IT Governance-Mechanisms and Administration/IT Alignment in the Public Sector: A Conceptual Model and Case Validation

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Track 5: IT Governance
Despite the pivotal role of information technology (IT) in the public sector, IT governance practices appear relatively less mature.

**Motivation**

While differences of public and private sector are widely discussed in the literature, few works specifically address IT governance challenges.

**Literature on general differences, e.g.**


**Literature on IT governance differences**


Public and private sector differ in goals, stakeholders and risks, as well as IT principles

**Difference btw. public and private sector**

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Private sector</th>
<th>Public sector</th>
<th>Lit.</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Goals</td>
<td>Shareholder value</td>
<td>Public value / multifaceted</td>
<td>[11,14]</td>
</tr>
<tr>
<td>• Stakeholders</td>
<td>Few</td>
<td>Many / potentially conflicting goals</td>
<td>[10]</td>
</tr>
<tr>
<td>• Environment</td>
<td>Less regulated</td>
<td>Legal and formal constraints</td>
<td>[9]</td>
</tr>
<tr>
<td>• Incentives</td>
<td>High / market</td>
<td>Low / “soft budgets” / scrutiny</td>
<td>[7]</td>
</tr>
<tr>
<td>• Risks</td>
<td>Lower aversion</td>
<td>High aversion</td>
<td>[10,12]</td>
</tr>
<tr>
<td>• Competition</td>
<td>High competition</td>
<td>Low / intergovernmental cooperation</td>
<td>[7]</td>
</tr>
<tr>
<td>• IT innovation</td>
<td>Competitive advantage</td>
<td>Treated as necessity</td>
<td>[9,12]</td>
</tr>
<tr>
<td>• IT competencies</td>
<td>Varying</td>
<td>Generally lower</td>
<td>[2]</td>
</tr>
<tr>
<td>• IT sourcing</td>
<td>Flexible contracting</td>
<td>Complex tendering processes</td>
<td>[10]</td>
</tr>
<tr>
<td>• IT resources</td>
<td>Proprietary IT</td>
<td>Shared IT resources</td>
<td>[2]</td>
</tr>
</tbody>
</table>
The fundamental differences of public and private sector suggest that there are different principles of IT governance

*Research question*

<table>
<thead>
<tr>
<th></th>
<th>Private Sector</th>
<th>Public Sector</th>
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<tbody>
<tr>
<td><strong>Goals</strong></td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td><strong>ITG mechanisms</strong></td>
<td>✔</td>
<td>?</td>
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</table>

*How do IT governance mechanisms sustain and extend the organizations’ strategies specifically in the public sector?*
We focus on structural, procedural and relational mechanisms and thus aim to include the practitioner view on IT governance

**Understanding of IT Governance**

**Theoretical Viewpoint**

- Decision Rights
- Governance Mechanisms
  - Structural mechanisms
  - Procedural mechanisms
  - Relational mechanisms

**Practical Viewpoint**

- Measuring and Controlling
  - SLAs, Performance, Scorecards
- Governance frameworks
  - ITIL
  - Cobit
  - ValIT
  - Etc.
- Compliance and Audits
### Governance Mechanism Percent Use

#### Decision-Making Structures:
- Executive or Senior Management committee: 3.5
- IT leadership committee comprising IT executives: 3.8
- Process teams with IT members: 3.4
- Business/IT relationship managers: 3.9
- IT council comprising business & IT executives: 3.7
- Architecture committee: 3.1
- Capital approval committee: 3.1

#### Alignment Processes:
- Tracking of IT projects & resources consumed: 3.4
- Service level agreements: 3.2
- Formally tracking business value of IT: 2.9
- Chargeback arrangements: 2.8

#### Communication Approaches:
- Work with managers who don’t follow the rules: 3.2
- Senior management announcements: 2.9
- Office of CIO or office of IT governance: 3.6
- Web-based portals and intranets for IT: 2.9

Source: Weill and Ross 2004
# More IT Governance Mechanisms (De Haes & Van Grembergen 2009)

<table>
<thead>
<tr>
<th>IT governance structures</th>
<th>IT governance processes</th>
<th>IT governance relational mechanisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1 IT strategy committee at level of board of directors</td>
<td>P1 Strategic information systems planning</td>
<td>R1 Job-rotation</td>
</tr>
<tr>
<td>S2 IT expertise at level of board of directors</td>
<td>P2 IT performance measurement (e.g. IT balanced scorecard)</td>
<td>R2 Co-location</td>
</tr>
<tr>
<td>S3 (IT) audit committee at level of board of directors</td>
<td>P3 Portfolio management (incl. business cases, information economics, ROI, payback)</td>
<td>R3 Cross-training</td>
</tr>
<tr>
<td>S4 CIO on executive committee</td>
<td>P4 Charge back arrangements - total cost of ownership (e.g. activity based costing)</td>
<td>R4 Knowledge management (on IT governance)</td>
</tr>
<tr>
<td>S5 CIO (Chief Information Officer) reporting to CEO (Chief Executive Officer) and/or COO (Chief Operational Officer)</td>
<td>P5 Service level agreements</td>
<td>R5 Business/IT account management</td>
</tr>
<tr>
<td>S6 IT steering committee (IT investment evaluation / prioritisation at executive / senior management level)</td>
<td>P6 IT governance framework COBIT</td>
<td>R6 Executive / senior management giving the good example</td>
</tr>
<tr>
<td>S7 IT governance function / officer</td>
<td>P7 IT governance assurance and self-assessment</td>
<td>R7 Informal meetings between business and IT executive/ senior management</td>
</tr>
<tr>
<td>S8 Security / compliance / risk officer</td>
<td>P8 Project governance / management methodologies</td>
<td>R8 IT leadership</td>
</tr>
<tr>
<td>S9 IT project steering committee</td>
<td>P9 IT budget control and reporting</td>
<td>R9 Corporate internal communication addressing IT on a regular basis</td>
</tr>
<tr>
<td>S10 IT security steering committee</td>
<td>P10 Benefits management and reporting</td>
<td>R10 IT governance awareness campaigns</td>
</tr>
<tr>
<td>S11 Architecture steering committee</td>
<td>P11 COSO / ERM</td>
<td></td>
</tr>
<tr>
<td>S12 Integration of governance/alignment tasks in roles &amp; responsibilities</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
AGENDA

• Motivation

Research Model

• Case Studies

• Conclusion
The crucial role of stakeholders motivates us to conceptualize the construct *administration/IT alignment* at the center of our model.

**Research model – overview**

- **IT governance**
  - **Structural mechanisms**
    - Locus of IT decision authority
    - Governance committee effectiveness
    - Implementation of liaison management
  - **Procedural mechanisms**
    - Defined investment decision processes
    - Service levels and control procedures
  - **Relational mechanisms**
    - Strength of relational networks
    - Creation of shared knowledge

- **Alignment**
  - Administration/IT alignment

- **Public value through IT**

- **Definition**: The *degree to which the IT goals support the strategic goals of a public agency, and to which administration and IT stakeholders are committed to support these goals*. 

\[ \cap = \text{curvilinear relationship} \]
Structural mechanisms include standing roles and liaison roles that facilitate shared decision-making.

**Structural mechanisms**

- **Locus of IT decision authority** (Brown & Magill 1994; Weill & Ross 2004)
  - The degree to which different stakeholders participate in IT-related decisions
  - Proposition 1a. *Sharing IT decision authority with a strong emphasis on centralization has a positive influence on Administration/IT alignment*

- **Governance committee effectiveness** (Bowen, Cheung et al. 2007)
  - Examples: IT steering committees, IT-internal management councils
  - Proposition 1b. *Governance committee effectiveness has a positive influence on administration/IT alignment.*

- **Liaison management** (De Haes & Van Grembergen 2009)
  - Examples: key users (departmental), single-points-of-contacts (IT)
  - Proposition 1c. *The implementation of liaison management mechanisms has a positive influence on administration/IT alignment.*
Procedural mechanisms can be separated in IT decision making and IT monitoring procedures

Procedural mechanisms

• Investment decision processes (De Haes & Van Grembergen 2009)
  • Examples: IT strategy process, IT budgeting process, IT portfolio management
  • Proposition 2a. *The implementation of defined IT investment decision processes has a positive influence on administration/IT alignment.*

• Service levels and control procedures (Luftman 2000; De Haes & Van Grembergen 2009)
  • Examples: service level agreements, service level controlling, project controlling, benefits tracking, and chargeback mechanisms
  • Proposition 2b. *The use of service level and control procedures has a positive influence on administration/IT alignment.*
Relational mechanisms are those practices that link different stakeholders outside of their role description or formal procedures

Relational mechanisms

- **Strength of relational networks**
  - Indicators: Culture of collaboration, horizontal knowledge sharing, problem awareness, common language (Peterson, O’Callaghan et al. 2000).
  - Proposition 3a. *The strength of relational networks within administration and IT stakeholders has a positive influence on administration/IT alignment.*

- **Creation of shared knowledge**
  - IT knowledge for administration personnel, and knowledge about the administration and its goals and processes for IT personnel (Tiwana 2009)
  - Proposition 3b. *The creation of shared knowledge among administration and IT stakeholders has a positive influence on administration/IT alignment*
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We operationalized each model construct by several items and dimensionalized those on 5-point-scales

**Questionnaire design (overview)**

<table>
<thead>
<tr>
<th>Construct</th>
<th>Items (short)</th>
<th>Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Decision authority</strong></td>
<td>Locus of decision rights for IT principles, infrastructure, architecture, application needs, budget etc.</td>
<td>Adm./IT</td>
</tr>
<tr>
<td><strong>Governance committees</strong></td>
<td>Effectiveness in terms of efficient decision making, goal attainment, addressing requirements</td>
<td>Low/great extent</td>
</tr>
<tr>
<td><strong>Liaison management</strong></td>
<td>Special roles in departments, clear contact persons in IT, clear role descriptions, job rotation, collocation</td>
<td>Not/present</td>
</tr>
<tr>
<td><strong>Investment decision processes</strong></td>
<td>Defined IT strategy, defined prioritization, detailed analysis of risks, phased process, actively used</td>
<td>Low/great extent</td>
</tr>
<tr>
<td><strong>Service levels and controls</strong></td>
<td>Service level agreements, project mgmt. methodologies, measurement and monitoring, chargebacks, etc.</td>
<td>Not/present</td>
</tr>
<tr>
<td><strong>Relational networks</strong></td>
<td>Informal communication and collaboration btw. administration, IT, central functions; internal marketing of IT</td>
<td>Low/great extent</td>
</tr>
<tr>
<td><strong>Shared knowledge</strong></td>
<td>IT and administration employees’ complementary knowledge; trainings for administration and IT workers</td>
<td>Low/great extent</td>
</tr>
<tr>
<td><strong>Adm./IT alignment</strong></td>
<td>IT goals support administration goals, mutual recognition of work, mutual commitment to support goals, etc.</td>
<td>Low/great extent</td>
</tr>
</tbody>
</table>
Example Organization Chart of a Municipality

Source: Schwertsik, Wolf, Krcmar (2001)
To evaluate the survey instrument we conducted interviews with IT decision makers in three different municipalities

**Cases overview**

<table>
<thead>
<tr>
<th></th>
<th>Municipality A</th>
<th>Municipality B</th>
<th>Municipality C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhabitants</td>
<td>60,000</td>
<td>200,000</td>
<td>500,000</td>
</tr>
<tr>
<td>Empl. / IT empl.</td>
<td>900 / 12</td>
<td>1800 / 60</td>
<td>3000 / 185</td>
</tr>
<tr>
<td>Budget / IT budget</td>
<td>250 / 0.5 mn EUR</td>
<td>1000 / 6 mn EUR</td>
<td>4,000 / 30 mn EUR</td>
</tr>
<tr>
<td>Interviewee role</td>
<td>Chief Information Officer (CIO)</td>
<td>Head of IT Coord. and E-government</td>
<td>Deputy Head of E-Gov. &amp; IT</td>
</tr>
<tr>
<td>Outsourcing</td>
<td>Low</td>
<td>Low</td>
<td>Moderate</td>
</tr>
<tr>
<td>Decision authority&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Centralized (4.4)</td>
<td>Centralized (4.2)</td>
<td>Decentralized (3.5)</td>
</tr>
<tr>
<td>IT governance mechanisms&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Focus on struct. (4.0; 2.5; 3.2)</td>
<td>Balanced focus (4.5; 4.3; 3.6)</td>
<td>Improving relational (4.3; 3.4; 3.4)</td>
</tr>
<tr>
<td>Adm./IT alignment&lt;sup&gt;a&lt;/sup&gt;</td>
<td><strong>High</strong> (4.4)</td>
<td><strong>High</strong> (4.4)</td>
<td><strong>Moderate</strong> (3.8)</td>
</tr>
</tbody>
</table>

<sup>a</sup> mean item scores on five-point scale in brackets
We evaluated our propositions through within-case and cross-case comparison

**Preliminary findings**

- **Structural mechanisms**
  - Evidence for 1a: Centralized IT decision rights foster alignment (cases A, B)
  - No particular evidence for 1b: IT steering committees no „differentiator“ (A,B,C)
  - Evidence for 1c: Job-rotation can improve IT alignment (case B)

- **Procedural mechanisms**
  - No evidence for 2a: Less formalized investment processes (cases A, C) do not necessarily lead to weaker alignment
  - No evidence for 2b: Whether charge-backs are used (A) or not (B, C) seems to have no direct impact on alignment

- **Relational mechanisms**
  - Overall level of relational networks (3a) and information sharing (3b) moderate
  - Relational networks and informal collaboration in case C currently improved
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Conclusion
The overall results suggest that relational mechanisms can compensate for a possible ‘lack’ of other mechanisms

Conclusions

• Relational mechanisms can compensate for a ‘lack’ of formal mechanisms
  • Base A: Lack of formal IT planning compensated by good relational networks (“we don’t have a well defined process in a sense that is modeled and documented, but we are living the processes I have in my mind”)
  • Case C: Lack of formal IT authority compensated by informal collaboration (“the office for personnel and organization is joining the project.” “for new projects, no matter what comes up, now we sit together and think who […] has to deliver what […] and this we do regularly”)

• Procedural mechanisms less emphasized than in private sector (?)
  • Compare to emphasis of IT governance frameworks (ITIL, COBIT, & Co.)

• Influence of size and complexity
  • Size and outsourcing degree increase alignment challenges (case C) (“there is always more understanding with colleagues than with external staff.”)

• Some governance ‘best practices’ observed: Job-Rotation, charge-backs
Thank you for your attention!

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