Architecting the IT Organization
Clarifying the Contributions of Enterprise Architecture, IT Governance, and ITSM to the IT Value Chain

EDUCAUSE WORKING GROUP PAPER

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IT organizations are pursuing growth in three fundamental practice areas—enterprise architecture, IT governance, and IT service management—to direct the development and delivery of IT services that maximize value to the institution and ensure alignment with its goals. This paper discusses how these areas can contribute most effectively to the value chain and provides guidance to institutions on how to best do this.

**Introduction**

Digital transformation (Dx) is more than a buzzword. New technologies from artificial intelligence and machine learning to mobile and cloud are changing the way society approaches problems and creating demand for new services at a rapid pace. But Dx is not about technology alone—it is a series of “cultural, workforce, and technological shifts” informed by customer-centric design. Higher education institutions are at the crossroads of Dx, both leading the charge through research and innovation and experiencing the resulting shifts in application and expectations. The IT organization is in the challenging position of supporting the institution as it takes advantage of myriad new possibilities while ensuring that the enterprise is sufficiently prepared to manage those possibilities. Given this, it is critical that the services IT provides are aligned with the goals of the institution. Melding the necessary agility and stability requires attention to the fundamental practices of information technology.

To help their institutions adapt, IT organizations are pursuing growth in three fundamental practice areas: enterprise architecture (EA), IT governance, and IT service management (ITSM). These practice areas enable the institution’s administration, academic leaders, and IT management to direct the development and delivery of IT services that maximize value to the institution and ensure alignment with its goals. These distinct, related, and possibly overlapping practice areas have gained traction, as evidenced by the existence of engaged EDUCAUSE Community Groups: IT Governance, Risk, and Compliance (IT-GRC); Information Technology Service Management (ITSM); and ITANA—Enterprise, Business, and Technical Architecture (EA). Members of these three communities

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**What Is Dx?**

Digital transformation (Dx) is a series of deep and coordinated culture, workforce, and technology shifts that enable new educational and operating models and transform an institution’s operations, strategic directions, and value proposition. For more information see [Digital Transformation of Higher Education](#).
came together in recognition of a need to better understand the connections between these areas, resulting in this paper.

Since each institution is unique, these practice areas often develop independently and organically, starting in different departments, and positioned within different organizational structures. As a result, the processes in these areas are frequently at different levels of maturity, and the relationships between them may be absent, poorly defined, or awkwardly managed. The diversity of these practice areas across higher education and within the complex organizational structure of each institution is generating considerable confusion in many institutions.

As these practice areas grow at their own pace in your organization, they are likely to eventually overlap in scope, resulting in redundancy or even conflict. In addition, over the past fifteen years the goals of each practice area have evolved in higher education. The background and framework in this paper will help

1. senior leaders overseeing multiple practice areas consider how to set goals and scope of their practice areas (for your particular organization) and avoid redundancy or conflict;

2. leaders potentially adding one of these practice areas to their organization consider how to set it up for success in context with other practices; and

3. practitioners understand potential overlap with other practice areas and consider how to work together.

In this time of change, we felt a need to convey how institutions are re-architecting their IT management approach. As a starting point, that understanding requires some foundational work to better explain each area on its own, to learn where connections are and should be made, what steps to take, and what a future state might look like. This paper is intended to provide a greater understanding of these concepts to help begin conversations locally.

A Value Chain Perspective on IT

To compare the contributions of EA, IT governance, and ITSM, it helps to have a shared context to place them in. The Open Group’s IT4IT Reference Architecture\(^2\) represents how an IT organization creates value, proposing a value chain with four value streams:\(^3\)

- **Strategy to Portfolio:** Assess strategic demands and decide what IT will offer in its portfolio.
- **Requirement to Deploy**: Design and implement offerings in the IT portfolio.
- **Request to Fulfill**: Enable customers to use offerings in the IT portfolio.
- **Detect to Correct**: Operate, monitor, support, and manage IT resources on an ongoing basis.

Within this model, EA, IT governance, and ITSM are practice areas that enable the IT organization to deliver value. They do so alongside other supporting activities such as management of finances, vendors, human resources, and compliance.

EA, IT governance, and ITSM all have potential to contribute to several parts of the IT value chain. Fully fledged EA, IT governance, and ITSM all seek to help an IT organization engage stakeholders and make the best IT portfolio decisions based on strategy (Strategy to Portfolio). And they all seek to guide the design of IT products and services (Requirement to Deploy). Of the three, ITSM is the broadest, also seeking to help the IT organization manage fulfillment and operation of services (Request to Fulfill and Detect to Correct). Figure 1 summarizes where EA, IT governance, and ITSM potentially contribute to the IT value chain:

![Figure 1. EA, IT governance, and ITSM contributions to the IT value chain](image)

Given this potential, it is incumbent on each IT organization to clarify the current and intended scope of EA, IT governance, and ITSM, as discussed below.
The Scopes of EA, IT Governance, and ITSM Are Variable

The current scopes of EA, IT governance, and ITSM vary significantly by institution. Each practice area has a broad potential scope based on industry definitions, and those definitions have changed over time. Within each institution, practitioners adapt to local needs. Table 1 shows our general observations of these scopes at higher education institutions.

Table 1. Defining and scoping EA, IT governance, and ITSM

<table>
<thead>
<tr>
<th>Practice Area</th>
<th>Range of Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Enterprise Architecture</strong> remains</td>
<td>The scope of IT efforts that EA works on can be limited to architecting technology solutions or can extend to IT’s strategies, projects, services, and internal processes (as well as those of business units in the institution).</td>
</tr>
<tr>
<td><strong>IT Governance</strong></td>
<td>The scope of IT investments that IT governance works on can be limited to reviewing individual IT projects or can extend to IT’s goals, strategies, roadmaps, and portfolios of projects and services.</td>
</tr>
<tr>
<td><strong>IT Service Management</strong></td>
<td>The scope of IT processes that ITSM works on can range from operational drivers, such as improving support, problem resolution, and change control, to processes that define strategy, prioritize investments, and ensure good service design.</td>
</tr>
</tbody>
</table>

EA, IT Governance, and ITSM Evolve in Each Organization

As each practice area grows in an organization over time, its scope can change to support more parts of the IT value chain. Over time, the IT organization also often goes from initially adopting some concepts from each practice area to formalizing a dedicated team around one or more practice areas. Often all these changes take place without an encompassing long-term roadmap. As an example, in a large central IT organization, the evolving “story” of EA, IT governance, and ITSM in relation to the IT value chain might look something like figure 2.
Examples at Three Institutions

Enterprise Architecture

Enterprise architecture at the University of Washington is a program in central IT, charged by the CIO to help stakeholders maximize the architectural value of their services, solutions, data, processes, and organizations on behalf of the UW. A team of four architects provides consulting services, promulgates architecture principles and reference architectures, offers architecture education and outreach, and supports IT management. The EA team primarily works within central IT, coupled with some outreach across the UW’s three campuses.

- In relation to ITSM, the EA team helps IT managers and teams define service strategies, design service models, and perform architectural analysis and design in projects to establish services. Members of the EA team lead or staff the IT organization’s ITIL processes for service strategy, portfolio management, and service design coordination, in partnership with the organization’s Service Management Office.

- In relation to IT governance, the EA team both enables and is a decision maker in governance processes. The director of EA is a member of the IT organization’s Portfolio Review Board reviewing IT projects. The EA team also facilitates the IT organization’s strategy process and its Service Management Board, one of several forums for IT governance by non-IT
stakeholders. Finally, the EA team is part of projects to improve governance processes and provides decision-making guidance such as architecture principles and scorecards.

**IT Governance**

At North Carolina State University, strategic IT decisions are considered by IT governance. The scope of IT governance spans the major functions of the university and IT: teaching and learning; research, creativity, and scholarship; user experience; and enterprise applications, as well as overall IT policy and strategy. IT governance advises the CIO and is composed of non-IT stakeholders and leaders across the university. IT governance participants are expected to bring forward the needs of their constituencies and to help create forward-looking strategic plans and recommendations.

- *In relation to ITSM,* IT governance has input into service strategy and may make recommendations regarding financial management. The primary interaction with ITSM is the interaction with service portfolio management, where IT governance makes recommendations for new services, service changes, or the discontinuation of existing services.

- *In relation to EA,* NC State is in the early stages of developing enterprise architecture functions. IT governance provides a structure that can contribute to enterprise-wide IT strategic planning and supports the development of effective organizational processes through stakeholder collaboration.

**IT Service Management**

University IT Services at the University of Wisconsin–Milwaukee decided to adopt the ITIL best practices framework for IT service management to improve service delivery and, in turn, increase customer satisfaction. Working together, the processes and functions defined within ITIL focus on the entire life cycle of a service, including service strategy, design, transition to operation, ongoing support, continual service improvement, and decommissioning when the service
is no longer needed. These processes are designed to ensure that IT services align with the needs of customers; improve availability and stability of service; improve communication within IT and with customers; set appropriate expectations for IT services; and improve efficiency of internal processes.

- **In relation to IT governance**, IT service management has provided the development of service and project portfolios that aid in project intake, which feeds into the campus senior administrative IT governance council and the faculty IT governance committee. The process allows feedback and informed decisions to become a part of a project supporting the strategic goals of the campus in a transparent way, meeting fiscal, business, IT, and compliance requirements.

- **In relation to EA**, UW–Milwaukee is exploring the feasibility of the development of an enterprise architecture environment. This is occurring through an assessment of the current state of the ITSM and IT governance practices to discover gaps that may exist for further definition and benefits that an enterprise architecture practice will provide.

### Clear Scopes and Responsibilities Enable the IT Value Chain

As the examples above illustrate, EA, IT governance, and ITSM can contribute most effectively when their scope is well defined and understood. As these practice areas grow together in an organization, their scope should be discussed and aligned. Otherwise, these practices may inadvertently develop competing visions that can disrupt the IT value chain.

Without coordination, practitioners in EA, IT governance, and ITSM in your organization could all reasonably believe that they hold primary responsibility for enabling key parts of the IT value chain. A reasonable perspective from each practice area could be:

- **Enterprise Architecture**: “We work with teams and managers at all levels to increase alignment of IT with institutional needs. We proposed the current IT governance structure, operate it, and are key to the IT organization’s relationships with non-IT stakeholders. We help the organization mature all its internal processes, of which ITSM processes are one important part.”

- **IT Governance**: “We align IT to institutional goals, define IT strategy, and identify institutional outcomes for IT. We prioritize not only what services
ITSM should work on but also the resources allocated to service management itself. Regarding EA, we direct its strategic priorities like any other IT service.”

**IT Service Management:** “We lead IT’s long-term roadmap for how to manage and grow itself as an organization—all of its services, products, processes, resources, and assets. IT governance and EA are both functions that contribute within the overall ITSM approach.”

As these statements suggest, EA, IT governance, and IT service management have the potential to intersect in their contributions to the IT value chain in IT strategy and portfolio management, in engagement with non-IT stakeholders, and in guiding the design of IT products, services, and processes (figure 3).

![Figure 3. Typical intersections of EA, IT governance, and ITSM](image)

An IT organization’s capabilities at these intersections directly affect its ability to react to changes, including digital transformation and all its impacts on the institution. These capabilities represent the IT organization’s ability to integrate the strategic vision of the institution and respond with effective service delivery. To support discussion in your IT organization, typical activities in each capability are shown in table 2. You should feel free to add activities that are important to your organization.
Table 2. Capabilities and typical activities

<table>
<thead>
<tr>
<th>Capability</th>
<th>Typical Activities</th>
</tr>
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</table>
| IT Strategy                         | • Review institutional strategies to identify drivers for IT.  
• Assess industry trends in higher education IT to identify drivers for IT.  
• Propose and gain agreement on IT strategies, including drivers, goals, initiatives, and measures of success.  
• Work with IT teams to develop their specific strategies in greater detail. | |
| IT Portfolio Management             | • Based on agreed-upon strategies, prioritize investment in IT services and projects.  
• Review current IT services relative to demand.  
• Propose, review, and prioritize new or changing IT services.  
• Propose roadmaps of IT projects.  
• Review and prioritize proposed IT projects.  
• Resolve escalated issues as projects are executed. | |
| Engagement with Non-IT Stakeholders | • Assess demand for and satisfaction with IT products and services.  
• Work with non-IT stakeholders to define measures of value for IT.  
• Engage non-IT stakeholders in productive relationships with IT at multiple levels.  
• Ensure that non-IT stakeholders and institutional needs are represented in decision-making about, and within, IT projects and services. | |
| Guiding the Design of IT Products, Services, and Processes | • Translate from strategy, investment, and portfolio decisions to high-level design for specific products, services, and processes.  
• Define decision-making about and delegation of accountability for design of products, services, and processes.  
• Establish architectural guidelines or standards for the design of products, services, and processes.  
• Establish processes by which guidelines or standards are applied and design decisions are reviewed as needed.  
• Ensure that the designs are based on thorough understanding of actual needs. | |

Next Steps in Your Organization

To clarify the mission of EA, IT governance, and ITSM as they grow, we suggest a joint management conversation about your IT organization’s future needs for the capabilities these practice areas can provide, especially where they typically intersect. This conversation can also benefit from including non-IT stakeholders. Table 3 shows sample topics for discussion.
Table 3. Sample questions for joint conversation, based on state

<table>
<thead>
<tr>
<th>State</th>
<th>Sample Questions</th>
</tr>
</thead>
</table>
| **Current State**| • What is the current scope of EA, IT governance, and ITSM practices in our organization?  
|                  | • How are the capabilities described in table 2 met today?                        
|                  | • Which activities in each capability are most important to us?                  
|                  | • In which activities do we currently experience bottlenecks, competing approaches, or other issues? |
| **Future State** | • Based on our organizational strategy, do we intend to carry out these capabilities centrally, delegate responsibility for them, or some of both? 
|                  | • What are our priorities and goals for improvement in these capabilities?       
|                  | • Based on the needs of the organization and the readiness of each practice area, who should lead, manage, or contribute to recurring work and continuous improvement in each capability?  
|                  | • Are our EA, IT governance, or ITSM practice areas well situated to contribute, or should other actors in the IT organization take this responsibility?  
|                  | • Do we have a long-term need to formalize EA, IT governance, or ITSM as programs [if they are not today]? |
| **Planning**     | Whoever is designated to contribute to each capability, further consider:          
|                  | • Are they aware of their role and its intended scope?                           
|                  | • Are they empowered to carry it out?                                            
|                  | • What are the organization’s expectations for success?                          
|                  | • Do they have what they need now? What more will they need over time?           
|                  | • How will senior management sponsor, guide, and evaluate the activity?          |

**Conclusion**

As digital transformation and related changes influence the mission of enterprise IT, managers have the opportunity to reflect on the capabilities that enable the IT value chain and architect the IT organization for the future, including its practices in EA, IT governance, and ITSM. These three practice areas intersect in helping the IT organization integrate the strategic vision of the institution and respond with effective service delivery.

Since each institution is unique, these practice areas will continue to develop organically, with different scopes, missions, and organizational structures. However, IT organizations can benefit from using the starting points provided here to clearly define the capabilities they need, the scope of each practice area, and how they will be supported and aligned.
The higher education IT community continues to develop these practice areas in the EDUCAUSE Community Groups: IT Governance, Risk, and Compliance (IT-GRC); Information Technology Service Management (ITSM); and ITANA-Enterprise, Business, and Technical Architecture (EA). We encourage you to join the conversation and shape best practices and the connections between these areas.

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Notes

2. Open Group, IT4IT Reference Architecture, version 2.1.
3. Although the IT4IT framework builds on service management concepts, we consider these concepts to be helpful regardless of whether ITSM is established in your IT organization.
4. Like many institutions, the University of Washington has adopted the Information Technology Infrastructure Library (ITIL) as its starting point for ITSM.

About EDUCAUSE

EDUCAUSE is a higher education technology association and the largest community of IT leaders and professionals committed to advancing higher education. Technology, IT roles and responsibilities, and higher education are dynamically changing. Formed in 1998, EDUCAUSE supports those who lead, manage, and use information technology to anticipate and adapt to these changes, advancing strategic IT decision-making at every level within higher education. EDUCAUSE is a global nonprofit organization whose members include US and international higher education institutions, corporations, not-for-profit organizations, and K–12 institutions. With a community of more than 99,000 individuals at member organizations located around the world, EDUCAUSE encourages diversity in perspective, opinion, and representation. For more information, please visit educause.edu.

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