Interoperability Governance in Government Information Networks

Investigating the Relationship of Governance Centralisation and Network Complexity

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Policy Problem & Research Motivation

• Interlinkage of EGOV and public sector reforms towards **connected governance** (cf. UN 2008)
  • Examples: ‘one-stop-shops’, integrated/personalised e-services, national government portals

• ⇨ **Government Information Networks (GINs)** (Janowski et al 2011) = all ICT-enabled policy, collaboration and governance networks
  – Build on information exchange among partners
  – Requires **interoperability (IOP)** based on **standards**
  – Difficult to implement in practice

⇨ Need for effective **IOP governance** in GINs: but how? what factors to take into account?
Research questions

1. How do different degrees of IOP governance centralisation affect the adoption of IOP standards in Government Information Networks?

2. Are the effects of IOP governance centralisation on IOP standards adoption dependent on network complexity?
Theoretical background

• Provan & Kenis (2008): with increasing complexity of a network, stronger centralisation of that network’s governance is more effective (to yield the intended network-level outcomes)

• Theoretical proposition, but not yet empirically applied and validated

• ⇒ Apply this theory in the context of IOP governance (as a form of network governance)
IOP governance centralisation

• Decision-Making Centralisation
  – **Brokerage**: existence and characteristics of a coordination body that is formally charged with the coordination of the network and its IOP architecture
  – **Stakeholder Involvement**: the level of stakeholders' participation in the network’s IOP governance

• Enforcement
  – **Coercion**: the pressure constraining the partner organisations from non-compliant behaviour
  – **Accountability**: control mechanisms for an organisation's compliance with the network’s IOP standards
Method: data

- **Case studies of 2 GINs** in the Netherlands with contrasting network complexities
  - Digital Client Dossier (DKD): social security sector, highly complex (400+ diverse partners, complex tasks)
  - Studielink (SL): higher education sector (ca. 70 similar partners, non-complex tasks)
- **37 in-depth interviews** with key informants (organisational + network management levels)
Method: interpretive analysis

• Interpretive data analysis through **coding** (= “tagging” text with theoretical concepts)

• Analysis of what the interviewees considered **good or bad practice** regarding the matching of IOP governance centralisation and network complexity

• Development of **propositions** on the relation between network complexity and IOP governance along the four dimensions of IOP governance centralisation
Findings
Brokerage and Network Complexity

**Proposition 1:** More complex GINs require a higher degree of centralised control by means of assigning a clear mandate and formalised powers to a broker than less complex GINs

- Functions as intermediary and facilitator
- Broker needs a clear mandate and formal authority to carry out its tasks effectively
- Broker especially necessary in early phase of network formation (higher diversity)
Stakeholder Involvement and Network Complexity (I)

**Proposition 2a:** A minimum level of stakeholder involvement in IOP governance is necessary to facilitate organisations’ adoption/compliance with a GIN’s IOP standards

- Minimises design-reality gap of standards
- Increases transparency and legitimacy of IOP governance
- Strengthens “network-consciousness”
Stakeholder Involvement and Network Complexity (II)

**Proposition 2b:** There are diminishing returns to its facilitating effect for partner organisations’ adoption/compliance with a GIN’s IOP standards, eventually reaching a tipping point

- Higher stakeholder involvement increasingly involves administrative burden
- Higher stakeholder involvement is increasingly costly and time-consuming
Stakeholder Involvement and Network Complexity (III)

Proposition 2c: In more complex GINs, this tipping point is reached at lower levels of stakeholder involvement than in less complex GINs

- Higher network complexity makes effective consultation more difficult (including all stakeholders in a large network is more difficult than in a small and homogeneous network)
Coercion and Network Complexity (I)

Proposition 3a: In more complex GINs, more usage of coercion is required to facilitate partner organisations’ adoption/compliance with the GIN’s IOP standards

- Need for a basic level of coercive powers, irrespective of network complexity
- More complex networks need more coercive pressures (high risk of non-compliance due to structural complexity and diversity)
Proposition 3b: In more complex GINs, the agency costs associated with stronger coercion tend to be higher than in less complex GINs

- Institutionalising coercive powers is more difficult in more complex networks (administrative fragmentation)
- Both inter- and intra-organisational agency problem
- Potentially cancelling out the benefits of using coercion
Accountability and Network Complexity (I)

**Proposition 4a:** In more complex GINs, more usage of accountability mechanisms is required to facilitate partner organisations’ adoption/compliance with the GIN’s IOP standards

- More (diverse) actors $\Rightarrow$ higher likelihood of resistance
- Formal obligations and monitoring practices have an enforcing effect: legal mandate, social pressures
- Legitimisation effect: increasing transparency, creating trust and ownership
Accountability and Network Complexity (II)

**Proposition 4b:** In more complex GINs, the agency costs associated with more usage of accountability mechanisms tend to be higher

- In complex network situations, the costs of institutionalising and implementing accountability mechanisms become higher
- Potentially cancelling out the net benefits of using them
Conclusions

• Effectiveness of IOP governance depends on matching the network’s complexity

• More complex networks require more centralised IOP governance in terms of Decision-Making Centralisation and Enforcement dimensions

• Largely validates previous propositions about necessity of context-sensitive network governance (Provan & Kenis 2008)

• Caveat: in more complex networks, more centralisation comes at higher cost that need to be weighed against its benefit on effectiveness

• Need to identify the network-specific optimum
Thank you for your attention
Extra slides
Methodology: theory review

- Objective: synthesise an initial framework
- Data
  - 147 relevant studies in related fields of study (innovation diffusion, technology acceptance, public administration)
- Analysis
  - Initial list of determinants drawn from these studies
  - Collating these determinants by conceptual similarity, yielding 6 main determinants
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<th>Public pressure</th>
<th>Constituency characteristics</th>
<th>Other stakeholders</th>
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National e-dossier in work and income domain
• Virtual dossier of work and income data
• Linking various agencies' databases on work seekers and unemployment beneficiaries
• Secure national network (Suwinet)
• No central data storage, but data routing through broker application
• Various applications for agencies to access the data needed for their tasks
• Authentication mechanism
• Generic correction mechanism
• Various online services for work seekers
Studielink

Collective application for handling student registration in NL higher education sector
• Routing of registration data between HE institutions through central broker
• Information architecture consists of front-office, mid-office and broker application
IOP governance (centralisation)

= decision-making rules and procedures to direct and oversee government IOP initiatives that are planned or underway (Pardo & Burke, 2009)

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<td>High Usage of Escalation Channels</td>
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<td>Highly Formalised Obligations</td>
<td>No Formalised Obligations</td>
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<td>High Usage of Tracking Systems</td>
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Network Complexity

• Structural complexity
  – The degree to which the network size, i.e. the number of partners in the network, increases adoption efforts

• Actor diversity
  – The heterogeneity of partner organisations in the network along various dimensions that constrain any harmonisation activities between them

• Task complexity
  – The degree of interdependence of partner organisations in achieving the network’s primary tasks
Network complexity and adoption

Co-occurrence analysis suggests that Network Complexity (particularly Diversity) is seen as highly problematic for standards adoption.
IOP governance and adoption

IOP Governance is the most important determinant for standards adoption
Proposition 1: in more complex networks, assigning centralised control to a broker is associated with higher likelihood of IOP standards adoption/compliance

- And that’s also a core problem in this network: there are a number of actors, but a hierarchical relationship isn’t there. There isn’t any one in the network who can impose ‘this is how we will do it now’. (Q24:2)
- It’s not very clearly arranged who is the ‘police’ of the chain. Us as the network maintenance actor? The Ministry? Or the data suppliers? [...] What you see is that the responsibilities are not very clearly assigned on this. (Q3:24)
Stakeholder Involvement and Network Complexity (I)

Proposition 2a: stakeholder involvement positively affects IOP standards adoption/compliance
Stakeholder Involvement and Network Complexity (II)

Proposition 2b: with increased stakeholder involvement, there is an increasing trade-off with the associated costs (up to a tipping point)

- Well, the ideal setup is not something completely centralised. It is a democratic, or decentralised steering. But well, then we’re back at the same point: that can easily lead to a whole lot of bureaucracy. You don’t want that either. So it’s a matter of balancing. And at a certain point you simply need to make decisions. [...] But well, we are in the Netherlands, we always have to consult and we have to ‘polder’ and so on. (Q32:25)
Stakeholder Involvement and Network Complexity (III)

**Proposition 2c:** in more complex networks, this tipping point is reached at relatively lower levels of stakeholder involvement

- [...] I don’t think that an individual municipality has ever participated in a domain group meeting. [...] They also realised that not each of the 430 municipalities can have a say. (Q1:24)
**Coercion and Network Complexity (I)**

**Proposition 3a:** in more complex networks, more usage of coercion is associated with higher likelihood of IOP standards adoption/compliance

- And I don’t have a mandate, I can’t force anyone. [...] And for instance there sits someone representing the municipalities and that person says ‘Well that’s certainly a good idea, but I have no idea what the other 430 municipalities think of it’. That’s an enormous problem for collaborating. (Q19:24)
**Coercion and Network Complexity (II)**

**Proposition 3b:** in more complex networks, the agency costs associated with stronger coercion are more likely to be higher

- I can’t possibly from here [at network level] tell whether something like this is within the mandated task or not. Only the people in that municipality X can do that. (Q4:7)
- So, where you have to seduce, you need a more horizontal governance of ‘taking along’. And where standardisation is of economic, and financial urgency for all participants, where it concerns an evident common interest of all participants, you need to make it obligatory. (Q33:15)
Proposition 4a: in more complex networks, stronger accountability mechanisms are associated with higher likelihood of IOP standards adoption/compliance

- So the issue of centralisation with regard to the local situation, the accountability aspect of this, [...] that actually also happened in DKD, it was imposed on us that we have to use it. [...] Otherwise you would have never managed to pull those 400-plus municipalities along. (Q15:23)

- So in principle in the moment that you exchange data through this system, you have to adhere to the standards of this system [...]. And they are legally obligatory, and that was one of the success factors. (Q3:3).
Accountability and Network Complexity (II)

Proposition 4b: in more complex networks, the agency costs from accountability mechanisms are higher

- If we make agreements in the name of the municipalities, then of course this is for the 400 of them behind us, all them wanting to have half a centimetre extra for themselves [to manoeuvre]. But one of them in this direction, the other in that direction, and yet another one in another direction [...]. So there you see that things are going – not exactly wrong, but they are going really difficult. (Q16:16)