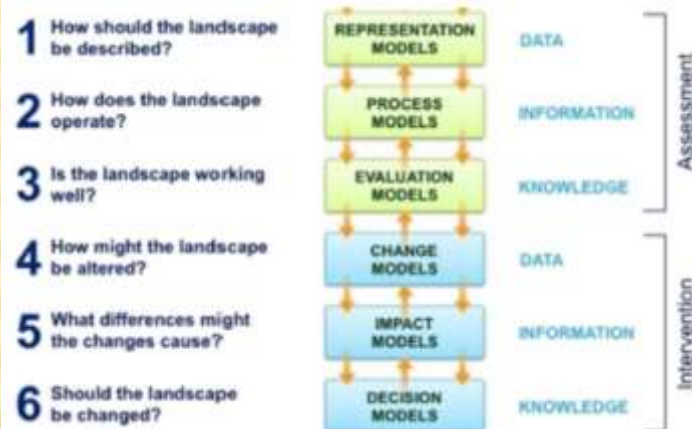


GEOBIM AND THE ENERGY TRANSITION: A FRAMEWORK

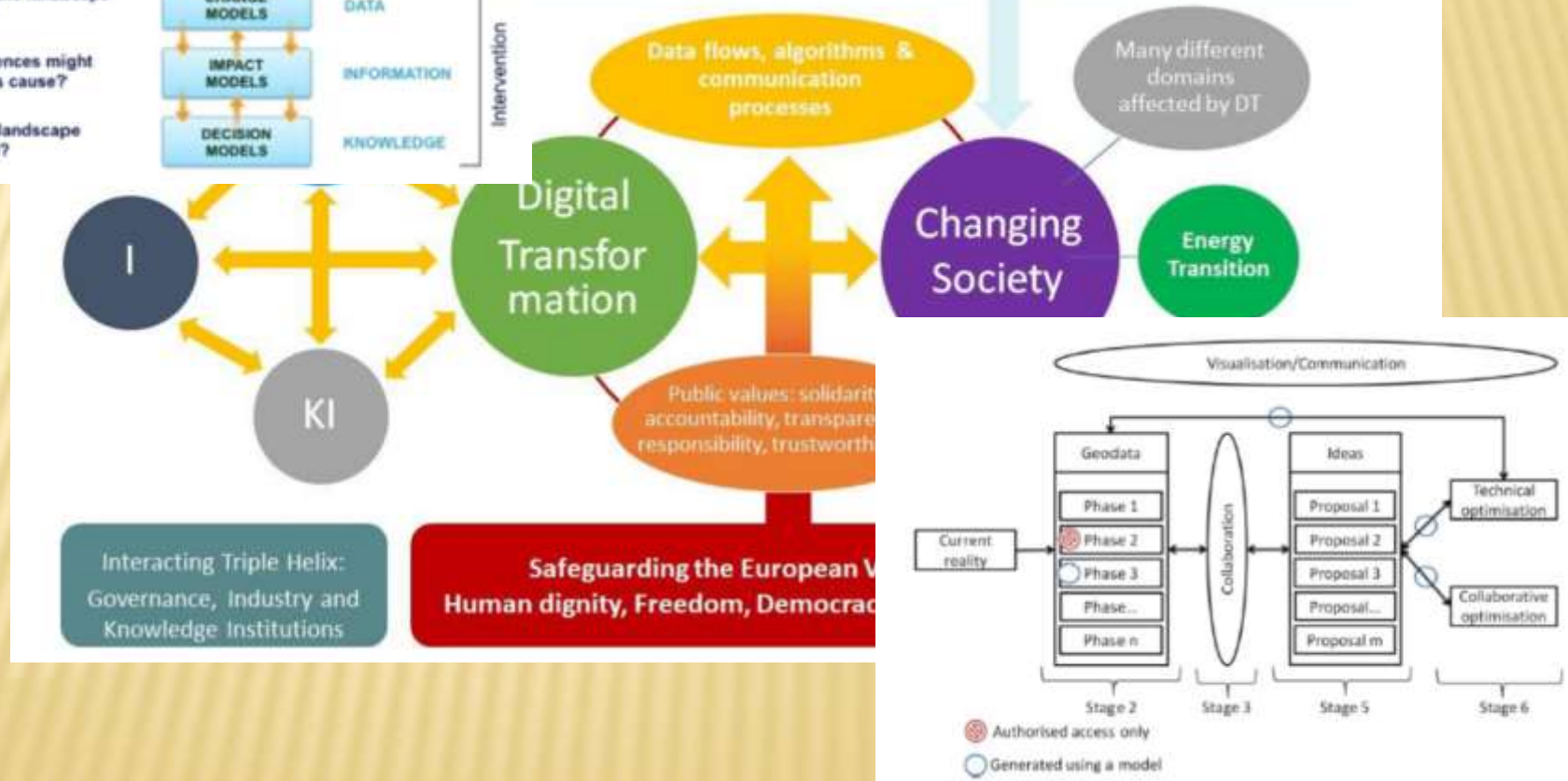
Sanne Hettinga, VU Amsterdam

PLANNING ENERGY TRANSITION



Steinitz (2012)

erent interacting scales:
ational, regional, local - city, neighbourhood, community, individual



Hettinga et al. (2018)

How can GeoBIM aid in facilitating the energy transition?

FRAMEWORK: STEP BY STEP

- ✘ Stakeholder
- ✘ Scale
- ✘ Visualization
- ✘ Domain and Theme

STAKEHOLDER

- ✘ What is the domain knowledge level?
- ✘ What is the GeoBIM knowledge level?
- ✘ What do they want to know?

- + Scale
- + Data
- + Models
- + Visualization



SCALE (1)

Macro



Meso



Micro



SCALE 2

	GIS	BIM
Macro	Building type Building year Weather information Etc.	Building typology
Meso	Land use 3D buildings Infrastructure Local plans Roof estimates	Supportive
Micro	Environment Building envelope Building typology	Building envelope Insulation materials Roof type Heating system Subsurface

VISUALIZATION

Belang van
 Veiligheid van
 Groene omgev
 Aanwezigheid
 Eigen parkeer
 Openbaar verv
 Centrum op lo
 HAN campus o

Nu Schatting energiekosten: € 164 / mnd **Toekomst**

Overzicht

GEKOZEN OPTIES

Totaal pakket	€ 0,00
Subsidie	-€ 0,00
Lening	€ -0,00
Kosten	€ 0,00

NEUWE MAANDLASTEN

Kosten financiering	€ 0,00
Besparing energie	€ 5,00
Totaal kosten	€ 0,00

Specifieke toeren
 Aanpakkingen terugkijken
 Nieuw aanpakkingen

Legend

▭ Pilot study

Gas consumptie

GAS

- 0 - 499
- 500 - 1499
- 1500 - 2499
- 2500 - 4999
- 5000 - 10000

The Hague

Uw Woning
 spelen met energie
 documenten
 Woning Informatie



DOMAIN AND THEME

- ✘ Gather data:
 - + Triple helix
 - ✘ Government
 - ✘ Business
 - ✘ Knowledge Institutes

- ✘ Missing data: build models

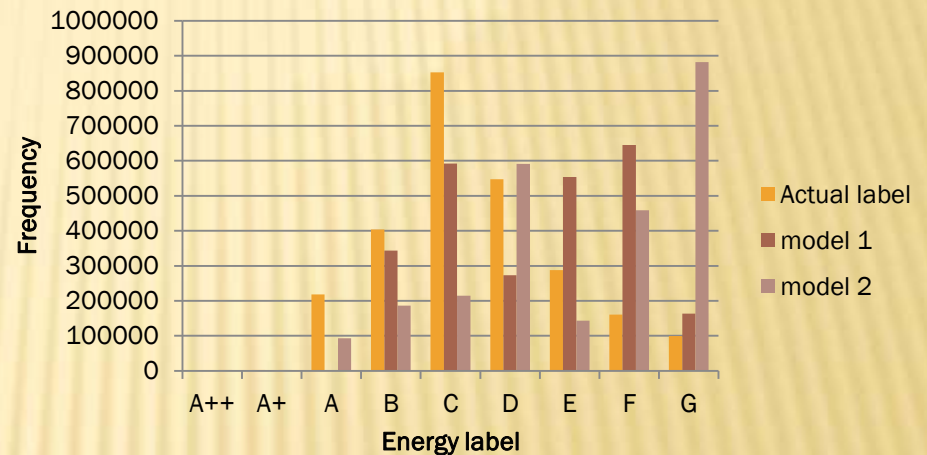
DOMAIN AND THEME: DATA

- ✘ Triple helix
 - + Big data
- ✘ Sort into themes per domain (from Hettinga et al. (2018):
 - + Socio-economic
 - + Building information
 - + Energy consumption
 - + Infrastructure
 - + Energy savings potential
 - + Energy production potential
- ✘ Some data unavailable: model

DOMAIN AND THEME: MODELS

- ✘ Validation/reliability
- ✘ Black box
 - + Machine learning
 - + Deep learning
- ✘ Energy labels
 - + Building typology
 - + Usability of the label
- ✘ Comprehensibility per stakeholder

Label distribution



CONCLUSION

- ✘ Big role for GeoBIM in the energy transition
- ✘ Not one solution that satisfies all
- ✘ Take into account
 - + Stakeholder
 - + Scale
 - + Visualization
 - + Domain and themes