Chapter 9
Developing an Enterprise Architecture Management Plan

Chapter Overview
Chapter 9 discusses the development of an EA Management Plan, which is the document that describes how an enterprise will manage the transition of its current processes and resources to those which will be needed in the future. This transition from the current EA to the future EA is an ongoing activity, as new resources are implemented and therefore become part of the current EA. The purpose of configuration management and version control are also discussed, along with the need to provide a sequence for implementation projects.

Learning Objectives
- Understand the purpose of an EA Management Plan.
- See an example format for an EA Management Plan.
- Understand the types of content that go into an EA Management Plan.
- Understand the purpose of summaries of the current and future architecture.

Introduction
The EA Management Plan documents the enterprise’s performance gaps, resource requirements, planned solutions, a sequencing plan, and a summary of the current and future architecture. The Plan also describes the EA governance process, the implementation methodology, and the documentation framework. It is a living document that is updated at regular intervals (e.g., annually) to provide clear version control for changes in current and future views of EA components and artifacts throughout the framework. The EA Management Plan should be archived in the on-line EA repository to support easy access to the information and to promote the linkage of EA to other IT management processes.

Discussion
The enterprise’s EA is in continual transition as IT implementation and upgrade projects are completed. Large and mid-size enterprises often have many IT projects underway at any given time, which requires an overarching level of coordination, prioritization, and oversight. As is shown in Figure 9-1, the EA Management Plan provides this coordination and supports oversight for changes to the enterprise’s EA, between the current and future views.

Figure 9-1: The Role of the EA Management Plan
Home Architecture Analogy: The EA Management Plan is like the architect’s project plan, which summarizes the work and shows the design, approach, timeframe, and sequencing of work for the remodeling of a home.

EA transition and the management thereof are documented in an EA Management Plan, which has several sections as is shown in the example format provided in Figure 9-2 on the next page.

Enterprise Architecture Management Plan

Part 1. EA Program Management
1.1 Governance and Principles
1.2 Support for Strategy and Business
1.3 EA Roles and Responsibilities
1.4 EA Program Budget
1.5 EA Program Performance Measures

Part 2. EA Current Architecture Summary
2.1 Strategic Goals and Initiatives
2.2 Business services and Information Flows
2.3 Systems and applications
2.4 Technology Infrastructure
2.5 IT Security
2.6 EA Standards
2.7 Workforce Requirements

Part 3. EA Future Architecture Summary
3.1 Future Operating Scenarios
3.2 Planning Assumptions
3.3 Updating Current & Future Views
3.4 Sequencing Plan
3.5 Configuration Management

Part 4. EA Glossary and References

Figure 9-2: Example Format for an EA Management Plan

EA Management Plan: Part 1. EA Program Management

EA as a management program supports policy development, decision-making, and the effective/efficient use of resources. The EA Program Management section documents the activities associated with administering EA as an ongoing program.
1.1. **Governance and Principles**: This section documents the way that policy and decision-making will occur within the EA program. It is also where the underlying principles of the EA program are articulated. EA governance is perhaps best described through a narrative that provides EA program policy and an accompanying flow chart that shows how and when decisions are made on EA issues such as IT investment proposals, project reviews, document approvals, and standards adoption/waivers. EA principles articulate the enterprise’s values as they relate to the EA. These principles then guide the EA program’s establishment and management. Examples of EA principle are (1) the degree to which the enterprise promotes the open sharing of information, (2) an emphasis on stakeholder participation, (3) the recognition that IT is normally a means and not an end in itself, (4) an emphasis on using commercial products that are based on open standards, and (5) a recognition that EA adds value for planning, decision-making, and communication.

1.2. **Support for Strategy and Business**: This section emphasizes that one of the main purposes of the EA program is to support and improve the enterprise’s strategic and business planning, as well as to identify performance gaps that EA components can help close. By showing how EA components are being currently used, and identifying useful new processes and technologies at each level of the framework, improvements in performance can occur that are captured in the future EA views. For EA components to be viewed as a strategic asset and EA be viewed as part of the strategic planning process, business executives must see the value of the EA program in supporting the outcomes that matter to them. It is therefore important to show the linkage of the EA program to the accomplishment of the enterprise’s strategic goals, as well as to clearly show how EA components support line of business activities.

1.3. **EA Roles and Responsibilities**: This section documents the roles that stakeholders in the EA program will play, and what the responsibilities associated with those roles will be. This is where the players on the EA team are also identified. A table format is an effective way to show roles and responsibilities, as is exemplified in Figure 9-3.

<table>
<thead>
<tr>
<th>EA Team Position</th>
<th>EA Team Role</th>
<th>EA Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sponsor</td>
<td>Executive Leadership</td>
<td>Be the champion of the EA program. Provide resources. Assist in resolving high-level EA issues.</td>
</tr>
<tr>
<td>Chief Information Officer (CIO)</td>
<td>Executive Leadership and Decision-Making</td>
<td>Facilitate the establishment and ongoing operation of the EA Program. Lead the resolution of high-level EA issues. Integrate EA and other governance.</td>
</tr>
<tr>
<td>EA Team Position</td>
<td>EA Team Role</td>
<td>EA Responsibilities</td>
</tr>
<tr>
<td>Chief Architect</td>
<td>Program Management</td>
<td>Manage the EA program and documentation process. Select and implement the EA framework and documentation methodology. Identify EA standards and manage EA configuration management sub-process.</td>
</tr>
<tr>
<td>Line of Business Managers</td>
<td>Requirements Identification</td>
<td>Participate in EA program decisionmaking. Promote the identification of IT-related requirements and EA solutions for each LOB.</td>
</tr>
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</tr>
<tr>
<td>Solutions Architect</td>
<td>Problem Solving</td>
<td>Collaboratively identify solutions for IT-related problems within LOBs. Support EA documentation.</td>
</tr>
<tr>
<td>Systems Architect</td>
<td>Analysis and Design</td>
<td>Provide technical analysis and design support for systems-related EA component selection and implementation. Ensure that IT systems meet integration and interoperability requirements. Support EA documentation.</td>
</tr>
<tr>
<td>Data Architect</td>
<td>Analysis and Design</td>
<td>Provide technical analysis and design support for database-related EA component selection and implementation. Ensure that databases meet integration and interoperability requirements. Support EA documentation.</td>
</tr>
<tr>
<td>End-User Representative</td>
<td>Requirements Identification / QA</td>
<td>Identify end-user requirements for EA components. Provide feedback on the effectiveness of solutions.</td>
</tr>
<tr>
<td>Webmaster</td>
<td>Website Support</td>
<td>Maintenance of EA website, associated content, and links to other websites as needed.</td>
</tr>
<tr>
<td>Research Analyst</td>
<td>Requirements Analysis</td>
<td>Document and verify LOB and end-user requirements. Assist in EA component design and documentation activities</td>
</tr>
</tbody>
</table>

Figure 9-3: Example EA Roles and Responsibilities Matrix

1.4. EA Program Budget: This section documents the budget for the EA program by fiscal year and over the total lifecycle, so that the total cost of ownership (TCO) is identified. While EA program is ongoing, a lifecycle period of five years is recommended to be able to calculate TCO. In general, the costs to be included are those for EA program start-up and operation, salaries and work facilities for the EA team, the initial documentation of the EA, periodic updates to the EA, development of the EA Management Plan, EA tool purchase and support, and EA repository development and maintenance. The initial estimate of these costs represents the “baseline” for EA program funding. Spending during the lifecycle should be tracked against this baseline to promote effective management of the EA program. If changes in the scope of the EA program occur, a corresponding change in the funding baseline should also be made.

1.5. EA Program Performance Measures: This section documents how the effectiveness and efficiency of the EA program will be measured. As was described in previous Chapters, there are two types of measures: outcome and output. Outcome measures identify progress being made toward some new end-state, such as better EA component integration, increased application end-user satisfaction, or more effective IT investment decision-making. Output measures provide data on activities and things, such as how many databases exist, how many e-mail are sent each
day, or how closely an IT project is meeting baseline estimates for cost/schedule/performance. Outcome measures often have both quantitative and qualitative elements to them, while output measures are usually quantitative in nature. While output measures are important for indicating progress in an initiative area, it is the attainment of outcomes that correlate to goal attainment, which is the most important thing to an enterprise. It is important to be able to measure the attainment of outcomes, so that the positive effects (added value) of the EA program can be identified. Examples of outcome and output measures for the EA program are provided below.

**EA Outcome Measure #1:**
Reduce IT project planning average costs by ten percent within one year.

**EA Output Measure #1-1:**
Number of IT projects planned that year.

**EA Output Measure #1-2:**
Prior three year’s average cost of IT project planning.

**EA Output Measure #1-3:**
Prior three year’s average # of project scope changes.

**EA Output Measure #1-4:**
Current year’s average cost of IT project planning.

**EA Output Measure #1-5:**
Current year’s average # of project scope changes.


One of the purposes of the EA Management Plan is to show an overview of the linkage between current EA components and products at each level of the EA³ Cube Framework. In this way, the present role of IT within the enterprise is better understood and can be further analyzed from either a top-down, or bottom-up perspective. The objective of this part of the EA Management Plan is not to duplicate the extensive documentation described in Chapters 4 and 5, but to provide an integrated view of how the components and artifacts work in support of each other. This also sets the stage for Part 3 of the EA Management Plan, which discusses future changes in EA components and artifacts to achieve improved performance and/or efficiency. The following are examples of how current EA components and artifacts can be described at each level of the EA³ Cube Framework.

2.1. **Strategic Goals and Initiatives:** This section identifies how the EA program and specific EA components support the attainment of the enterprise’s strategic goals and initiatives. This section builds upon comments provided in the Strategic Plan, and is included to more clearly show which EA components and strategic initiatives are involved in each strategic goal area. A general description is then provided of how IT components support each goal and initiative at the Strategic Initiatives level of the EA³ Cube Framework. Figure 9-4 provides an example format for an artifact that maps EA components to the enterprise’s strategic goals and initiatives.
### Figure 9-4: Mapping EA Components to Strategic Goals/Initiatives

#### 2.2. Business services and Information Flows

This section identifies and emphasizes the role that EA plays in supporting business process analysis and improvement, as well as identifying and optimizing information flows within and between these processes. It also re-affirms the EA principle that EA components are a means to enable effective business services, and should not be procured unless there is a strong business case that supports investment. Within this section, the enterprise’s main LOBs should be listed along with the key business services and associated information flows in each LOB. A general description is then provided of how IT components support each key business process at the Business services level of the EA³ framework.

Detailed diagrams of information flows and data structure are also provided using the various types of artifacts that populate the Information Flow level of the EA³ Cube Framework (e.g., Entity Relationship Diagrams, Data Flow Diagrams, and Object-Oriented Diagrams). As shown in Figure 9-5 on the next page, a table format can be effective in creating an artifact that maps the relationships between LOBs, key business services, information flows, and supporting EA components.

<table>
<thead>
<tr>
<th>Line of Business</th>
<th>Key Processes</th>
<th>Information Flows</th>
<th>Supporting EA Component(s)</th>
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<tbody>
<tr>
<td>Sales</td>
<td>Marketing</td>
<td>Daily marketing and sales data pushed to data mart. Periodic summaries.</td>
<td>Sales Data Mart Web Site, Sales &amp; Inventory Database, Laptops, Remote Access Extranet</td>
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<tr>
<td></td>
<td>Commissions</td>
<td>Recording and payment of sales commissions, in conjunction</td>
<td>Sales Force Tracking Database, ERP-Payroll</td>
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</tbody>
</table>
Figure 9-5: Mapping EA Components, Lines of Business, and Information Flows

2.3. Systems and applications: This section identifies how current EA components and artifacts at the Systems and applications level of the EA³ Cube Framework support the information flows that are required for LOBs throughout the enterprise. The discussion should summarize how well this “suite” of commercial and custom developed IT systems and front/back office services provide the functionality the enterprise needs for LOB operations and office automation. This can range from large scale, multi-module ERP solutions, to commercial applications and databases, to small custom-developed websites. Comments should focus on degree of integration, potential scalability, user satisfaction, and any reliance on proprietary solutions.

2.4. Technology Infrastructure: This section discusses the voice, data, and video EA components and artifacts that make up the Technology Infrastructure level of the EA³ Cube Framework. The discussion should focus on how well these internal and external networks,
systems, and cable plants integrate to create a “seamless” infrastructure. Comment should also be made on how well the infrastructure currently handles the transport of voice, data, video, and mobile information, in terms of reliability, scalability, and cost-efficiency.

2.5. **IT Security.** This section discusses the general approach to IT security at all levels of the EA framework. IT security should be part of any strategic goal or initiative that depends on accurate, properly authenticated information. High-level descriptions are provided on how security is built into business services and the control of information flows, as well as the design and operation of systems, services, and networks. Specific IT security information should not be part of the EA Management Plan because it could reveal vulnerabilities. This type of information should be documented in a separate IT Security Plan that only certain people in the enterprise have access to (see Chapter 11).

2.6. **EA Standards.** The standards section documents the Technical Standards Reference Model (TSRM), which provides EA standards for voice, data, video, and IT security that are used during EA component development. The TSRM can also provide a list of preferred vendors and products that meet the technical standards that an enterprise adopts. EA standards are a key element of the configuration management (CM) process and come from international, national, local, government, industry, and enterprise sources. Selected standards should include standards for voice, data, and video technologies from leading standards bodies throughout the world, including the Institute of Electrical and Electronics Engineers (IEEE), the National Institute of Science and Technology (NIST), the International Enterprise for Standardization (ISO), the European Committee on Standardization (CEN), and the Federal Enterprise Architecture’s Reference Models (see Appendix B). An example of the format for a TSRM is provided in Figure 9-6.

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<td>Security</td>
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Figure 9.6: Example Technical Standards Reference Model

The following examples of international EA standards from ISO and CEN:

2.7. **Workforce Skill Requirements.** This section describes the approach to IT workforce planning and training that the enterprise uses in human capital management. People are often the most valuable resource an enterprise has, and IT workforce plans should detail training requirements for EA component operations support and new development projects at all levels of the framework.

**EA Management Plan: Part 3.**

**Summary of Future Architecture**

3.1. **Future Operating Scenarios.** In this section, the future operating scenarios are presented along with a narrative description of the purpose of the scenarios and the spectrum of operating environments that the scenarios respond to. For example, three scenarios are presented with an opening narrative that explains that they represent:

- Scenario 1: Continuing with the status quo.
- Scenario 2: An aggressive business strategy in a good market environment.
- Scenario 3: A defensive business strategy during a market down-turn.

Each scenario has planning assumptions built into it, as was described in Chapter 8, that highlight changes that will need to occur in processes, people, and technology. Lastly, in this section, a description is provided of the selected course of action for the enterprise (e.g., Future Scenario 2 will be pursued because a good business environment is forecast for the next several years).

3.2. **Planning Assumptions.** The planning assumptions from the scenarios are further discussed in terms of what they mean to the priorities of the enterprise as it implements the future EA. The assumptions identify new capabilities and resources that will be needed if the enterprise is to be successful in each scenario. This section then focuses on the selected scenario and the planning assumptions that will underlie that course of action. Continuing the example from above, if Future Scenario 2 is being pursued, then several new e-commerce systems may need to be built and new manufacturing capacity supported. The planning assumptions that were identified in Future Scenario 2 become the guideposts for decisions about how to change the current EA, which needs to be described.

3.3. **Updating Current and Future Views of the EA.** Documentation of planned changes in processes and resources is what creates the future views of the EA at all levels of the framework. Using the EA³ framework as an example, these updates should be accomplished in a “top-down” manner, to preserve the emphasis on strategy and business, and to maintain the logic of the documentation’s relationships. Therefore, these updates would begin with to the enterprise’s strategic goals and initiatives.

Changes to the enterprise’s strategic plan are made periodically or in response to a significant new internal or external business or technology driver. Most strategic plans are intended to last several years, with associated goals, initiatives, and measures changing very little. Changes in the EA³ Cube Framework at this level therefore may be minimal if it is not time to update the strategic plan. Goals, initiatives, and measures should be considered as exchangeable EA components. This means that a goal or measure can be added, dropped, or modified without
nullifying the entire strategic plan.

A similar approach is used to review and update the enterprise’s business services at the second level of the EA³ Cube Framework. It is important to ensure that the current views of business services are complete and can show how they support the accomplishment of current strategic goals. The changes in business services then can be made considering any changes in strategic goals, initiatives, and measures that may be planned and documented at the top level of the EA³ Cube Framework. Also, documentation at the Business Process Level of the EA³ Cube Framework should show future planning for more effective, cost-efficient, and technically integrated processes.

At the third level of the EA³ Cube Framework, the development of future views enables proactive planning to improve information exchange within the enterprise, and promotes the establishment of standards for the format of commonly used data entities/objects which further promotes EA component interoperability. Planning at this level of the EA³ framework first considers the information-related requirements of the level above, business services. Once these are identified, cross-cutting information flows between processes, as well as flows within single processes can be identified and documented using whatever methodology is selected for use in the EA³ Cube Framework (either traditional structured methods or object-oriented methods). Finally, planning for information flows looks downward in the EA³ Cube Framework at the Systems/Services level and the Technology Infrastructure level.

Documenting changes to the flow of information within and between business services (and new data standards) will enable EA planners to select EA components at these two lowest levels of the EA³ Cube Framework that best support the information flows and data standards. A focal point for the discussion in this Section is to identify any current performance gaps that exist at the higher levels of the EA³ Cube Framework and map them to current EA components and products. The future view of the Systems/Services level of the EA³ framework should show which EA components will be changing and in what timeframe (see the Sequencing Plan). EA components at this fourth level of the EA should increasingly be selected for their interoperability as well as performance and scalability.

At the Technology Infrastructure level of the EA³ Cube Framework, future changes will reflect EA components (hardware and software) that will provide a more robust, reliable, and secure voice, data, and video backbone transport capability. Interoperability, cost-effectiveness and open standards are additional factors to be considered.

3.4. **EA Sequencing Plan**: The Sequencing Plan section of the EA Management Plan documents the tasks, milestones, and timeframe for implementing new EA components and artifacts. Large and mid-size enterprises often have many new development, upgrade, retirement, or migration projects underway at any given time and these require coordination to establish the optimal sequencing of activities. Sometimes there are dependencies between projects that also require proper sequencing. For example, an improvement to the capacity of the data infrastructure may be required before additional systems and/or databases can be effectively hosted so that maximum performance can be attained. Another common example is the consolidation of EA components (IT resources such as systems, applications, and databases) to improve both performance and overall cost effectiveness. Figure 9-7 on the next page provides an example of a sequencing diagram that shows EA component consolidation activities.
3.5. **EA Configuration Management**: The EA Configuration Management (CM) section of the EA Management Plan serves to support the sub-process by which changes to the EA are managed and the standards in the TSRM are applied. Changes to the EA include the addition, upgrade, retirement of EA components or artifacts. CM ensures that (1) a standardized process is used in reviewing proposed changes, (2) technical standards for voice, data, and video are followed or waived, (3) there is a documented waiver process, (4) waivers have specific time limits, so that EA standards are eventually realized, (5) there is enforcement for EA documentation version control. The CM process should be overseen by the Chief Architect, and be supported by an Architecture Working Group that includes stakeholders from throughout the enterprise. The CM process works through the submission, review and approval/rejection of an EA Change Request (EACR) form by any stakeholder, as shown in Figure 9-8 on the next page.

EA Glossary and References

This part of the EA Management Plan is where a Glossary of EA terms is provided along with an Acronym List. There should also be a bibliographical list of reference books and articles that might provide additional background or that help the reader’s understanding of the EA Management Plan. Because the EA is still an emerging area of professional practice, the Acronym List and Glossary are helpful in creating a common set of terms and definitions for use throughout the enterprise.

Summary of Concepts

This chapter provided a description of the purpose, format, and content of an EA Management Plan. This Plan describes the EA management process, implementation methodology, and documentation framework, as well as summaries of current and future views of the EA. It is a living document that is updated at regular intervals to provide clear version control for changes in current and future views of EA components and artifacts at each level of the framework. The EA Management Plan should be archived in the on-line EA repository to support easy access to the information and promote linkage of the EA program to other IT management processes.

Chapter 9 Questions and Exercises

1. What is the purpose of an EA Management Plan?
2. What is an EA Change Request and how is it used within the Configuration Management process?
3. What is the purpose of the Sequencing Plan?
4. What is the role of a Chief Information Officer in the EA program?
5. What is the role of a Chief Architect in the EA program
6. How do technical and product standards contribute to the EA program?
7. Why are standardized terms important to an EA program?
8. What are summaries of current and future views an important part of the EA Management Plan? Who is the intended audience of the EA Management Plan?
9. How can an EA Management Plan show “gaps” in enterprise performance?
10. Develop a flow chart for EA governance in a public or private sector enterprise. Show where policy development and decision-making occur, as well as interfaces to other management processes, including capital planning, project management, and security.
11. Develop a Sequencing Plan for the implementation of a major commercial Enterprise Resource Planning (ERP) product that has software modules for finance, accounting, payroll and benefits, manufacturing, inventory, and sales. Show how existing stovepipe systems in each of these areas would be replaced by the ERP.
12. Develop an EA Roles and Responsibility Matrix for a public or private sector enterprise of your choice.