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Spatial Data Infrastructure and Public Sector Innovation

Vrije Universiteit Brussel

Value of spatial data

networked performance beyond economic rhetoric

Joep Crompvoets and Erik De Man

Issue and background

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- Problematic role and value of spatial data and geo-information
  - SPATIALIST — interdisciplinary research project on SDI and Public sector Innovation in Flanders (Belgium)
  - ITC-Unesco Center for Integrated Surveys (1970's and '80's)
  - Transdisciplinary research on *e.g.* community hazard management

Value of spatial data - problematic

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- Optimistic rhetoric — danger of self-fulfilling theories
- Ambiguity — e.g. spatial data, geo-information
- Spatial data and geo-information are complex, multi-faceted
- Social praxis — “you do it with others”

We argue

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- Value of Spatial Data — networked performance
  - what it brings about within actor networks
  - beyond rhetoric
- Assessing Value of Spatial Data — complex
  - socio-technical
  - multi-faceted focus
  - SDI discourse as locus
  - governance-oriented
  - transdisciplinarity — across and beyond disciplines

Challenging the theories

- Social science theories — *e.g.* economic theories — become self-fulfilling
  - rhetoric and language
    - shape
      - institutional designs
      - behavioural practices
    - create the behaviour they predict
- Challenge for empirical research

Ferraro et al. (2005)

‘Prudent’ social sciences that matter

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- ‘Phronetic’ knowledge rather than epistemic, technical knowledge
  - consider objects as subjects — values
  - get close to reality — cases and contexts
  - place power at the core of the analysis
  - ask “how?” and doing narratives
  - join agency and structure
  - dialogue with a polyphony of voices

Flyvbjerg (2001)

Research on Value of Spatial Data

- 'Requisite complexity'
  - "one should acknowledge multiple realities shaped by heterogeneous and reflective actors" Hilhorst (2004)
- Dilemmas as 'object' of research
  - different actors → different realities
    → different rationalities → dilemmas
- Understanding requires 'subjects'
  - 'objects' become 'subjects'
  - actor networks — Socio-technical,
    Actor-Network Theory Latour (2005)

Puzzling Economics of Informatics

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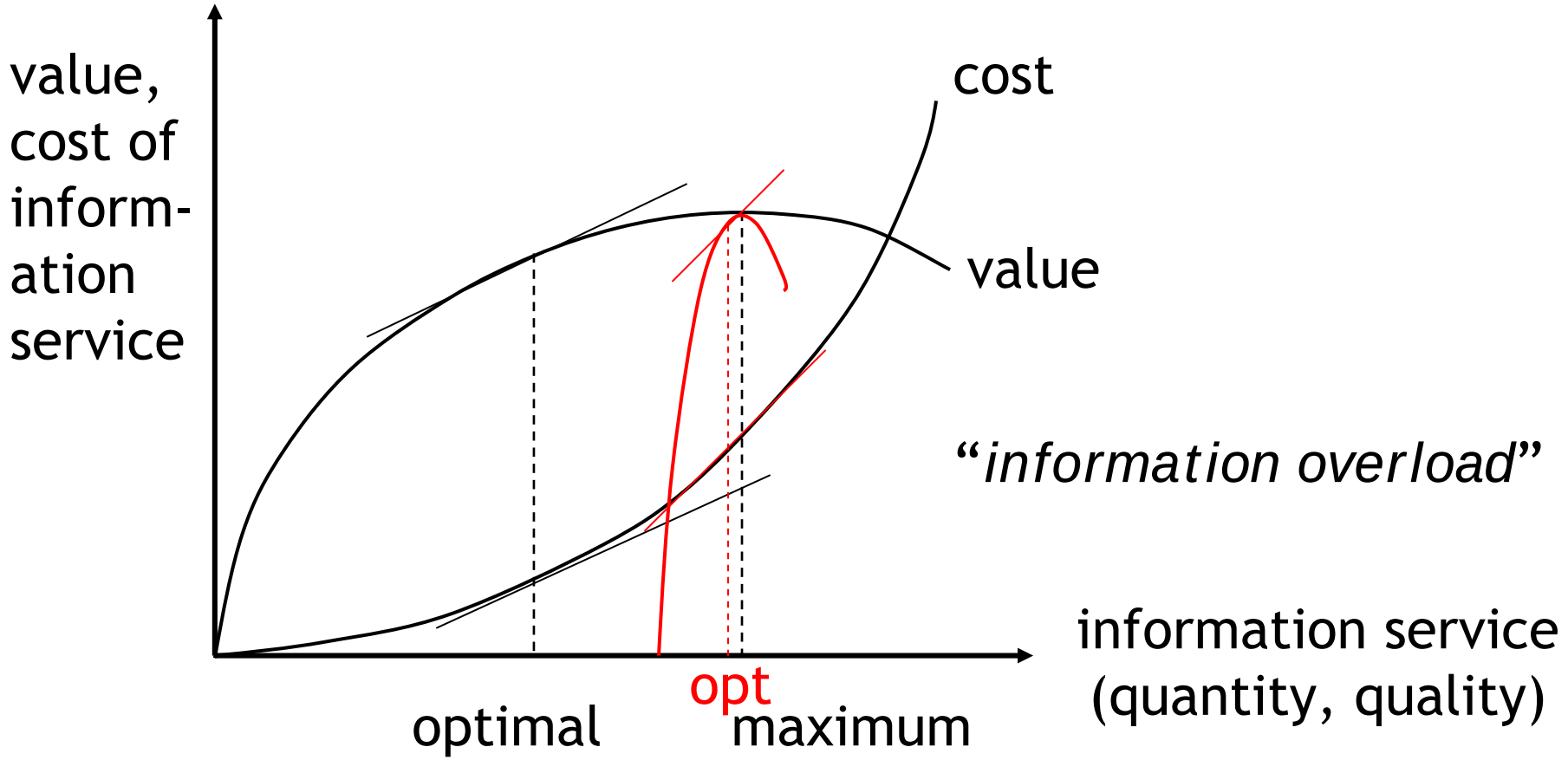

See also Land (1975), De Man (1989)

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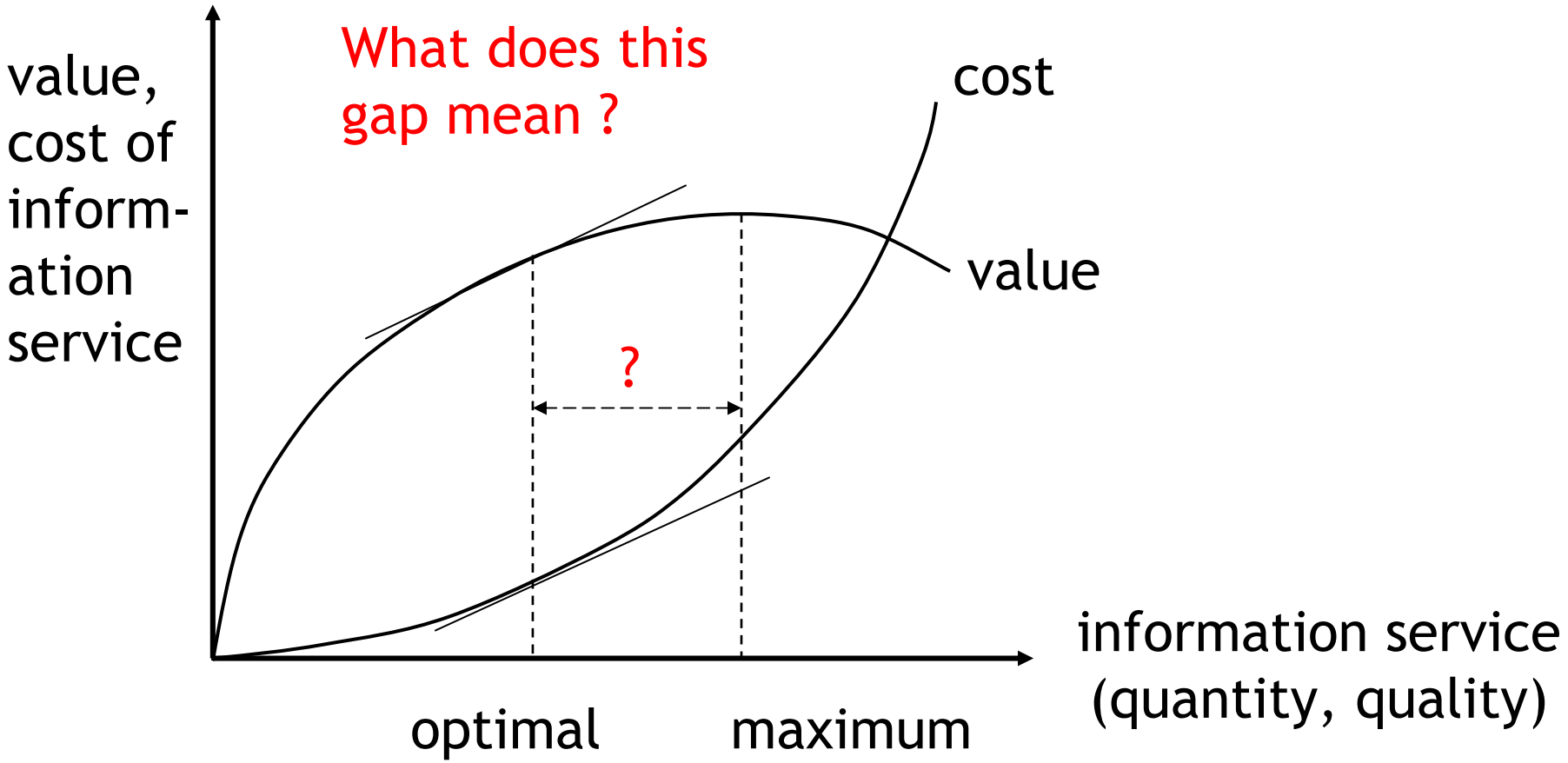

See also Land (1975), De Man (1989)

In what follows …

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- Explore the topic
- Return to the puzzle
- Outline ‘prudent’ — ‘phronethic’ — research on Value of Spatial Data
  - substantive
    - networked performance
      beyond economic rhetoric
  - methodological
    - around the SDI-discourse
    - transdisciplinary

Pathology in (Spatial) Data Handling

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- Ambiguous information requirements
  - demands ≠ needs — De Man & Schaap (1979)
- Information overload
  - abundance of data → need to choose & select
  - initial scarcity of data is traded for scarcity in ability to select and attend
    - "A wealth of information creates a poverty of attention"

Simon (1969, 1976)

Spatial data – about space

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- Space matters for what it *affords* not for what it *is*
- Space is social
  - is shared with others – setting for social life
  - is conceived of differently at different spatial levels – national, regional, local
    - *about* or *with* citizens

See also De Man (2006, 2007)

Spatial data – multi-faceted (1)

- At the same time
  - resource
  - commodity
  - asset
  - infrastructure

Barr & Masser (1997)

- Relationships rather than things

Couclelis (1997)

- Socio-technical, multi-actor process
  - concepts, operationalization, measurement
  - emergent properties

Spatial data – multi-faceted (2)

- Input in decision-making processes
  - multi-faceted – different contexts
    - rational choice
    - appropriateness
    - 'muddling through' – trial-and-error

See also Ostrom (2005, Ch. 4)

- Spatial data as economic good
  - private, individual
  - collective, societal

→ market/governance

Spatial Data Market ?

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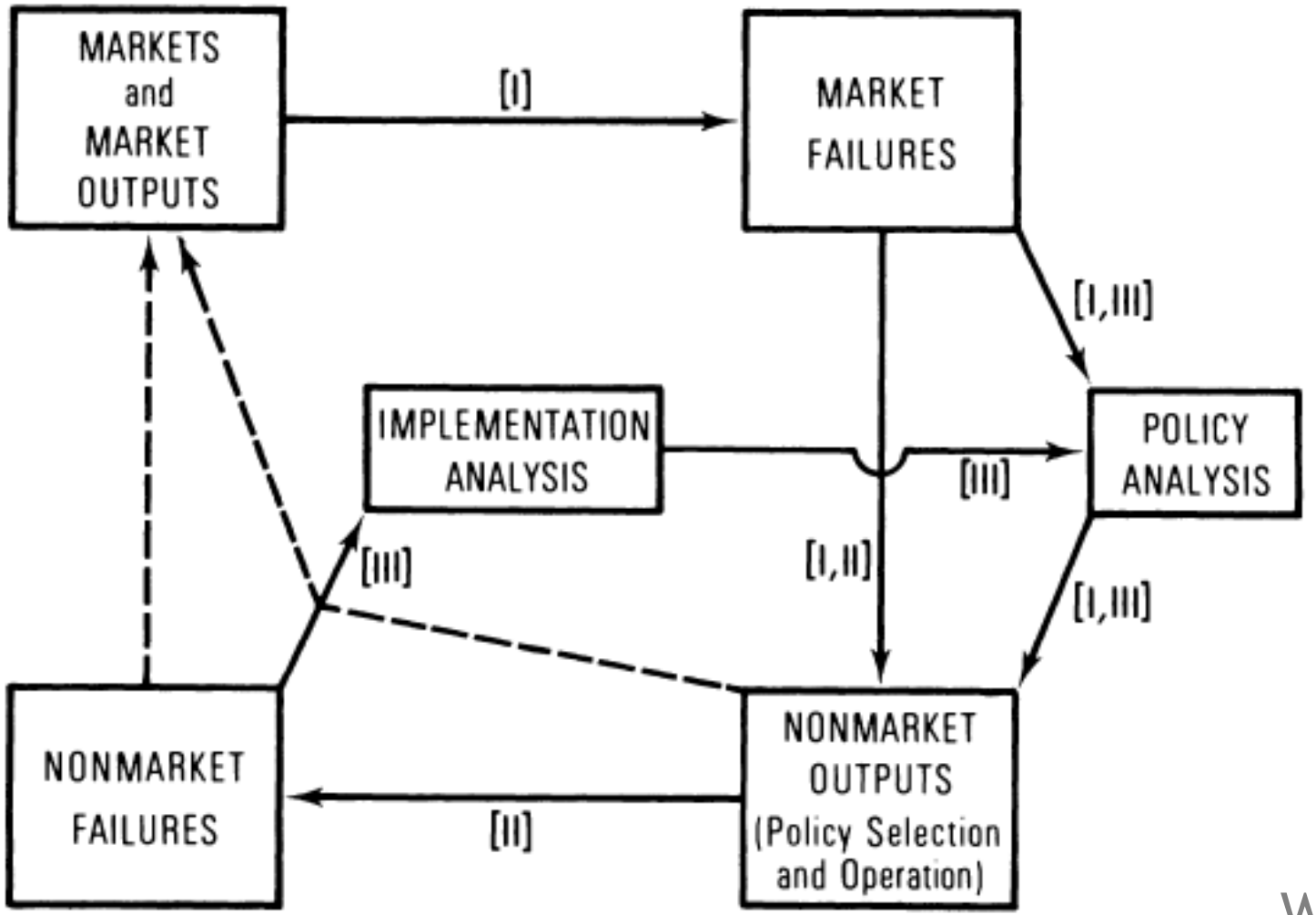

I, II, III – sections in the paper (Wolf (1979))

Wolf (1979)

Institutional economics

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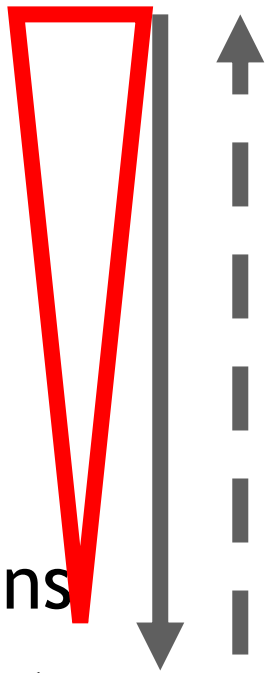
Four institutional levels:

- L1: embedded informal institutions
  - customs, traditions, norms, religion
- L2: formal institutional environment
  - formal rules of the game – property
- L3: governance
  - play of the game – contracts, transactions
- L4: resources allocation & employment
  - equilibrium market mechanisms



Williamson (1998)

Transaction cost economics

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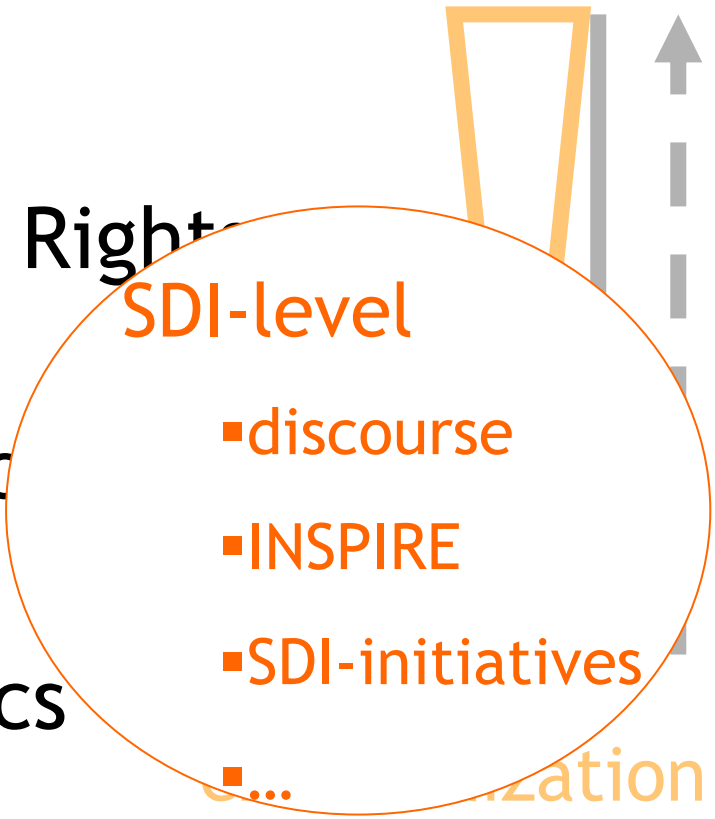
Four levels of analysis:

- L1: Social Theory
- L2: Economics of Property Right
- L3: Transaction Cost Econo
  - alignment — Actor-Network
- L4: Neo-Classical Economics



Ciborra (1985), Williamson (1998)

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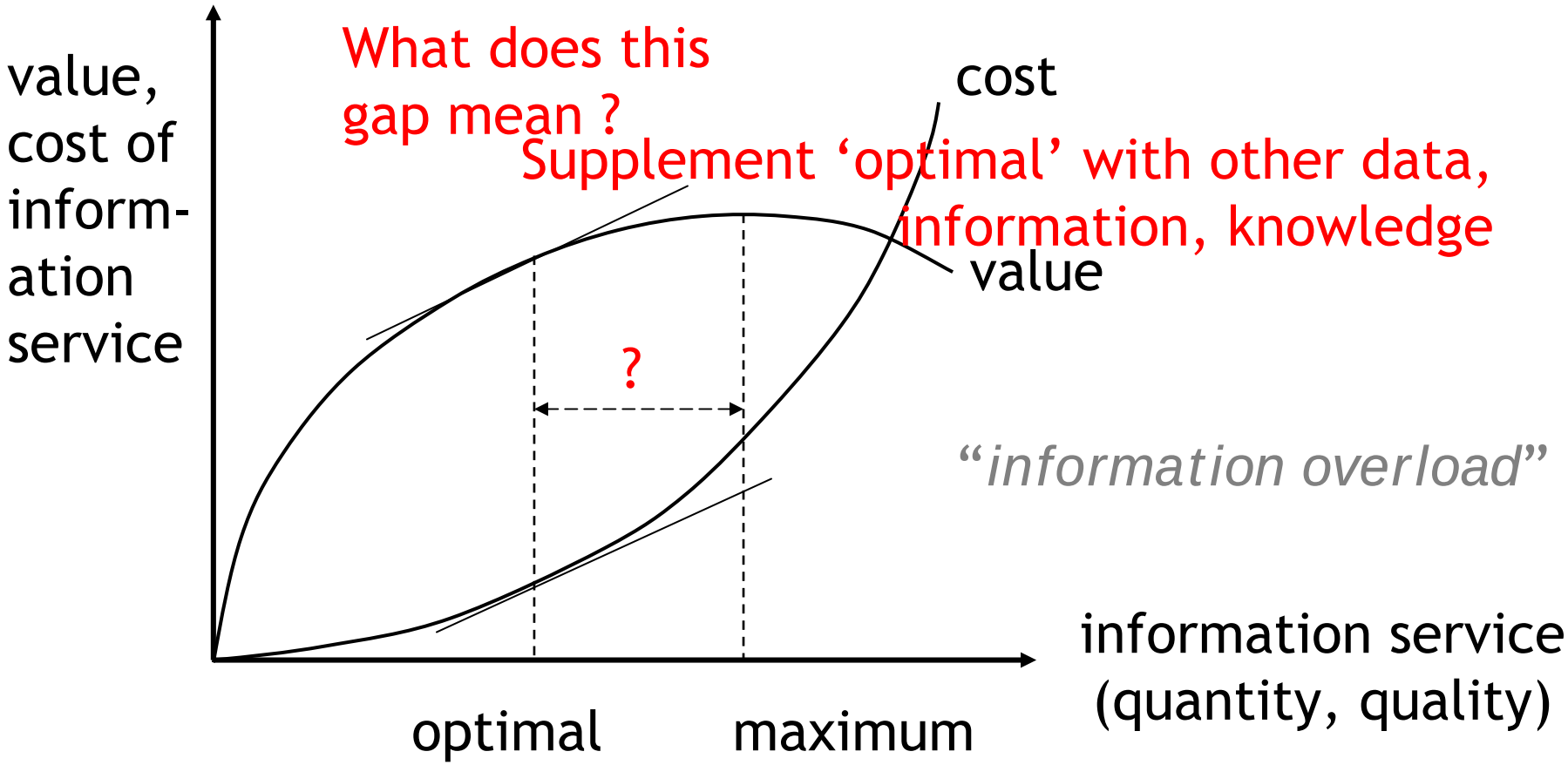

"information overload"

Value of spatial data

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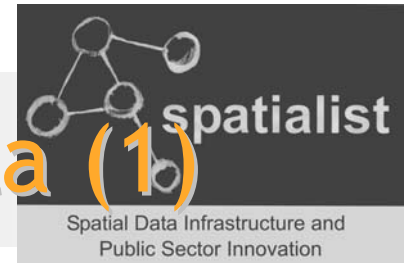
- Ability to
  - relate to affordances of space
  - link to other data, information, knowledge
    - existing & newly collected
      - *e.g.* local knowledge
- Redundancy — robustness
- Networking — link actors together

→ handle complexities and dilemmas

Research on Value of Spatial Data (1)



- Value of spatial data in terms of performance — what difference it brings about
- Value *network* rather than value *chain*
- Transaction Costs approach — SDI-level
  - SDI-discourse
  - Actor Network Theory
- SDI-discourse as context for assessment the value of spatial data
  - Governance orientation — societal decision making beyond government

Research on Value of Spatial Data (2)

- Trends in SDI assessment as guidance
  - performance focus for public management and policy
  - broaden disciplinary and in focus
  - high-level studies — middle-level accounts — detailed/operational studies
  - difficult to demonstrate positive impact of investment in SDI assessment on SDI development
  - …

see also Bouckaert et al. (2008)

Crompvoets et al. (2008)

Research on Value of Spatial Data (3)

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- Understanding rather than predicting
  - 'objects' become 'subjects'
- Dilemmas as 'object' of research
  - different actors → different realities
    → different rationalities → dilemmas

Research on Value of Spatial Data (4)

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- Dilemma
  - *e.g.* standards *versus* flexibility
  - choice between “A” and “non-A”
- Dealing with dilemmas
  - thinking out-of-the-box → transdisciplinarity

Dealing with dilemmas

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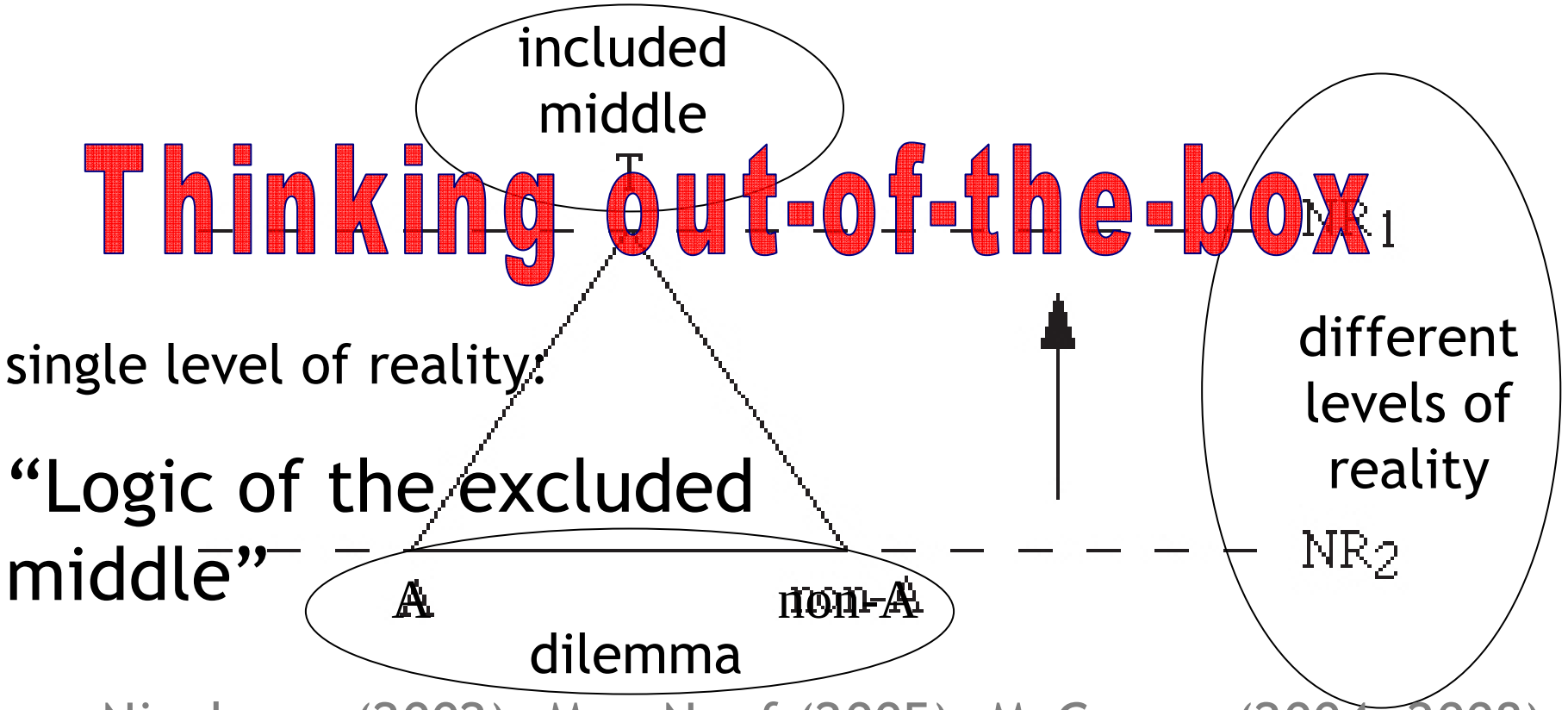
How transdisciplinarity handles dilemmas

"Logic of the included middle"



Thinking out-of-the-box

single level of reality:

"Logic of the excluded middle"

Nicolescu (2002); Max-Neef (2005); McGreror (2004, 2008)

That's all folks

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