Enterprise Architecture for Project Managers

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Table of Contents

Introduction

Project managers encounter the subject of enterprise architecture (EA) at various times during their projects. Often there is uncertainty about the relationship between projects and EA.

Who's on first? Is EA primarily charged with providing solutions in support of project priorities and requirements? Or are projects limited to EA standards in designing technical solutions to meet customer needs*?*

Where's Waldo? Should PMs have a seat at the table when EA decisions regarding their projects are made? Or should EA sit as a stakeholder or participant in project decisions? Maybe both? Maybe neither?

What's up, Doc? Whatever the relationship, it is certain each discipline must keep the other informed. PMs should provide information available to EA during planning, design, and development phases of their projects. EAs should describe changes to the Technical Architecture that affect how new and existing systems operate. The organization should establish a defined set of communication, documentation, and review between projects and EA.

So why the diff[1]? Simply put, projects are not EA centric and EA is not project centric.

- Projects (IT and non-IT) are limited to a subset of organizational elements and functions defined in the project scope. They are temporary endeavors entailing project initiation, planning, executing, controlling, and closing. In short, *now you see it, now you don't.*

- EA entails all elements and functions of the organization – business, administrative, and information technology. EA is not project centric. It is an ongoing program. As such there is no beginning, middle, or end to EA. It continuously delves into current operations, enablers (both IT and non-IT) in order to foresee likely and desirable future states of the organization.

All this is not to say there are no EA projects, or that projects do not impact EA. The issue at its core is:

> ***Each discipline is worried the other will go off in its own direction without regard to their concerns.***

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[1] I struggled to allow myself the informality that appears here and there in this paper. Of course it is not strictly professional, but the light tone helps the reader to see that though this is a serious subject, it is best approached with an open mind to avoid the pitfalls of letting strong opinions get in the way of sound progress.

Purpose

Although it is important that PMs are aware of the larger business focus of Enterprise Architecture, it is *vital* that they understand the EA technical architectural impacts and how they affect project decisions. This is true for organizations with actionable EA programs, and also where virtually no Enterprise Architecture exists. When it comes to EA, less is not more. Without EA it is difficult to set business and technical priorities, see the requirements forest for the trees, complete cost/benefit analysis, establish realistic effort and duration estimates, or talk to executives and stakeholders using an already agreed upon set of business principles.

In other words it's everyday life for PMs.

Accordingly, this paper sets out to explain EA in Project Management terms, and provides examples you can use to plan, manage, negotiate, and successfully navigate EA implications to your project. The paper answers basic questions such as:

> The purpose of this paper is to provide a working knowledge base for project managers to understand EA and the possibilities for interaction with its practitioners.

- What is Enterprise Architecture?

- What does EA consist of?

- How does Project Management align with EA

What Is Enterprise Architecture?

EA identifies the business processes that execute or support an organization's mission.   It defines how Information Technology (IT) assets directly enable those processes. The purpose of EA is to optimize and transform the often fragmented processes, information, applications, and system technologies into an efficient and integrated environment supportive of the execution of business strategy.

Why Is EA Needed?

Enterprise Architecture began as a movement for aligning IT strategy, technology and processes with the organization's broader business goals. It is used to reduce complexity, establish solid technology processes and ensure IT is used consistently across business units and functional areas. Increasingly,

EA is expanding to include review and redesign of the organization's business processes as well as its technology[2].

Many of the most pressing problems businesses face have one thing in common – they are cross functional across many administrative boundaries. IT can have limited impact on these problems if business processes and relationships are not normalized across the organization. EA was born to solve this problem.

What are the benefits of EA?

Here are some:

- Bridge the gap between business strategy and implementation

- Improve alignment of IT with mission, goals, and objectives

- Create an integrated view of the overall enterprise by linking goals and objectives to organization's mission.

- Support business capabilities for meeting goals and objectives, including underlying business processes, information, applications, and technologies

- Improve interoperability and information sharing

- Define standards and specifications for enterprise application and information integration

- Improve flexibility by identifying important areas of standardization and integration to reduce cost while improving maintainability, sustainability, and extensibility.

- Reduce redundancy, duplication, complexity and information silos

- Reduce business risk associated with IT and reduce risk for future IT investment

- Enable faster, simpler and cheaper procurement

- Enable predictable success of projects and realization of their defined objectives

EA vs Projects

Projects are initiated by a decision to improve business operations. It may be for new construction, moving locations, changing hiring and other back-office practices, improving IT

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[2] There are many other descriptions of EA. In some, EA is IT-centric; in others, EA is business centric evaluating all information and process flows -- manual or IT -- in the organization. This paper allows for the business centric EA model, while primarily elucidating the IT EA model.

and non-IT security, expanding services or product offerings to its customers and, as they say, etc., etc.

EA and projects have some important things in common. At the time of each a precise scope is not known, and many facts will need to be gathered through a process of requirements definition. Requirements definition is the product of three analysis activities:

- Identification and documentation of how the business operates currently – the "As-Is" state.

- Creation of a model describing desired future operations – the "To-Be" state.

- Development an approved list of what will need to be accomplished to move from the current to the future state – the Gap Analysis.

- Crafting of a path that describes how the Gap will be closed.

Despite these common threads, the differing nature of projects vs. EA leads to very different approaches to each.

What Does EA Consist of?

The primary work of Enterprise Architecture is to create a model of a future state, and develop a plan – the Roadmap – that describes the Reference Model for the future state, the gaps to be filled to reach it, and the work to be completed to do so. Sound a bit like a project Charter? The EA difference, is its charter is permanent and organization-wide. While projects operate within limited subsets of the organization, EA operates across the whole.

EA Domains

The EA program consists of domains. Here are the four cornerstone domains and suggestions for PMs for interacting with each of the domains.

Business Architecture

BA documents enterprise-wide business processes in a Business Process Model. The Model consists of core business activities, essential input and output information, and major process triggers at a high level. The BA domain engages in continuous business analysis to progressively document details of the business processes.

➢ PMs should include in their communication plans sharing of the business process modeling deliverables, especially the "To-Be" model. EAs can help your team better understand the project business context such as: constraints, opportunities, other projects or changes underway or planned, EA enablers and restrictions for problem solutioning and technical design.

Information Architecture

IA focuses on identifying key business objects, data objects and data artifacts. It does not collect all the details of the data and information. These business objects, data objects and data artifacts guide the design and evolution of data and information in the organization. The IA domain also engages in continuous information analysis to further elicit the key data and information.

➢ Projects should work with the Enterprise IAs to align data and information plans with the Enterprise program. In organizations with more advanced EA programs[3] the IA can use the Enterprise Reference Model to advise the project team on how to meet the project's technical requirements.

Applications Architecture

AA identifies and describes the organization's major application technology. AA includes descriptions of how applications interact with external applications. The analysis is used to inform decisions about the need for future state enterprise-wide services and capabilities. Examples include single sign in, data warehouse, and systems interoperability. Once again, AA does not delve into the detailed design of applications, but focuses on how the major applications fit within the Enterprise Infrastructure.

➢ The AA team can provide advice to help project planners and designers avoid "re-inventing the wheel." For example, the COTS chosen to implement a new licensing application may provide digital signature services. However, a service is already in place at the Enterprise level. Customers are already using the existing service which is readily deployable as part of the COTS solution. A decision to go with the COTS digital signature service could easily fly under the radar because it is included at no additional cost with the already approved COTS. And yet, the goal of EA is to *reduce* technology that only duplicates what is already productively in use.

Technical Architecture

TA identifies the IT infrastructure available to support application operation. TA also identifies hardware and software components that will be needed to meet the future state designs described by the IA and AA. Primary components of the TA are the organization's IT resources including the hardware devices, system software, and networking services. TA describes the

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[3] "**Advance EA programs**" is a complex subject area that is not per se relevant to PMs. It involves assessing an organization's current maturity and using best practices, industry standards, and legal/policy constraints to develop a Roadmap to future greatness. And of course, as in all things Enterprise, it's more than that too.

structure and interaction of the services provided by the computational resources and networks, and the technology components that enable these platform services.

> ➢ The TA can be the least flexible of EA domains. The TA must allow for adding common computing devices, such as servers, network nodes. But changes can be time consuming, uncertain, and failure-prone because of the dependency upon resources outside of the project purview: delivery delays from suppliers or shipment of products that end up not working. Local infrastructure resources missing installation due dates. These and other structural constraints impinge upon technical architecture solutioning at the project level. Use of the TA can help project architectural decisions avoid many of these problems.

Project Management Alignment with EA

We have seen that Enterprise Architecture and Project Management overlap in many areas. However, we have also seen that the focus of each is very different. Ultimately how the two should interact is decided by organizational policy and practices. This is true even where there are no coherent policies just "seat of the pants" practices.

The PMO Nexus

The PMO is the nexus between enterprise architecture and Project Management functions. Following are some of the areas of overlap between the two functions, and best practices for distinguishing duties between them.

- *Strategy*: EA describes business and IT strategic alignment, while PMO supports IT strategic planning.

- *Investments*: EA provides guidance for business investment and budget decisions. PMO supports the budget processes and monitors expenditures.

- *Governance and Review Process*: EA participates in the review of project performance, including that of the PMO. EA is a member of a Governance Review Board with oversight of project portfolio planning, and project performance against scope, schedule, costs, risks, and quality. The PMO leads this review process, adds new projects to project portfolios, and monitors and reports risks, issues, and performance problems.

- *Acquisitions*: EA ensures IT assets meet current and planned architectures and technology standards, and provides support for new acquisitions. PMO supports development of procurement package through cost estimates, Request for Proposals, and selection plans.

The PMO should develop a set of standards, deliverables, processes, and practices for projects to follow. The standards should reflect the Governance review processes, and EA guidance regarding project impacts upon EA designs and plans.

Change Control Board

The Change Control Board (CCB) is another nexus between projects and EA. The CCB is a baseline requirement for managing IT. The CCB reviews technology decisions, including project change requests that might impact the Enterprise Reference Model. The PMO EA have seats on the CCB and/or provide expert advice and recommendations to the Board. This process normalizes change request processing while mitigating against project decisions that create additional unnecessary complexity for information management. Normally project solution architects and PMs attend Board meetings to present and answer questions about their requests.

PM Roles and Responsibilities

While the PMO provides the standards for interaction between Project Management and EA, it is the PM's responsibility to assure that their projects meet the standards. The following are examples for some typical project activities:

- **Review I/T Plans & Directions:** This is phase has a direct tie-in with EA. EA describes both the current environment as well as the future plans and directions for IT.

- **Identify High Level Requirements:** The results from this activity may be directly related to current EA capabilities and future state plans. Following up on the digital signature example (see the bottom of page 5 above). The digital signatures requirement for physicians may be complex due to HIPPA, clinical protocols, and physician expectations. The existing enterprise digital signature solution may not meet the extended requirements. EA can work with project architects to decide on the best plan for meeting customer needs.

- **Describe Solution:** Depending upon organizational practices, the proposed solution is reviewed and approved by the Change Management Board, or some similarly charged body. EA should have a seat at the CMB to review project solutioning plans. Normally any solution element requiring changes to the enterprise services and technologies and plans should have been raised beforehand for all impacted service providers (DBA, security, networks, etc.) as well as EA.

As always, it is the PM's responsibility to communicate effectively throughout the organization in order to keep the project on track and its nose clean.

Wrap Up

As stated in the Purpose section above, the main questions regarding EA and PM have been addressed:

- What is Enterprise Architecture?

- What does EA consist of?

- How does Project Management align with EA?

We have seen the EA is a permanently established enterprise program describing how existing systems, information, and processes operate; while creating a vision and roadmap for continuous improvement of enterprise capabilities.

Projects also look at the current state and describe a future, improved state. However, projects are temporary, limited to a scope to improve certain functions, processes, and information flows to better meet the organization's goals and objectives in defined areas.

We have also seen that coordination between EA and projects is a PMO function. The PMO also develops EA related tasks, deliverables and processes required for projects. The PM in turn includes the PMO standards in the Project Management Plan (at minimum including EA tasks and deliverables in the WBA and PM software tool, and the Communication Plan).

Finally, the role of the CCB and its intersection with projects has been described.

I hope you have learned enough to make you dangerous; not too dangerous, though, just enough to help you navigate through discussions of Enterprise Architecture. You have my permission to act like you know what you're talking about. Why not? Everyone else does[4].

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[4] Please see note 1 on page 1.