Incorporation of the Enterprise Architecture Function as a Key Element of IT Governance

Abstract: Top performing businesses actively manage their IT governance, with top performers designing governance linked to business performance measures and IT governance being the single most important predictor of the value an organization generates from IT. IT Governance performance, in turn, varies widely as a function of a number of parameters, including how “IT Governance Mechanisms” are managed such that behaviors consistent with the organization’s mission, strategy, values, norms and culture are encouraged. One of the key IT governance “mechanisms” is the Enterprise Architecture function, which serves IT Governance by ensuring proper decision making structures (e.g. architecture committees), business alignment processes (e.g., formally tracking the business value of IT), future state visioning and roadmapping, standards maintenance and enforcement, and IT asset lifecycle management.

This paper presents a summary of the MIT/CISR IT governance model, including characteristics of top performers, a design framework, and tools for assessing a customer organization as part of an engagement in this area.

Areas where the Enterprise Architect function can impact IT Governance performance are noted.

Version 1.0 Draft

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1. Introduction

1.1 Key Questions and Goals:

Effective IT governance must address three main questions:\(^1\):

- What decisions must be made to ensure effective management and use of IT?
- Who will make these decisions?
- How should the decisions be made and monitored?

In addition, organizations may want to understand recommended practices in the area of IT governance and assess areas of potential improvement that can be addressed through the Enterprise Architecture function.

This paper presents a summary of the MIT/CISR IT governance model, including characteristics of top performers, a design framework, and tools for assessing a customer organization as part of an engagement in this area.

Areas where the Enterprise Architect function can impact IT Governance performance are noted below.

The role of the EA function in IT Governance will obviously vary as function of each organization’s interpretation of EA and IT Governance, respectively. Different EA approaches from James Lapalme’s “The 3 Schools of Enterprise Architecture” (IT Professional, unpublished) are provided below for reference. These represent the “scope” of the EA function and thus an organization’s alignment with one of these (or another) will impact how the EA function may impact IT Governance.

<table>
<thead>
<tr>
<th>Scopes</th>
<th>Purposes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enterprise wide IT platform (EIT)</td>
<td>Effective enterprise strategy execution and operation through IT-</td>
</tr>
<tr>
<td></td>
<td>Business alignment. The purpose is to enhance business strategy</td>
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<td></td>
<td>execution and operations. The primary means to this end is the aligning</td>
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<td></td>
<td>of the business and IT strategies so that the proper IT capabilities</td>
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<td></td>
<td>are developed to support current and future business needs.</td>
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<td></td>
<td>Effective enterprise strategy implementation through execution</td>
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<td>coherence. The purpose is effective enterprise strategy implement. The</td>
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<td></td>
<td>primary means to this end is designing the various facets of the</td>
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<tr>
<td></td>
<td>enterprise (governance structures, IT capabilities, remuneration policies,</td>
</tr>
<tr>
<td></td>
<td>work design, etc.) to maximize coherence between them and minimize</td>
</tr>
<tr>
<td></td>
<td>contradictions.</td>
</tr>
<tr>
<td>Enterprise (E). The enterprise</td>
<td>Innovation and adaption through organizational learning. The purpose is</td>
</tr>
<tr>
<td>as a socio-cultural—techno-economic system; hence ALL the facets of the</td>
<td>organizational innovation and adaption. The primary means is the</td>
</tr>
<tr>
<td>enterprise are considered – the enterprise IT assets being one facet.</td>
<td>fostering of organizational learning by designing the various facets of</td>
</tr>
<tr>
<td></td>
<td>the enterprise (governance structures, IT capabilities, remuneration</td>
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<tr>
<td></td>
<td>policies, work design, etc.) as to maximize organizational learning</td>
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<tr>
<td></td>
<td>throughout the enterprise.</td>
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<tr>
<td>Enterprise-in-environment (EIE).</td>
<td>Includes the previous scope but adds the environment of the enterprise as</td>
</tr>
<tr>
<td></td>
<td>a key component as well as the bidirectional relationship and transactions</td>
</tr>
<tr>
<td></td>
<td>between the latter and its environment.</td>
</tr>
</tbody>
</table>

\(^1\) IT Governance", 2004, Peter Weill and Jeanne W. Ross
1.2 Corporate Governance - Quick Review

IT Governance is an important part of “Corporate Governance”, described below:
- Structure for determining organizational objectives and monitoring performance to ensure that objectives are obtained
- No single model, but in many countries, corporate governance is vested in a supervisory board responsible for protecting the rights of shareholders and other stakeholders
- The board works with senior management to implement the firm’s governance principles and to ensure the effectiveness of organizational processes

1.3 IT Governance - What it is and Why It's Important

What it is:
- IT governance specifies the decision rights and accountability framework to encourage desirable behavior in the management and use of IT
- IT Governance reflects broader corporate governance principles while focusing on the management and use of IT to achieve corporate performance goals
- IT Governance is not about making specific IT decisions (management does that) - but instead determines what decisions have to be made and who makes them.

Governance decides who makes decisions and who has accountability
Management is the process of making and implementing decisions and influencing desirable behavior

(simple) (complex)

It’s all part of Corporate Governance
Good governance is marked by desirable behaviors being in synch with governance models. E.g. if the desirable behavior in the business units is "innovation" and centralized IT governance limits business unit autonomy to enable innovation, a mismatch can hinder the business priority.

Why it’s important:
- Good IT governance pays off: firms pursuing a specific strategy (e.g. operational excellence, customer intimacy, product leadership) plus above-average IT governance had higher profits.
- IT is expensive: average IT spend > 4.2% of annual revenues and rising, with IT over 50% of the capital spend, challenging IT to ensure value is created.
- IT is pervasive: well design IT governance mechanisms are required to distribute IT decision making according to degree of centralization.

1.4 IT Governance Performance – Field Data

1.4.1 Characteristics of Top Performers
- Top performing firms succeed by implementing effective IT governance to support their strategies.
- In contrast, enterprises that govern IT by default (vs. actively) can find that IT can work against strategy.
- Enterprises with effective IT governance have actively designed a set of IT governance mechanisms (committees, processes, etc.) that encourage behavior consistent with the organizations mission, strategy, values, norms, and culture.
In these firms, IT can factor significantly into competitive strategy.

- MIT CISR research shows that top performing enterprises governed IT differently than did other organizations, with top performers designing governance linked to business performance measures and with IT governance being the single most important predictor of the value an organization generates from IT.

Because the intent of the Enterprise Architecture function (by most definitions – see “scopes” table in previous blue box) typically includes alignment of IT to business strategy and performance, EA can play an important role in IT Governance.

1.4.2 Characteristics of Bottom Performers

**Symptoms of Poor IT Governance**

- Senior executives can’t describe your IT governance
- Decisions take too long
- There is little accountability for decisions
- Senior management less than happy
  — IT governance performance self assessment is poor or varies widely by respondent
- Sum of (Project ROI_{Business Case} - Project ROI_{PIR}) is not close to zero across all projects
- There is ineffective IT portfolio management —duplication, too many applications, low percentage spend on new initiatives
- IT governance seen as overhead and “red-tape”

Without a cohesive IT governance design, enterprises must rely on tactical solutions, reducing IT’s ability to being perceived as a strategic asset.
1.5 Linking Corp and IT Governance

- MIT CISR's framework for linking corporate and IT governance is shown in the figure below.

Notes:
- The top of the framework shows the board’s relationship with other entities, including the senior executive team, which articulates strategy and desirable behaviors to fulfill board mandates.
- The lower half of the framework shows the six key asset types through which enterprises deliver against strategy and generate value, with examples of mechanisms used to govern the management and use of the Finance and IT assets.
- Note that maturity of the governance across asset types varies widely, with financial and physical assets governed the best and information and IT assets the worst.
1.6 MIT/CISR IT Governance Design Framework

- To help understand, design, communicate, and sustain effective governance, MIT CISR suggests an IT Governance Design Framework.

- The framework maps enterprise strategy and organization, IT governance arrangements, and business performance goals (the items in the grey boxes), which are enacted through IT organization and desirable behaviors, governance mechanisms, and metrics, respectively (the items below the grey boxes).

- IT governance "mechanisms", in turn, determine how key IT decisions are made and monitored.
This framework also illustrates the need to harmonize IT governance with the governance of other key assets.

Architecture committees including members of the EA function can play a key role in IT Governance Arrangements and decision making structures. The EA function also gets involved in alignment of IT with the enterprise’s strategy and organizational makeup and enforces desirable behavior through the implementation and maintenance of architecture standards.

1.6.1 Designing IT Governance for Different Strategic and Structural Drivers

- Although effective IT governance requires harmonization of all six components of the Governance Design Framework (see diagram above), enterprise strategy and organization sets the direction.
- To understand alternative governance designs, focus on alternative business strategies and organization designs.

**Design IT Governance to Address Strategic Objectives**

- Effective governance design consists of a rational set of arrangements and mechanisms harmonized with strategy, structure, and desired outcomes.
- Management teams can assess their governance by mapping their governance arrangements and mechanisms onto a Governance Arrangements Matrix and checking whether those arrangements make sense given the enterprise’s strategic objectives.
- Four management principles summarize how IT governance design helps enterprises achieve their strategic objectives:

  **Make tough choices.**
  - IT governance design encourages desirable behaviors, but if management has been reluctant to establish strategic priorities, individuals receive mixed signals about appropriate behavior.
  - IT governance design requires tradeoffs. Thus, management must decide which is more important: autonomy or synergy; operational excellence, customer intimacy, or product leadership?
  - Every enterprise has conflicting goals, but top performers commit to a small set of most critical objectives.

  **Develop metrics to formalize the strategic choices. IT value can be difficult to measure.** By establishing metrics to capture progress toward strategic goals, management can design IT metrics indicating whether IT governance is working.

  **Determine where organizational structure limits desirable behaviors and design governance mechanisms to overcome the limitations.** Even when enterprises succeed in choosing a small set of strategic priorities, tradeoffs remain. IT governance can transcend organizational structures to enable objectives that are inconsistent with the organizational design.
Allow governance to evolve as management learns the role of IT and how to accept accountability for maximizing IT value.

Additional notes:
- Governance should transcend formal organizational structures and enable strategic objectives.
- Agility demands an ability to rethink business strategy based on market changes, but in most enterprises a major shift in strategy would force a change in organization structure because the structure was designed to achieve a particular strategy.
- By overcoming the limitations of organizational structure, governance can enable greater agility in enterprises.
- Thus, effective IT governance will become increasingly important as the pace of change accelerates.

Strategic alignment and measurement against key performance metrics are key goals of typical Enterprise Architecture programs; thus, the EA function can be an important contributor to IT Governance’s impact on strategic objectives and business alignment.

Design IT Governance for Optimal Business Alignment

- A key strategic decision for multi-business unit enterprises is how to structure business unit relationships.
- Enterprises in the MIT CISR study had an average of eight independent business units.
- Over 83 percent of enterprises have significant pressure to capture synergies between their business units.
- At the same time, over 50 percent of enterprises had significant pressure for autonomy between business units.
- Forty-seven percent of firms felt significant pressure for both synergies and autonomy.
- Requirements for synergies across organizational boundaries expose the limitations of organizational structures in facilitating business strategy.
- A critical role of IT governance is to ensure that organizational boundaries do not constrain strategic objectives.
- Despite the desire to develop both autonomy and synergy across business units, we find that more successful enterprises decide which is more important—synergy or autonomy.
- The figure below defines these arrangements and lists their management implications, drawing out the differences on four dimensions.
The EA role can be a key part of the Business IT Engagement Model (e.g., IT Leadership Team, Tracking Business Value of IT, Management of IT Projects and Services)
Key Organization Roles in Effective IT Governance

1.6.2 IT Governance "Arrangements"

To address the first two key questions re: IT Governance (what decisions should be made and who should make them), MIT CISR recommends the use of a "Governance Arrangements Matrix".
**Decision Types (what decisions need to be made)**

- IT principles - clarify the business role of IT
- IT architecture - defines integration and standardization requirements
- IT infrastructure - determines shared and enabling infrastructure services
- Business application needs - specifies the business need for purchased or internally developed IT applications addressing LOB needs
- IT investment and prioritization - which initiatives should be funded and how should be spent

**Governance Archetypes**

<table>
<thead>
<tr>
<th>Archetype</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Monarchy</td>
<td>A group of, or individual business executives (i.e., CxOs), includes committees comprised of senior business executives (may include CIO). Excludes IT executives acting independently.</td>
</tr>
<tr>
<td>IT Monarchy</td>
<td>Individuals or groups of IT executives</td>
</tr>
<tr>
<td>Feudal</td>
<td>Business unit leaders, key process owners or their delegates</td>
</tr>
<tr>
<td>IT Duopoly</td>
<td>IT executives and one other group (e.g., CxO or BU leaders)</td>
</tr>
<tr>
<td>Federal</td>
<td>Shared by C level executives and at least one other business group (e.g., CxO and BU leaders) Equivalent of the center and states working together.</td>
</tr>
<tr>
<td>Anarchy</td>
<td>Each individual user</td>
</tr>
</tbody>
</table>

IT Architecture (and by extension – the EA function) is a key part of IT Governance decision making.
1.6.3 Mechanisms for Implementing IT Governance

While the Governance Arrangements Matrix maps out the types of decisions and the archetypes for making the decisions, the third question—how these decisions will be made and monitored—requires design and implementation of governance “mechanisms”, such as committees, roles, and formal processes.
Principles for Mechanisms
MIT CISR specified five principles for designing effective set of mechanisms:
1. Choose mechanisms from all 3 types
2. Limit decision making structures
3. Provide for overlapping membership in decision making
4. Implement mechanisms at multiple levels in the enterprise
5. Clarify accountability

The Architecture Committee is an important part of the Decision Making Structure category of Governance Mechanisms. EA members may play a key role on the IT Leadership team, who may be involved in business case review, architecture alignment review, etc.
1.7 Wrapping it all up
2 IT Governance Assessment Framework
Enterprise Architects may get involved in assessing the IT Governance function as part of Enterprise Strategy Program engagements. In this event, the following information should be referenced to aid in that assessment.

The first stage is to understand situations in which an IT Governance Assessment may be warranted. This is shown in the slide below.

If any of these conditions are met, the EA should consider a more detailed assessment as part of the engagement.
2.1 Assess IT and other Asset Type Governance Mechanisms

Describe governance across key general asset types:
- List of mechanisms used to govern each type of asset
- List of mechanisms common across asset types
- Level of integration between IT Governance and other asset types (1-5, 5 highest)
  (MIT CISR poll of 42 CIOs - <3)
Describe the customer’s IT governance and the mechanisms to make and monitor decisions:

- The complexity and difficulty of explaining IT governance is one of the most serious barriers to improvement. We found empirically that the best predictor of IT governance performance is the percentage of managers in leadership positions who can accurately describe IT governance.

- Contributing to governance woes is the fact the majority of senior executives aren’t familiar with their governance.

- On average, CIOs in our study estimated that only 38 percent of managers in leadership positions in their enterprises could accurately describe their IT governance—so how could they follow it?

- How would you describe your customer’s arrangements and their mechanisms (explain how each of the IT Governance Mechanisms listed in the diagram are in use at <customer>)?
2.2 Assess Governance Arrangements

Explain the difference between <customer>’s governance and the most common approach, shown below.

Optional: compare <customer>’s governance to that of others in your industry or region.
2.3 Assess IT Governance Maturity

Best practices to maturing Global IT Governance include the following:

- **Set vision for governance objectives**
  - E.g., what should be shared at which level in enterprise (e.g., regions, businesses, customer type); then govern at that level

- **Start with least controversial services**
  - Make attractive (or compulsory) to adopt

- **Overlay—not establish—IT Governance**
  - Overlay IT governance onto “what ever makes your company great”
  - Use existing governance mechanisms (e.g., operating committee, CapEx process, business process teams wherever possible)
  - Have only a few governance mechanisms specific to IT (e.g., IT portfolio analysis, architecture process)

- **Integrate business processes and IT Governance**
  - Process owners and metrics (e.g., ExxonMobil)
  - IT moves to “own” some business processes
  - IT PMO used for all projects and includes business processes

- **Simplify, speed up, link to incentives, communicate, make part of senior management agenda and make tensions and tradeoffs transparent**

An IT Governance Capability Model can be used to assess the current state of IT governance (across the categories listed below) relative to a desired future state. Any identified gaps can be used to identify future workstreams in the IT Governance area.
2.4 IT Governance Performance Assessment

Assess Your IT Governance Performance

1. Question:
How important are the following business outcomes of your IT governance on a scale from 1 (not important) to 5 (very important)?

<table>
<thead>
<tr>
<th>Business Outcome</th>
<th>Importance</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Cost effective use of IT</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>b. Effective use of IT for business growth</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>c. Effective use of IT for asset utilization</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>d. Effective use of IT for business flexibility</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

2. Question:
How successfully does your IT governance influence these business outcomes on a scale from 1 (not successful) to 5 (very successful)?

<table>
<thead>
<tr>
<th>Business Outcome</th>
<th>Success</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Cost effective use of IT</td>
<td></td>
<td></td>
</tr>
<tr>
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</tr>
<tr>
<td>d. Effective use of IT for business flexibility</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Importance Total = 
Total = 

3. Calculate governance performance: (Total + Importance Total) x 20 = 


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Assess Your IT Governance Resilience

For each of the following assess your IT governance on a score of 1 (strongly disagree) to 5 (strongly agree):

1. Our senior executives could accurately describe our IT governance.
2. Our IT governance was actively designed—not a series of uncoordinated mechanisms.
3. Our IT governance is stable with few changes in recent years.
4. Managers who ignore the IT governance are counseled to follow the guidelines.
5. There are a small number of key business objectives driving our IT governance design.
6. We have a well defined and fast exception process that requires political capital to escalate.
7. The IT governance has a clear owner(s) and measures of success.
8. The pay, incentives, and the IT governance are well aligned.
9. We have effective IT governance at both firm wide and BU levels which are linked.
10. Our CIO could leave for two months and our IT governance would work well.

X 2 = TOTAL

Center for Information Systems Research (CISR) The ten items were derived from analysis of top performing firms with effective IT governance.
2.6 IT Governance Review Checklist

Reviewing IT Governance

1. Map enterprise’s governance onto one page (as in the example).
2. Audit IT governance mechanisms:
   – Are they effective independently & together?
3. Is your governance encouraging desirable behavior appropriate for your performance goals? Assess IT governance performance.¹
4. From your current governance performance and the top performers’ governance refine your governance on one page.
5. Tailor to your enterprise’s culture, structure, strategy & incentives.
6. Widely engage and communicate ensuring each participant knows how to perform their role.

³ Use the diagnostics provided in the slides.


3.0 Conclusion
Top performing companies have effective IT governance, whereas with bottom performing companies, IT governance is mostly an afterthought. The EA function can play a key role in effective IT Governance and alignment with an organization’s strategy and business performance. Given an understanding of an organization’s IT Governance “Arrangements”, “Mechanisms”, “Maturity”, “Performance” and “Resilience”, the Enterprise Architect can recommend changes required to better align the IT function with enterprise goals and strategy.