. the public administrative as well as institutional procedures and regulations (and institutionalized practices) of which LASs are part
3. The influence of the changing societal, political, economic, legal/regulatory and technological factors which affect LASs.

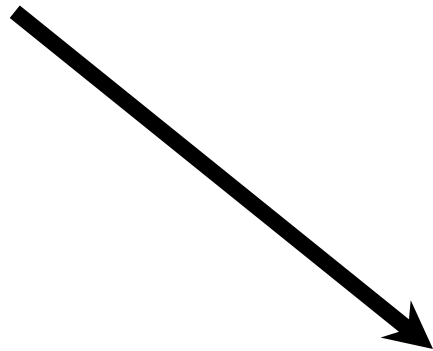
The ecosystem itself is affected by the agency of:

1. Multiple external actors and forces
2. Multiple political frames, perspectives and realities
3. Multiple logics and rationalities
4. Multiple factors

# Theory of land administration ecosystems – multiple realities and rationalities







**External  
development**

**citizen**

**Effect on LA?**

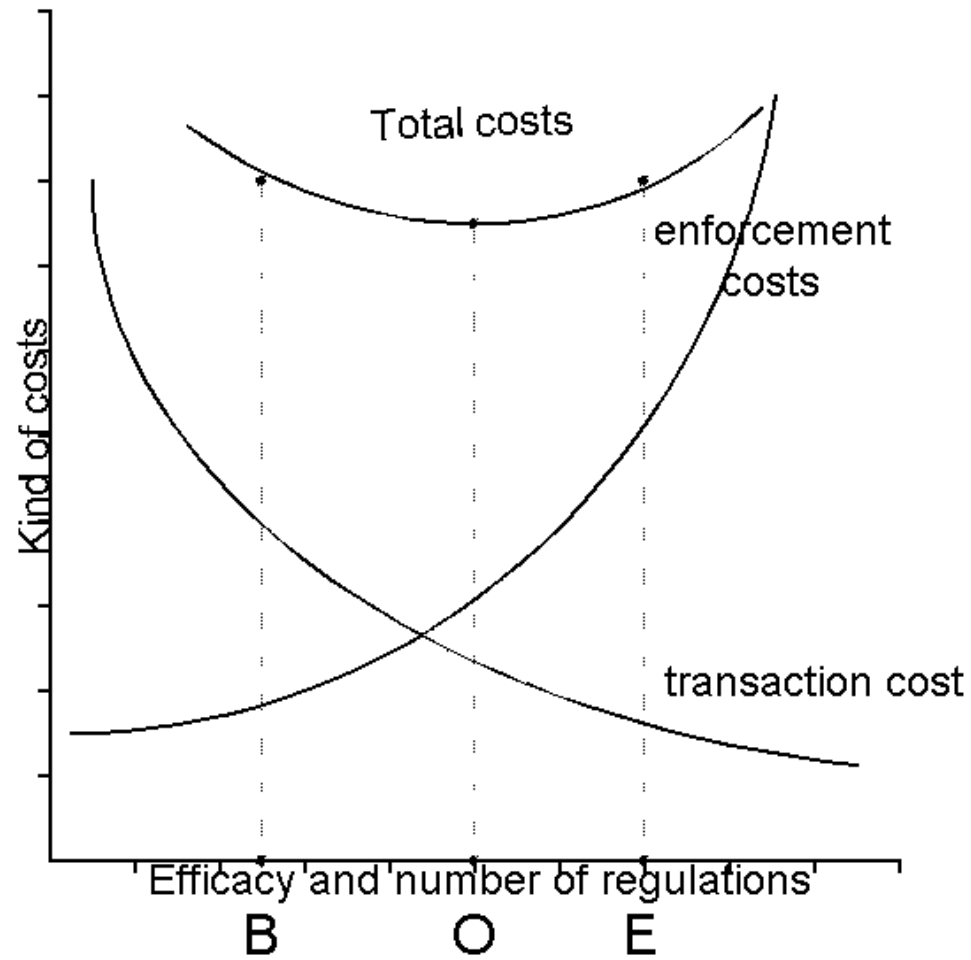


**politician**

**public (land)  
manager**

## Studying Land Administration Ecosystems – examples of theories - 1

Theory	Units of analysis	Key tenets
Transaction cost theory	Transaction cost; Enforcement costs;	<ul style="list-style-type: none"> <li>• Uncertainty in legality and regulatory power leads to societal higher transaction costs</li> <li>• Standards and unitary rules lead to higher societal enforcement costs</li> <li>• Socio-political effectiveness relies on finding the right balance of legitimacy and trust</li> </ul>
Resource dependency theory	Resource dependencies; Principle-agent relationships	<ul style="list-style-type: none"> <li>• Holding resources (incl. information) creates power</li> <li>• Actors aim at optimizing power and minimizing dependencies</li> <li>• Socio-political effectiveness relies on finding common/public interests and mutual benefits</li> </ul>

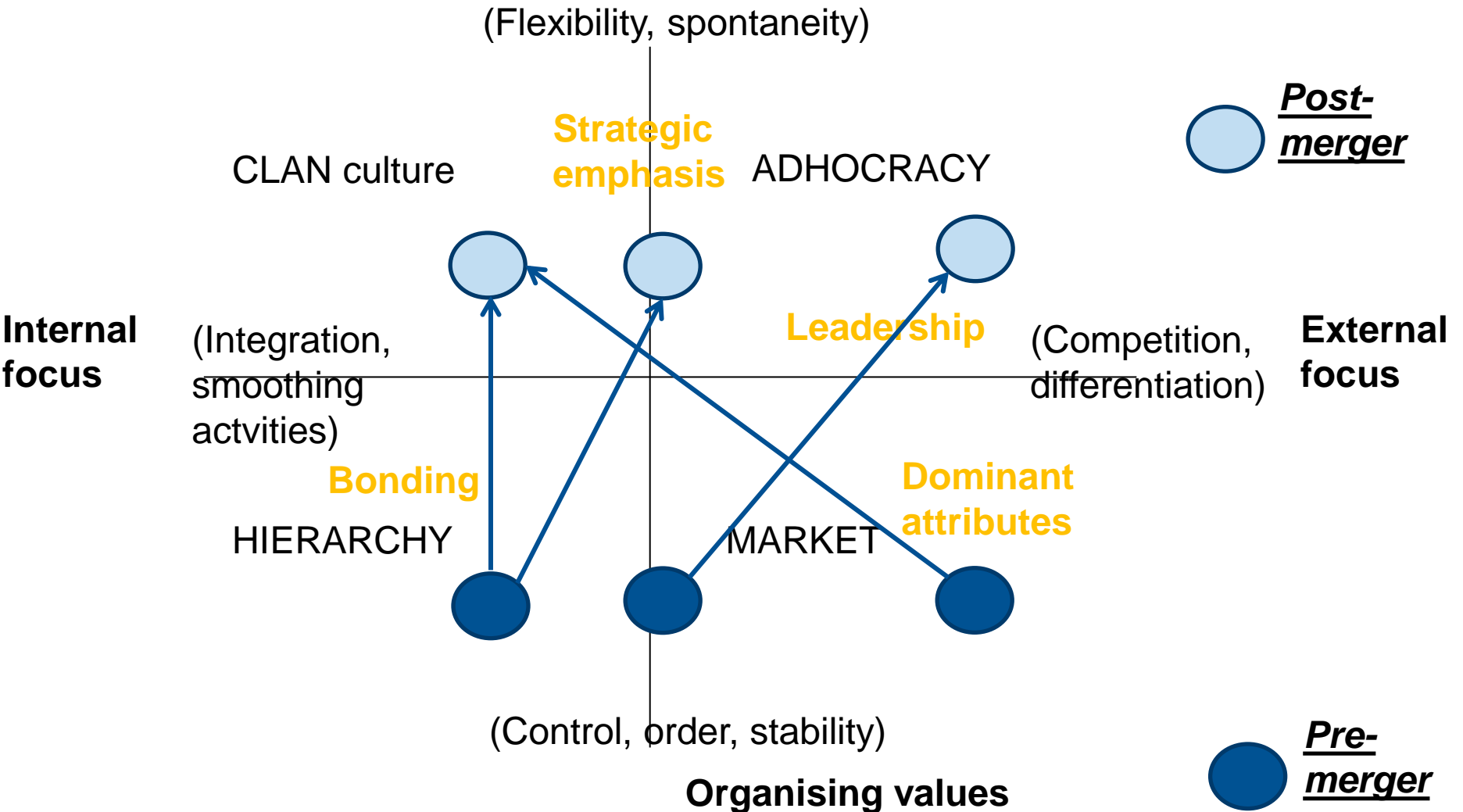




## Studying Land Administration Ecosystems – examples of theories - 2

<b>Theory</b>	<b>Units of analysis</b>	<b>Key tenets</b>
Cultural value theory	Beliefs and perceptions	<ul style="list-style-type: none"> <li>• Cultural values decide what is good or rights</li> <li>• Professional epistemologies influence organisational choices and preferences</li> </ul>
Technology adoption theory	Performance and effort expectancy Social pressure	<ul style="list-style-type: none"> <li>• Individuals believes that technology will ease their work determines overall acceptance</li> <li>• Social pressure will influence overall acceptance</li> </ul>

# Shift in values – pre versus post merger



## Theoretical expectations of how new legislation and new technologies will influence Land Administration Ecosystems

Theory	Theoretical expectations
Transaction cost theory	<ul style="list-style-type: none"> <li>• Unified legalisation will reduce societal transaction cost, yet may create more complexity in upholding execution of the law</li> <li>• Technology can only reduce transaction costs if it leads to more legitimacy of public administration</li> </ul>
Resource dependency theory	<ul style="list-style-type: none"> <li>• New legislation creates new dependency relations, which may be opposed / obstructed by those who held previous powers</li> <li>• Technological advances create new inter-organizational dependency relations (possibly more power of technology providers)</li> </ul>
Cultural value theory	<ul style="list-style-type: none"> <li>• Integration of laws will create competing values internally; new attitudes and values will have to emerge</li> <li>• Technology is not value-neutral; blockchain, AI, etc. carry the contingent societal norms of their creators;</li> </ul>
Technology adoption theory	<ul style="list-style-type: none"> <li>• New rules are necessary to capture new ethical concerns</li> <li>• Societal adoption of new technologies will influence how which LA's choices of technology will be accepted</li> </ul>

## An example from The Netherlands: The Environment and Planning Act

Nederland kent talloze wetten en regels op het gebied van de leefomgeving. Een ingewikkeld geheel waarin bijna niemand meer de weg kan vinden. Daarom komt de Omgevingswet: één wet die alle wetten op het gebied van de leefomgeving vereenvoudigt en bundelt.



## An example from The Netherlands: The Environment and Planning Act

What is the goal of the new Environment and Planning Act?

1. Fewer regulations and more cohesion
2. One-stop-shop for citizens and companies
3. Accelerated and improved decision-making
4. Paradigm shift towards an enabling system



One regulation  
One digital portal

## An example from The Netherlands: The Environment and Planning Act

How is it implemented?

- Omgevingsloket (Environment and planning portal)
- Unified single point of access
- Integration of processes
- Permission and authorization handling
- Merging of over 50,000 zoning plans into unified Environmental Plans until 2032



One regulation  
One digital portal

# Digital system for the implementation of the Environment and Planning Act: The Omgevingsloket

**Omgevingsloket** Regels op de kaart Menu

[Opnieuw zoeken](#)

**258525, 470442**

Deze coördinaten liggen in  
 Buitenzorgplein 10, 7512ZB Enschede  
 Perceel Enschede (ESD00) E 4123

[Verberg documenten op gekozen locatie](#)

Bekijk:  Regels  Andere documenten

Gemeente Provincie Waterschap Rijk

**Omgevingsplan gemeente Enschede** > ⓘ  
 Omgevingsplan - In werking vanaf 26-02-2024

**Aanpassing binnenplase afwijkingsbevoegdheden en wijzigingsbevoegdheden voor Omgevingswet** > ⓘ  
 Ontwerp Bestemmingsplan - ontwerp 28-12-2023 - in voorbereiding

**Reparatie bouwregels bijbehorende bouwwerken in bestemmingsplannen** > ⓘ  
 Ontwerp Bestemmingsplan - ontwerp 28-12-2023 - in voorbereiding

**Getfert-Perik-Hogeland-Noord 2023** > ⓘ  
 Bestemmingsplan - vastgesteld 18-07-2023 - geheel onherroepelijk in werking

**Onzelfstandige bewoning Enschede 2022** > ⓘ  
 Bestemmingsplan - vastgesteld 05-04-2023 - vastgesteld

Legenda **Kaartlagen** ✕

**Informatie**

BAG Panden ...

Kadastrale Kaart ...

Gemeentegrenzen ...

Waterschapsgrenzen ...

Provinciegrenzen ...

Landsgrenzen ...

**Achtergrond**

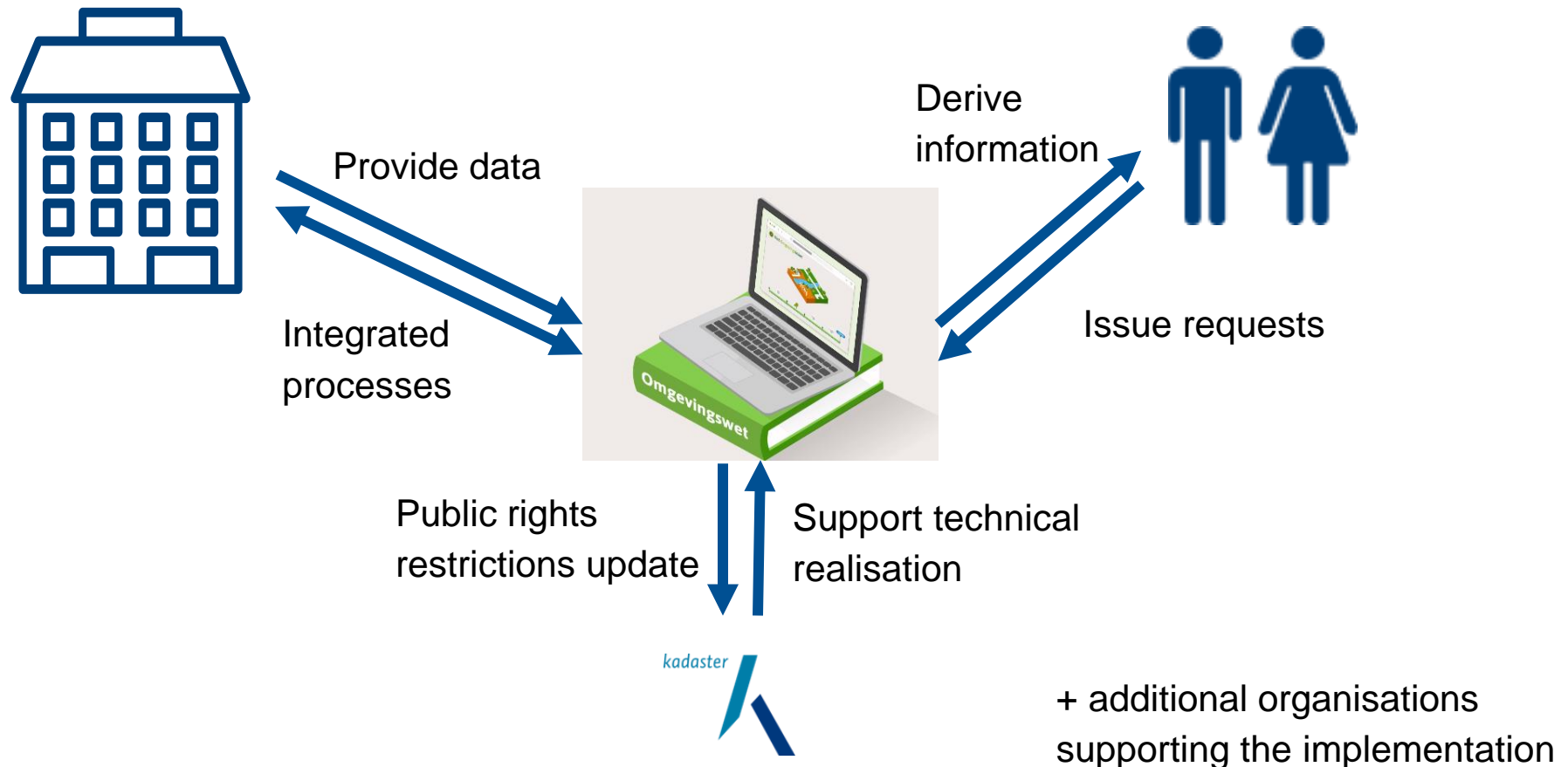
Topografie (BRT) ...

Grootsschalige topografie (BGT) ...

Luchtfoto ...

# An example from The Netherlands: The Environment and Planning Act

## Distribution of roles and responsibilities





## An example from The Netherlands: The Environment and Planning Act

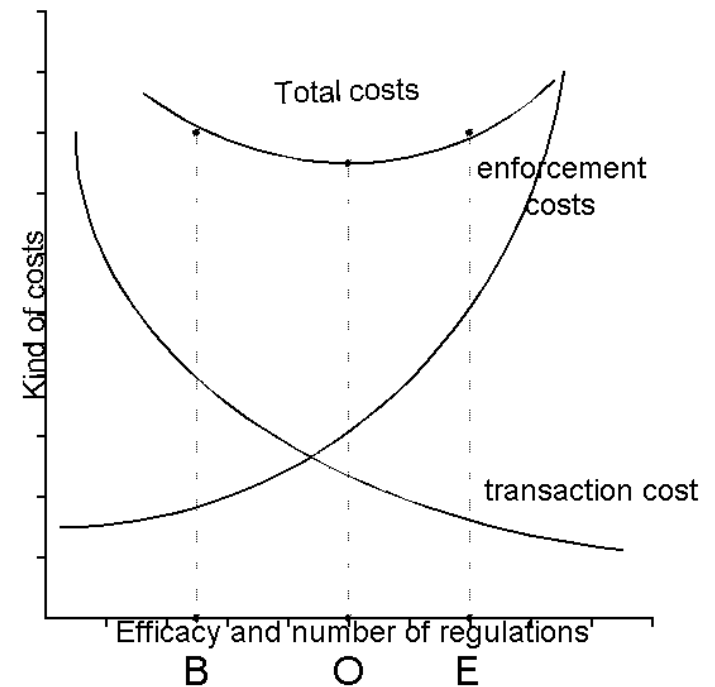
### Organisational and digital transformation of land administration ecosystems

#### Transaction cost theory:

- Societal transaction costs are reduced
- Enforcement costs go up

#### Resource dependency theory:

- No change in dependencies and nodality
- Expectations of the public could rise
- Municipalities more accountable / responsible



## An example from The Netherlands: The Environment and Planning Act

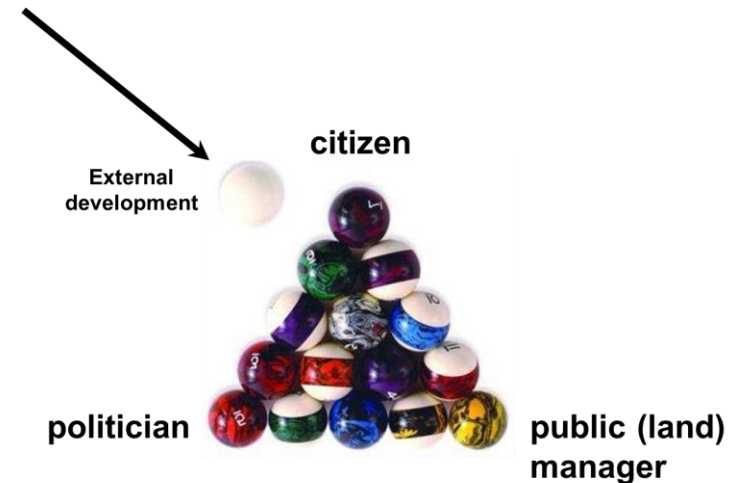
### Organisational and digital transformation of land administration ecosystems

#### Cultural value theory

- More emphasis on service orientation (more transparency and responsive public sector)
- Change of paradigm (enabling law)

#### Technology adoption theory

- Some ethical dilemmas, unintended and wicket effect are likely to arise but not evident yet



# FIG International Federation of Surveyors

## Commission 7

International Federation of Surveyors  
 Fédération Internationale des Géomètres  
 Internationale Vereinigung der Vermessungsingenieure

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### FIG Commission 7 - Cadastre and Land Management



"Renewing, Reimagining, and Recommitting for Relevance: Cadastral surveyors have long recognised the value of a global perspective on land administration – for building technical consensus, supporting advocacy and awareness, and advancing the domain. The 2023-26 period builds on this tradition."

## Commission 8

International Federation of Surveyors  
 Fédération Internationale des Géomètres  
 Internationale Vereinigung der Vermessungsingenieure

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### FIG Commission 8 - Spatial planning and development



"Land is a scarce resource. In pursue of a sustainable development, it is key to balance the various, sometimes conflicting, interests in spatial planning and to acknowledge the voice of all stakeholders. Themes that will be addressed are urban challenges, urban-rural dependencies, and GIS and land policy tools for implementation."

FIG Working group 7.6/8.4:

## Digital Transformation for Integrated Land Management

### Chair

- Dr. Claudia Stöcker, Germany
- Prof. Timo Walter de Vries, Germany

### Key Players

- Kwabena Obeng Asiama, Ghana
- Ganesh Bhatta, Nepal
- Trias Aditya, Indonesia



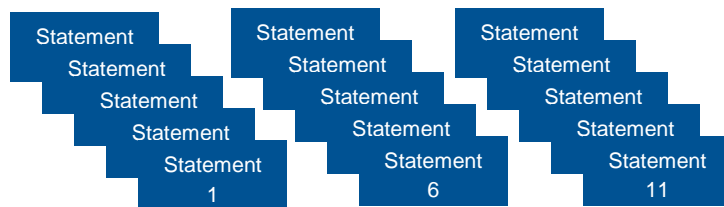
### Specific objectives

- Building on the FAO, FIG, UNECE publication on Digital Transformation and Land Administration, 2022
- Knowledge on ‘Integration’ and ‘transformation’ (drivers, benefits, challenges)
- Practice and case on ‘Integration’ and ‘transformation’ (country-level)

# FIG Working group 7.6: Digital Transformation for Integrated Land Management

## Survey:

- qualitative and quantitative insights into perceptions of digital technologies and digitally-enabled processes
- 20min time to be completed - open until end of Mai 2024
- results will be presented at upcoming FIG events and published in academic journals



Least preferred Most preferred

-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5

<https://application.qsoftware.net/user/devries2000/>

THANK YOU FOR YOUR ATTENTION

