
Enterprise Architecture Desk Reference

Executive Summary

Defining the Role of Enterprise Architecture

Enterprise architecture (EA) provides the means to apply basic business principles within IT and serves as a framework that CxOs can leverage to align IT priorities with business strategy. Although architecture has been around for years, most organizations haven't been able to successfully implement an architecture program and communicate its value to the business.

META Group's *Enterprise Architecture Desk Reference* provides a proven methodology for implementing enterprise architecture and successfully bridging the gap between business strategy and technology implementation. This executive summary explains key principles and issues relevant to enterprise architecture and provides a detailed listing of the content included in the *Enterprise Architecture Desk Reference*.

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- **Call: (800) 498-META [6382]**
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Defining the Role of Enterprise Architecture

Enterprise architecture (EA) is not a new idea, but it is being fostered and applied in new, innovative ways within today's leading organizations. A truly useful EA program must move beyond technology to encompass business issues, and enhance the relationship between IT and the business. Here, we cover the positioning of the EA program within the organization, and introduce the basic steps the EA team must take to make the program successful.

The notion of creating an architectural construct for information technology used within the enterprise was first introduced some 15 years ago. EA was seen as a master plan to reach an improved future state for IT that spanned the entirety of an organization. Although this is a noble goal, and still remains the basis for EA efforts, such architectures often failed to account for the effects of political realities, business expediencies, and technological change within the average business.

Since the concept of EA was first suggested, IT organizations have grown dramatically and have taken on increased importance. At the same time, many industries were also in the midst of rapid, often dramatic changes in the way they did business. Still, the goals of architecture programs were usually heavily oriented toward technology, rather than business issues. Most IT architects remained stubbornly wedded to a purely technical worldview, which muddies the waters with wheel-spinning debates over point products and narrow standards.

Now, organizations are looking at EA for business reasons. Realizing that change has become the norm, progressive organizations pursued EA programs in an effort to bring some order to IT. Today, EA efforts strive for a more complete representation of business, information, technology, and applications ([see Chapter 4](#)).

The swing toward this more holistic view of EA roughly correlates to the onset of more distributed business models in many organizations. At the same time, a new generation of technologically sophisticated business managers infiltrated the boardrooms of large companies worldwide. These IT-savvy executives looked to technology to enable business strategies with tools such as integrated supply chains, data-based marketing, the virtual workplace, and e-business applications.

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This increased technical savvy was a double-edged sword for both IT organizations and EA efforts. IT organizations now play a more critical role in the development of business solutions. As a result, they are often challenged to deliver critical projects on time and within budget. For the EA team, a chief architect and staff with the right approach and competencies can enhance the relationship between business and IT, bridge the gap between strategy and implementation, and win influence inside the boardroom.

Recent economic conditions and the resultant slowdown in IT spending have only served to reinforce this approach. Enterprise architects must be businesspeople first and information technologists second. Having this big-picture perspective is critical to success, particularly given the gap that exists between business and the IT function, a gap that is often hard to overcome. In addition, there is often the perception in many organizations that IT is of secondary importance to what business intends to accomplish. The reality is that IT is a critical element of making a business what it is. Business expects good, sound decisions in the domain of technology.

To create enterprise architecture, business managers and IT professionals must achieve a common and cohesive vision of the business and key business challenges as well as the opportunities and “problem corridors” the company expects to encounter. Unfortunately, the day-to-day activity of both groups tends to be focused on short-term operational issues. This tactical perspective cannot yield a sustainable competitive advantage, because investments (particularly in infrastructure and human resources) require time to mature. The enterprise architecture discipline is enjoying a renaissance in companies that are tired of throwing good money after bad on reactive, project-level IT “fires.”

The META Group Approach to Enterprise Architecture

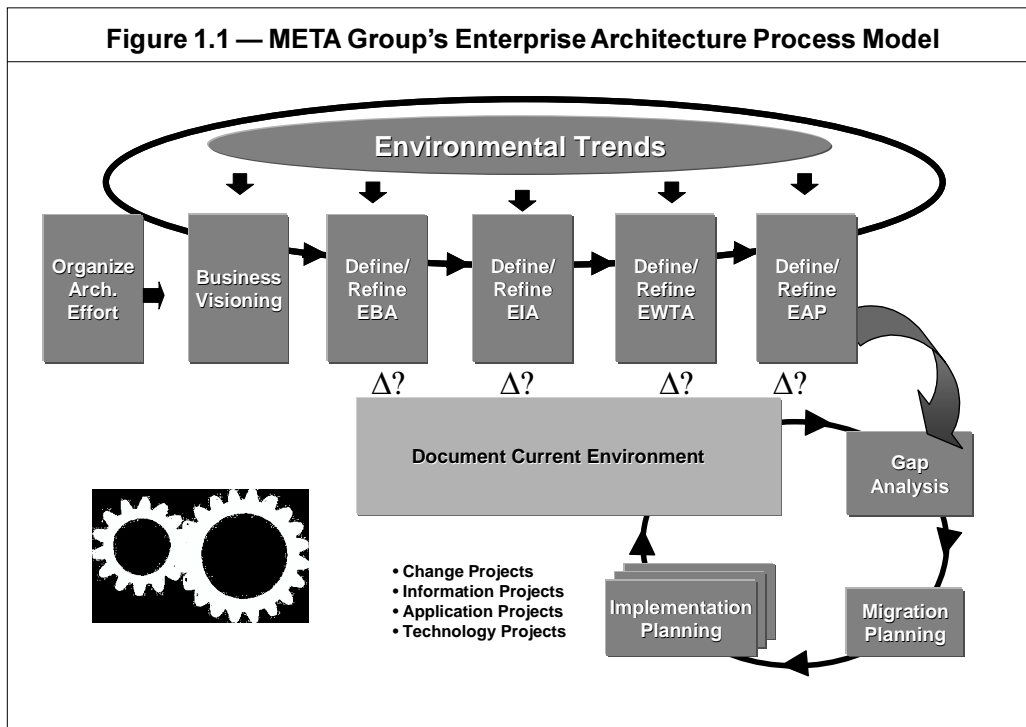
Since 1996, META Group, through its Enterprise Planning & Architecture Strategies (EPAS) advisory service, has advised hundreds of IT organizations on the development, implementation, and refinement of their EA programs. The feedback and analysis developed in and around these engagements have also served to refine our approach to EA, as reflected in our Enterprise Architecture Process Model ([see Figure 1.1 and Chapter 5](#)).

Enterprise architecture, then, is a process that expresses the enterprise’s key business, information, application, and technology strategies and their impact on business functions and processes. EA institutionalizes disciplined analysis and decision making. It must be driven by the enterprise business strategy. It must represent a holistic view across the enterprise.

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A properly implemented EA program will bridge the gap between strategy and implementation. It also better prepares the organization for change.

The Enterprise Architecture Process Model provides a logical approach to developing an EA. It is a multiphase, iterative, non-linear model focused on EA development, evolution, and migration as well as on the ancillary governance, organizational, and management processes. It represents key characteristics and a synthesis of best practices of how successful companies have delivered enterprise architecture. As our EA analysts gain exposure to a broader set of issues faced by organizations engaged in EA efforts, the body of knowledge increases with respect to “applied architecture.”



The current version of the process model has been adapted to include a more holistic view of enterprise architecture beyond enterprisewide technical architecture ([EWTA — see Chapter 5](#)), which was the original core of META Group’s EA approach. The EWTA is a logically consistent set of principles, standards, and models that are derived from business requirements to guide the engineering of an organization’s information systems and technology infrastructure.

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The EA model has been expanded to include enterprise business architecture ([EBA — see Chapter 7](#)), enterprise information architecture ([EIA — see Chapter 8](#)), and enterprise application portfolio ([EAP — see Chapter 9](#)) activities. An enterprise business architecture is the expression of the enterprise's key business strategies and their impact on business functions and processes. An enterprise information architecture is an EBA-driven set of models describing the enterprise's information value chain. An enterprise application portfolio is the collection of integrated information systems required to satisfy business needs. The EAP includes a current inventory of applications and components, a representation of future business architecture and information architecture requirements, and a migration plan to move the existing portfolio to the planned portfolio.

A fully realized EA, then, consists of current- and future-state models of these four key components. These other architecture “decision spaces” can benefit from exploiting the processes and governance structures that have been introduced and adopted via the EWTA ([see Chapter 10](#)).

The EA effort is both a process and an entity. From the sequence of EA processes and analyses, a company will derive various EA “artifacts” — guidelines, principles, frameworks — unique to its situation and strategy. The goal of EA is not simply to create a sustainable technical infrastructure, but to link business and technical strategy in a self-reinforcing partnership of ideas and engineering activities.

This report provides a complete overview of EA development and the processes and skills necessary to support it. But no matter how sophisticated the model, the primary determinant of an EA's success is the extent to which corporate line managers comprehend, support, and enforce it. Enterprise architecture efforts that are not successful in gaining this support will fail, regardless of the EA's design and engineering quality.

Top Issues for Enterprise Architects

Business executives are demanding their organizations, including IT, get back to basics and focus on the enterprise as a whole. This is driving a pragmatic rebirth in basic business disciplines throughout the organization. Typically, strategy is the only discipline that is cultivated at the enterprise level. Strategy generates direction for the other disciplines, but then these are executed at the project level, leading to both duplication of effort and a lack of overall coherence. Now planning and implementation functions are being extended across the enterprise as well, including IT. EA provides the means to apply basic

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business disciplines within the IT organization. It must align enterprise activities and priorities with business strategy.

Putting business first means enterprise architects must address the same fundamental issues as the business in general, and apply those basic disciplines within IT. These include:

Delivering Business Value. More than 70% of IT organizations (ITOs) are run as cost centers, and more than 90% do not have business-accepted financial models for quantifying the value contribution of the ITO to the business. Companies that struggle with the question of IT value are asking the wrong question. In reality, the following three distinct IT value questions exist:

1. What is the value of technology?
2. What is the value of information?
3. What is the value of the ITO?

The value of information is inextricably linked to the value of the business function it supports. The value of technology is the residual value of the investment, and the value of the IT organization is the net profit generated by the IT group's contribution.

The value of the ITO is not strictly financial. Companies with mature IT portfolio valuation methods recognize the value of shared corporate goals and human capital, and knowledge of the company must also be considered in the overall valuation of the ITO. Only when IT portfolio value is quantified can businesses make informed decisions about continued investment in IT.

An EA program supports business value creation in many ways ([see Chapter 2](#)). The value of EA, however, is manifested in the work of others. Generally, the results of planning, not the planning itself, are seen as having value. EA efforts, then, must be visible to senior managers and provide evidence of business value based on solid metrics, scorecards, and reporting systems. These will demonstrate the architecture's impact on IT and business investments and on how an architecturally sophisticated approach has mitigated risk or enabled new opportunities to be exploited.

Enhancing Corporate Agility. The length of business cycles has decreased steadily during the past two decades. Projects that once had an effective life span of five years or more may now be developed and modified in near real time, far outstripping the ability of the typical ITO to react. An EA program instantiates processes within the organization that foster the development of infrastructure and applications that are

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adaptive in nature ([see Chapters 4, 5, and 10](#)). The EA process links an enterprise to its competitive, market, and strategic environments; anticipates future requirements; and encourages continual refinement.

Achieving Cost Control. The current risk-averse economic climate dictates that discretionary spending, which was a large part of past budget growth, must be watched closely. While many firms are adjusting key resources, such as staffing and capital, to compensate, IT initiatives are an earlier consideration and have already started to experience the reductions. We expect IT organizations will be pressured to reduce non-discretionary spending as well (percentage-wise consistent with line-of-business [LOB] cuts). Understanding IT from an investment perspective using portfolio management techniques is critical ([see Chapter 23](#)), as well as being able to communicate the value proposition of enterprise architecture, infrastructure, and key initiatives in a compelling business case. EA is not a cost-cutting exercise, but rather a cost-aligning effort. Properly developed, EA provides a professional, holistic perspective that is critical to transforming and maximizing the IT assets within an organization.

Maintaining Business/IT Alignment. One of the responsibilities of the architecture team is to facilitate a dialog between the business and the IT organization to create a common requirements vision as part of the architecture process ([see Chapter 11](#)). Although valuable, this dialog is too focused and narrow in its architectural motivation to serve as the sole mechanism to continually manage ongoing, holistic, systemic alignment of the IT function within the business. Leading-edge organizations recognize that one-time alignment of the business and the IT organization is insufficient. Nothing short of continual alignment will do.

Instead, the primary vehicle for ensuring IT and business alignment should be the enterprise program management office (EPMO). The EWTA team brings a technical view to the table, and the EPMO is focused on coordination of the entire solution portfolio. Therefore, they are highly complementary in the perspectives they bring toward the alignment goal. If either the EPMO or the EA process is absent, then the group that does exist must bear a larger burden/responsibility to facilitate the ongoing business/IT dialog.

Enterprise Architecture as Change Agent

In the past, most systems were developed to address a set of known, obvious requirements. That approach is no longer tenable. Although change in most organizations is inevitable, the specifics of change are usually unknown. Systems and organizational constructs

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need to be built adaptively to facilitate this inevitable change. The primary design goal for an EA must be to enable rapid change in business processes and in the applications and infrastructure that enable them. EAs that achieve this goal are characterized by seven properties:

- **Consistency:** Change is required at “warp speed,” and the EA practice should facilitate this by selecting solutions that will establish harmony between the existing environment and the new or enhanced infrastructure, systems/applications, and business processes.
- **Extensibility:** Every architecture component should be designed such that it encompasses the full enterprise, meaning it should be enterprisewide to the fullest extent possible.
- **Scalability:** The architecture should look for solutions that can grow, morph, or even mutate as the business requires it, depending on the changes that occur in the business environment.
- **Supportability:** This involves the capability of the solution not only to support the full extent of the business, but also to be supported by its provider on either a local or global basis.
- **Comprehensiveness:** As the architecture seeks to provide the widest possible solution or support to the business at large, the architecture should also be such that it covers the current and future environments of the organization, tending toward completeness.
- **Lucidity (business-change-driven):** IT organizations are expected to respond to a “schizophrenic” enterprise — where change is constant and the architecture should play the bridging role, establishing clear targets for change and making them understandable to the organization in clear business language. It is also becoming imperative for organizations to distinguish between change through growth (continuity), which is “more of the same,” versus real change (disruptive), which introduces different design perspectives, roles, and actions.
- **Component-based nature (modular or reuse-driven):** Systems/applications should be selected or developed to establish a culture of optimum reuse, in which the portability/modularity of solutions (or components within solutions) is the primary design goal.

Facilitating change enables IT to respond in a timely manner to the needs of the business. It enables the IT organization to be more proactive and anticipate change, rather than simply dealing with it as the need arises. EA, strategy development, and enterprise program management are the key disciplines needed to manage such an environment.

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Fostering Portfolio and Program Management

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Applying the financial portfolio management paradigm to IT investment decision making is becoming a popular management approach among high-performance organizations.

IT portfolio management is a disciplined and structured approach of continuous, repeatable, and easily sustainable processes designed to map business requirements to technology decisions ([see Chapter 23](#)). IT portfolio management enables organizations to categorize, evaluate, prioritize, purchase, and manage technology assets and projects. It also enables organizations to align IT spending with current and future business needs to achieve an acceptable balance of risk and reward.

Shifting available resources to achieve desired returns on the investment of those resources, while simultaneously balancing risk across a portfolio, sounds like a financial expert's discipline. Although this is true of those successful in financial markets and with responsibility for an enterprise's financial investment portfolio, it is also true for anyone with the responsibility of deciding how an organization will allocate its own scarce resources — whether time, money, people, or fixed assets — in the quest for certain benefits while tolerating certain levels of risk.

IT portfolio management, then, is essentially an investment-planning discipline. The IT portfolio should be managed with three goals in mind: maximizing the value of the portfolio, aligning the portfolio with the goals of the business, and balancing the risk/reward potential within the portfolio.

The architecture team is responsible for providing a lower-level, future-state view of the IT organization. This view includes goals for the ITO, such as future investments in technology and future investments in skills relative to those new technologies, applications, and information assets. The IT portfolio should then be tailored to facilitate these goals.

In adopting a portfolio management approach to enterprise investment decision making, organizations must develop other supporting process disciplines. Chief among these are enterprise strategy and planning, enterprise architecture, and enterprise program management, as well as a focus on risk and value management within these higher-level disciplines.

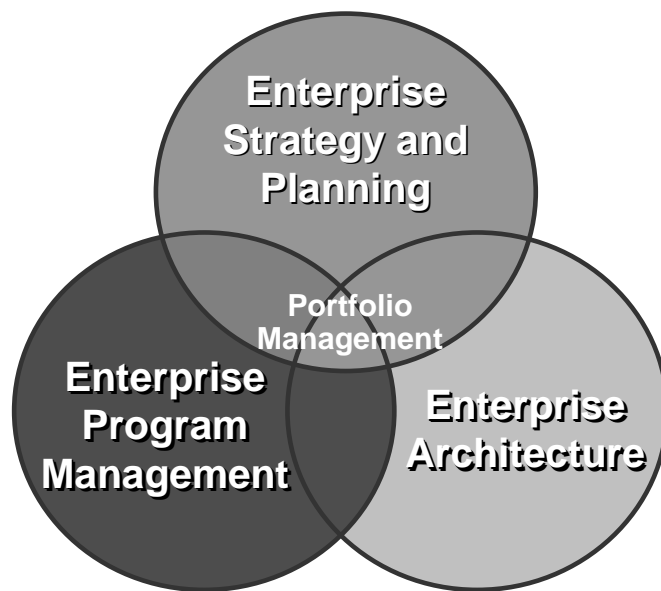
The IT project portfolio is facilitated within the enterprise program management office. In fact, the entire EA process is implemented and governed through the discipline of enterprise program management ([EPM — see Chapter 20](#)). EPM is the key to

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implementing architecture. EPM combines corporate-level project and program management skills with the value management, process management, and human-resource capabilities necessary to manage projects. An effective EPM office is a best practice found consistently in the most successful IT organizations. When closely aligned with a parallel enterprise architecture program, the benefits of each are magnified.

EPM, enterprise strategy and planning, and EA not only contribute to, but also overlap with the portfolio management process (see Figure 1.2). The establishment of an investment mix is both a strategy and a portfolio management activity. EA not only contributes recommendations for the creation of portfolios, but also manages the life cycle of many assets through the management of information technology standards. EPM likewise contributes to and overlaps with portfolio management, but with EPM, the overlap is much more significant. In some organizations, the project portfolio is the only portfolio to which management discipline is applied, resulting in the EPM process being synonymous with portfolio management (PfM). In any case, a portfolio management approach will be more effective when augmented with added process disciplines of enterprise strategy and planning, EA, and EPM.

Figure 1.2 — Integration of Key Processes in Portfolio Management Effort



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Selling, Communicating, Transforming

Besides developing and implementing an EA, the EA team will also be responsible for promoting the EA within the organization, ensuring everyone in the organization — not just IT staff — is aware of the benefits, and facilitating change in concert with the EPMO. All these supporting activities usually take place amid the political landscape of the typical corporation, which means not everyone may be allied with the EA effort. This makes these activities critical to the success of the EA program.

Selling. Salesmanship may not be a quality normally associated with IT, but a continuous focus on selling EA to the rest of the organization is necessary. EA is not well understood within the typical organization, and the ROI from the program is often not readily apparent. An EA program requires both initial and ongoing sponsorship and support. Moreover, that support may need to be fostered in an environment where an array of forces is aligned against the EA effort. The EA team must develop some basic sales skills and employ them in an ongoing program that targets the various stakeholders both inside and outside the organization ([see Chapter 15](#)).

Communicating. EA and EPM enable an organization to structure its transformation holistically across and into the enterprise. They also enable an enterprise to bridge the strategy-to-implementation gap that exists between the business and IT organizations. These gaps usually involve complex, creative, future-focused collaborative efforts to achieve success. The biggest step in bridging these gaps is clearer, more consistent communication that is understood by business and IT organizations alike. Communication is critical in obtaining and sustaining sponsorship and support. To leverage communications in this transformation effort, proactive planning of how, when, and to whom to communicate is essential ([see Chapter 19](#)).

Transforming. Enterprise architecture is about transformation. EA artifacts are used to change business processes and models, organizational structures, information usage and flows, information technology infrastructure, and applications. However, transformation does not happen overnight, nor does EA change quickly to reflect the transformation. Defining such transformation depends not only on the business vision that the transformation supports, but also on the willingness and capabilities of the enterprise to undergo that transformation.

Transition planning starts with the creation of processes to align tactical actions to contribute to the strategic goal — attaining the future-state architecture. Once these processes

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are established, the enterprise architecture team, if possible, should leverage the EPM office to pilot the organization through transition. Because the EPM office is the management repository for IT projects, it will connect EA to IT projects as well allocate resources ([see Chapters 24 and 25](#)).

The EA Team

What sort of staff is required to effect such far-reaching change within the typical organization? We view the team as consisting of a chief architect and enterprise architects. Both positions require broad skills in technology and business.

Employing a properly skilled, competent person for the job of chief enterprise architect can be a critical success factor affecting the strategic quality and content of an EA. The right chief architect can enable tighter business/IT alignment, better decisions, and a successful EA implementation.

However, the title “chief architect” is not as pervasive as the role and responsibilities. In terms of being a formal job description or role within an organization, chief architect is still not a widely accepted position. We estimate fewer than 30% of organizations have a designated chief architect. There is a lot of fear about giving someone a title with the word “chief” in the name, unless they are at the executive level. To have someone lower down the chain — in many cases several levels down the reporting chain — carrying the chief title is not viewed as acceptable.

In organizations where the chief architect does exist, whether formally or informally, the chief architect typically reports to the CIO. Secondly, the chief architect’s role often manifests itself in such job titles as VP of architecture, director of architecture, VP or director of IT strategy, and lead architect. The position may not even have the word “architect” in the title. Sometimes, the role of architecture may be buried inside the strategy function.

While many organizations do not have chief architects or their equivalents, many do have a formal architecture team. More often than not, the chief architect on these teams is a lower-level person, a manager or analyst. It is hard to define the responsibilities of that level of person.

Within this organization construct, the architecture team often collectively takes on the responsibilities of a chief architect. When this construct is included, we estimate that perhaps 60% of Global 2000 organizations have some sort of architecture program in place.

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The EA team size will vary by the size of enterprise, where the enterprise stands with regard to the EA process, and acceptance of architecture as a value-add activity.

A topic of some debate is just how large an ITO has to be to benefit from an EA program. We believe an ITO needs to be of a certain size — roughly 100 full-time employees — to adopt the formalism of an EA process — the organizational structures, deliverables, meetings, governance mechanisms, etc. Smaller groups generally do not have the staff available to afford implementing the structure involved in an EA program. However, even these smaller organizations can benefit significantly from developing and applying EA principles across the ITO.

While evaluating the job of enterprise architect, META Group has determined that enterprise architect competencies can be grouped into three areas of decreasing importance (see Appendix A for more details on EA job descriptions and competencies):

Essential Competencies	Very Important Competencies	Useful Competencies
<ul style="list-style-type: none"> Dealing with ambiguity 	<ul style="list-style-type: none"> Customer focus 	<ul style="list-style-type: none"> Approachability
<ul style="list-style-type: none"> Business acumen 	<ul style="list-style-type: none"> Timely decision making 	<ul style="list-style-type: none"> Informing
<ul style="list-style-type: none"> Creativity 	<ul style="list-style-type: none"> Innovation management 	<ul style="list-style-type: none"> Integrity and trust
<ul style="list-style-type: none"> Decision quality 	<ul style="list-style-type: none"> Intellectual horsepower 	<ul style="list-style-type: none"> Dealing with paradox
<ul style="list-style-type: none"> Organizational agility 	<ul style="list-style-type: none"> Learning on the fly 	<ul style="list-style-type: none"> Managing through systems
<ul style="list-style-type: none"> Perspective 	<ul style="list-style-type: none"> Presentation skills 	
<ul style="list-style-type: none"> Strategic agility 	<ul style="list-style-type: none"> Standing alone 	
<ul style="list-style-type: none"> Comfort around higher management 	<ul style="list-style-type: none"> Managing vision and purpose 	
	<ul style="list-style-type: none"> Written communications skills 	

Summary

- The role of an EA team is formidably broad and detailed, and it is true that EA is not easy. Moreover, a “big bang” approach does not work. EA is an iterative effort that yields incremental, but still significant, improvements in efficiency and IT/business alignment.

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- As the *Enterprise Architecture Desk Reference* presents the EA process and supporting functions in detail, it observes these key principles:
 - EA is an ongoing, iterative process designed to yield incremental gains.
 - The EA process model is designed to guide business and IT professionals through the process of EA design and implementation.
 - The goal of enterprise architecture is not simply to create a sustainable technical infrastructure, but to link business and technical strategy in a self-reinforcing partnership of ideas and engineering activities.
 - Architecture is a manifestation of IT strategy. IT strategy is an articulation of how IT will enable business strategy. Infrastructure is a manifestation of the EWTA at a point in time.
 - Enterprise architects, the stewards of the process, should demonstrate a consistent set of competencies and use them to foster a richer and more creative working relationship with their business and IT counterparts and to develop a strategically positioned enterprise architecture.
 - EA is dependent on close interaction with strategy and EPM functions.
 - EA requires not only close attention to the EA process itself, but also supporting activities such as selling, communications, and transition planning.
 - The role and responsibilities of an EA team and its members should be foremost to own the process described here, create the deliverables associated with the enterprise, and mentor, coach, and evangelize EA across the organization.

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About the Report

The *Enterprise Architecture Desk Reference* provides a proven methodology for implementing enterprise architecture and bridging the gap between business strategy and technology implementation. The report also provides best practices for tying enterprise architecture, enterprise planning, and enterprise program management (EPM) together to successfully implement a successful IT portfolio management strategy.

Key topics covered in the *Enterprise Architecture Desk Reference* include: defining the role of the chief architect, building the vision, and rationalizing enterprise architecture and the IT organization; creating an effective framework and process model for establishing enterprisewide technical architecture; revealing best practices such as architecture readiness assessments, maturity audits, communications, technology trends, portfolio management, and transition planning; and constructing the architecture organization — outlining job descriptions and critical core competencies.

The *Enterprise Architecture Desk Reference* is an essential tool for today's enterprise architect, providing invaluable information to elevate IT proficiency and credibility. This 378-page resource includes 25 chapters comprising four sections:

- Establishing Enterprise Architecture
- The Enterprise Architecture Framework
- Critical Elements of Enterprise Architecture
- Enterprise Architecture Best Practices

The *Enterprise Architecture Desk Reference* can be purchased by contacting a META Group representative at (800) 498-META [6382] or at www.metagroup.com/eadeskreference.

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