

5

Architecture Management

If a company has a large suite of IT projects, it needs to develop a strategically aligned blueprint from which all IT-based initiatives can draw. Such a blueprint starts with modeling the goals, rules, structure, and processes of the microstrategies as a cross-business unit architecture. This business architecture is a way of communicating the various microstrategies of the business units to not only business case writers but also to the IT architecture team. While IT-based business cases will be able to include more detailed process flows and structural diagrams of their proposed solution, the IT architecture committee will be able to anticipate new directions and develop training programs, design updates, and vendor reviews. Then, when business case writers request early risk analyses of their ideas from the IT department, there will be a level of alignment already established that will speed the process.

The IT PMO is a well-positioned organization to coordinate the business units, the business case writers, and the IT architecture teams to help create the various pieces of what is known as the enterprise architecture (EA). This architecture can be split into two main categories: the enterprise business architecture (EBA) and the EIA. While a

simple version of the EBA would include organizational charts and job descriptions, an advanced version would include state charts and process flow diagrams developed in the early stages of other IT-based projects. The EIA can be a high-level set of diagrams drawn up by the IT architecture team, or it can be real-time infrastructure dispositions maintained by an auto detection software package. Combined, they define “the direction and priorities of IT in an organization, linked to business goals” [1]. Where the IT department will develop the EIA, the IT PMO will support a committee of business units to verify the EBA. By then guiding business case writers in how to write more detailed business views, the IT PMO can become the heart of a much larger virtual IT PMO that helps to continually evolve IT’s EIA. Other benefits of a comprehensive EA include [1–4]:

1. Long-term savings in support;
2. Better alignment with business strategy;
3. More consistent IT processes;
4. Best practices in software reuse;
5. Common look and feel that makes all systems using the new architecture seem more familiar and therefore easier to use;
6. Lower costs of integration.

To illustrate the various layers of a business blueprint, let’s break the organization down into different architectural models [3, 5]. Figure 5.1 shows how we would develop the EBA components at the bottom and then work our way up to the EIA.

- ♦ *Layer 1*, the EBA, details the company’s processes (behavior view) and structures (structural view). Figure 5.1 shows some example designs for these two sublayers. In the structural view, we see that a company could have payroll under the vice president of human resources and investment management under the CFO for each sub-CEO executive. Or the company could place both of these responsibilities under the CFO, as seen on the right. Each of these

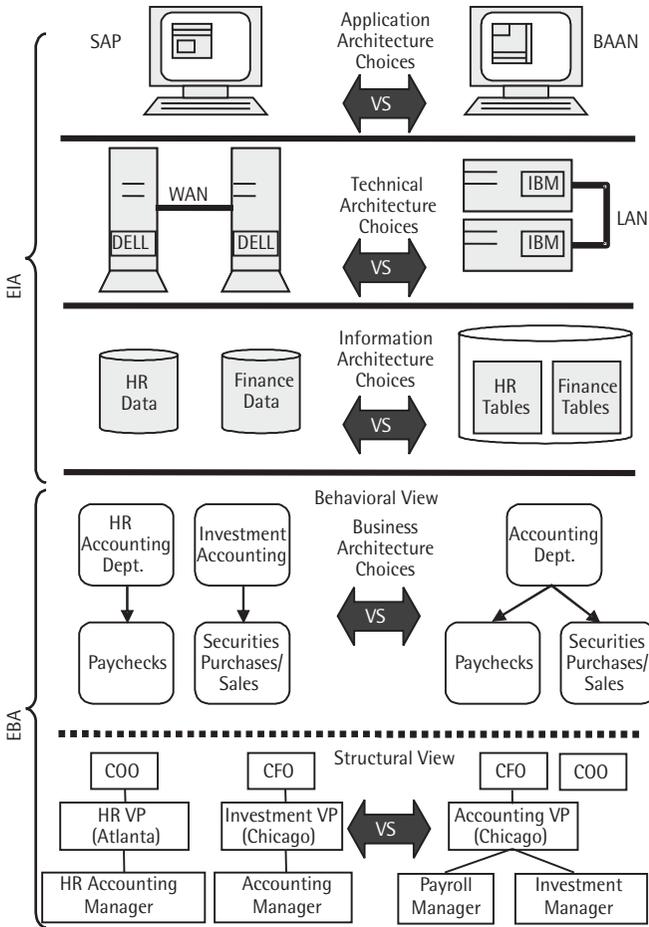


Figure 5.1 Choices to be made when developing an EA. (After: [2, 3].)

is an example of the choices a company can make when designing its organizational structure. The company can also make some tradeoffs when designing its processes. On the left side we see simple process diagrams where the human resources department dispenses paychecks and the accounting department purchases or sells securities. Another option, on the right side, would be to have a central accounting department handle both of these tasks.

- ◆ *Layer 2*, the information architecture, determines what data, processes, and integrations need to be defined to implement layer 1 (EBA or strategy map) through technology. Figure 5.1 shows that a company can design its information architecture to allow each business unit to store its own data in its database (left) or to store it in a central database (right). This central database can be designed to keep the business data separated at the table level, if the business initiative requires it. A common guiding principle in designing the information architecture is to ask “Can we get information from anywhere in our company to anywhere in our Value Chain?” [4].
- ◆ *Layer 3*, the technical (or infrastructure) architecture, scrutinizes the underlying technologies that are required to run the applications. A typical example would be choosing between having a company’s servers geographically separated or having them in the same building. In the former case, the technology architecture would need to show how a wide area network (WAN) was designed to support communications between the servers. In the latter case, only the local area network (LAN) specifications would be needed when explaining the interserver communications. While the technical architecture serves as the foundation on which applications and information sit, it can also be defined by the designs of the various IT project needs. Examples of other technical (or infrastructure) components could include security, telephony, satellite communications, or personal computers.
- ◆ *Layer 4*, the application architecture, builds upon the business architecture and the information architecture. Here we see the company choosing between two enterprise resource planning software packages (SAP and BAAN). Such a choice, many times, is but one of many a company makes in developing its comprehensive application architecture. The applications chosen can either depend on the technical architecture that the company has built or it can necessitate a change in the technical architecture.

5.1 The EBA

Chapter 2 showed that after an executive committee develops its corporate strategy, the business units could build on it with mapped microstrategies. As these strategy maps stay aligned with shifting marketplaces, the company is, in effect, maintaining a road map of strategies. Once these road maps are developed and distributed, business units can then start presenting business cases for technical and nontechnical initiatives. These business cases need to prove their alignment by drawing up high-level versions of the business processes and structures that the project will be affecting. These views will then need to show how they link to and support the microstrategies of the affected business units.

One major flaw in all of this detailed strategizing is that business units will very rarely find the time to document their processes and goals. The only time they will drill down to such details is when they are required to do so while developing requirements and design collateral for IT-based projects. IT PMs, in their drive to deliver the exact expectations of the stakeholders, can become quite meticulous in documenting the inner workings of a business. Such documentation, when gathered in a project knowledge base and then saved by the IT PMO in a central repository, tends to be the only way a business will find the time to evolve an EBA beyond simple organizational charts and job descriptions. Sure, executives sometimes launch a large drive to map out Balanced Scorecards or process flows, but more times than naught, such initiatives wither under the bureaucratic steam roller. The IT PMO can ensure that the evolution of the EBA occurs when it is necessary and thus prevent organizational backlash to companywide strategy trends. In this section, we will present a few modeling approaches that an IT PMO can advertise to business case writers and PMs when establishing common modeling techniques for a central EBA repository.

5.1.1 Supply and Demand

One place we can start in explaining business architectures is in the basic concept of supply and demand. Figure 5.2 shows how the corporate strategy is first developed to supply the demands of the marketplace

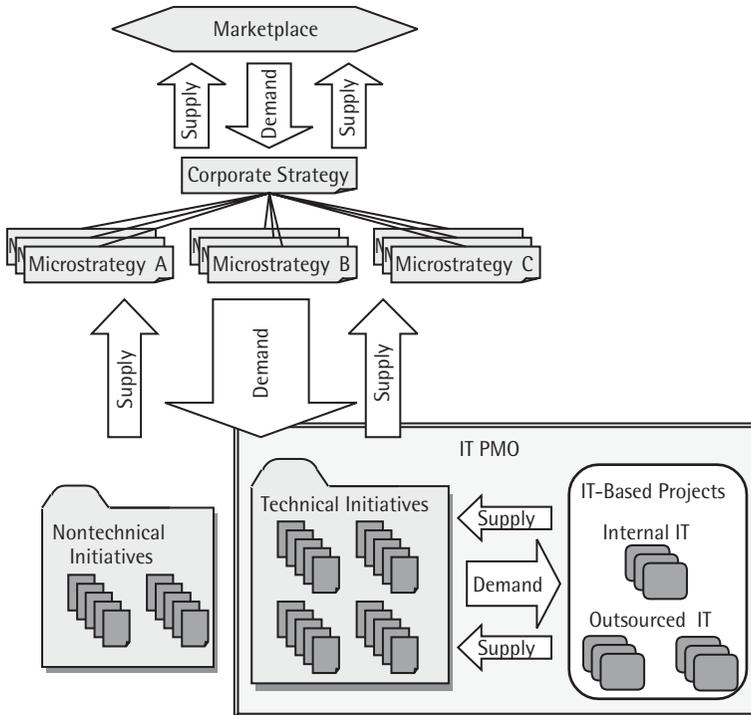


Figure 5.2 Linking the supplies of an IT project portfolio to the demands of the marketplace.

with profitable solutions. A foundation of microstrategies, in turn, supplies the demands laid out by the higher level corporate strategy. Then, to provide for the demands of this next level of strategy, business initiatives are supplied to the various review committees. Finally, to provide the approved initiatives with their demands, a supply of well-managed projects are added to the IT project portfolio. This final supply can be provided by internal IT resources, outsourced IT resources, or a combination of both. If the available supplies don't meet the achievable demands well in any part of this flow, then either the demand or the supply aren't aligned to the same goals—or there are too many constraints to the supply/demand flow.

Figure 5.3 shows that after developing a business architecture from the microstrategies, a set of IT architectures can be developed that help

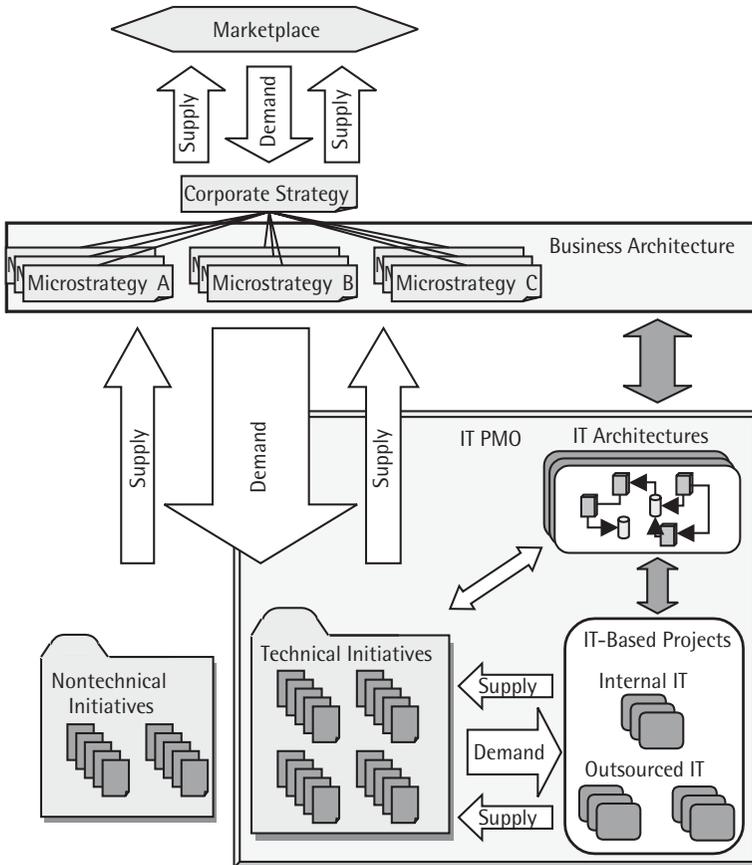


Figure 5.3 Leveraging the enterprise architecture in the project portfolio supply/demand chain.

keep the lower end of the supply and demand flow properly aligned. (The accompanying CD-ROM provides an animated version of Figures 5.2 and 5.3 in the AARK Management PowerPoint presentation.) While the IT department is best qualified to develop these architectures, the IT PMO is better positioned to ensure all IT-based initiatives and projects maintain alignment with these architectures through their history. As the IT department keeps their architectures up to date with the changing business architecture, they are, in essence, anticipating the types of initiatives that will be going before the review committees. The IT

department can then preemptively research the types of technologies that may be needed to satisfy the business architecture. Also, the IT PMO will have a more detailed map to review when prioritizing initiatives and projects.

5.1.2 Constraints and Enablers

When designing the business architecture, it is often beneficial to know what constrains and what enables the smooth flow of internal demands and supplies. Figure 5.4 looks specifically at the pipeline between the initiative portfolio and the project portfolio. The figure illustrates that while there are constraints that can restrict the flow of initiatives, there can also be enablers. According to Nate Whaley, senior practice manager at Excelon Technologies, two kinds of constraints can tend to inhibit the success of financed initiatives:

1. Facts of life (FOL) constraints (e.g., government regulations, geography, technology);

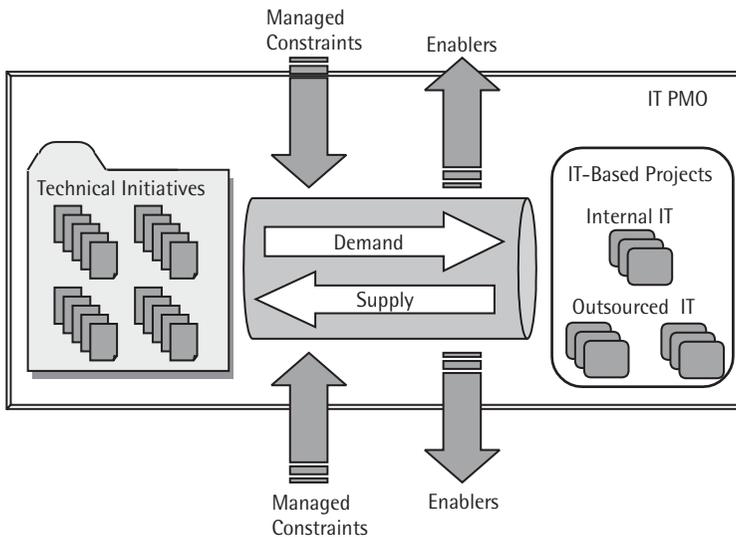


Figure 5.4 Constraints and enablers in satisfying the demands of technical initiatives.

2. Manageable constraints (e.g., capital allocation, organizational structure and forces, IT architecture).

FOL constraints are those that an IT department can't avoid in the short term. Government regulations capping access to mobile carrier frequencies, countries with no telephony infrastructure to access remote geographies, and software companies developing "must-have" software only for specialized operating systems are all examples of FOL constraints. Business case writers need to realize the existence of risks and adapt their ideas accordingly. However, if they think certain FOL constraints will disappear in the long term, then they should provide evidence of this probability when presenting a case that depends on the elimination of the FOL constraint.

Where FOL constraints permanently restrict the flow of acceptable initiatives, there are two other mechanisms that the initiative sponsor can use to alter the flow—both positively and negatively. All risks that can be mitigated fall into the category of manageable constraints. As these risks get more insurmountable, the IT supply pipe becomes tighter. On the other hand, if the results of another IT project that is expected to complete shortly increases the speed of the network, it can act as an enabler that causes the IT supply pipe to become wider. The business case needs to list those constraints that could be mitigated and those potential enablers that could improve the success of the project. Moreover, the central IT PMO is in a perfect position to know which constraints and enablers have been added to the project portfolio and which new initiatives they will affect the most.

5.1.3 Business System Modeling

An enterprise IT architecture "is a business/operational thing first and foremost" [6]. Once an enterprisewide business architecture is developed, only then can the technical architectures be correctly mapped to the goals of the company. Enterprise architects must first establish a foundation that describes an understanding of the business. Such a foundation should "list the required parts of a business, show how the parts are structured and interact, and show how the architecture should evolve" [6]. As the PMO monitors and supports the project portfolio, it

will then be in a position to ensure that these business and IT architectures continue their evolutions.

There are many traditional ways to model businesses (e.g., CIMOSA, PERA), but some methods may be more suited to bridge gaps between business goals and IT implementations. D. W. McDavid's 1999 *IBM Systems Journal* paper, "A Standard for Business Architecture Description" [7], introduced a model that helps map out the details of the microstrategies into a high-level business system architecture. McDavid, himself, explains that another modeling technique that can help bridge this gap is business object modeling such as the Penker-Erikson extensions of the Universal Modeling Language (UML). A third technique, Kaplan's Business Scorecard approach (introduced in Chapter 2), makes sure that the output of the chosen business modeling paradigm stays aligned with the corporate strategy. These three approaches are just a few examples of modeling paradigms that can be used. Each one should be used for different situations and for different levels of abstraction.

5.1.3.1 McDavid Subdomains

Of these business modeling techniques, McDavid's approach merges best with the business supply and demand model just introduced. Table 5.1 shows how his business subdomains would map to our model of constrained and enabled supply and demand flows [7].

On the demand side, McDavid defines the drivers of business as business situations, purposes, and outcomes. McDavid argues that by first modeling around situations, the business architects will be able to reason about and predict "the external factors that are driving the business." Business situations are made up of those situations that the

Table 5.1
McDavid Subdomains Mapped to the Supply/Demand/Constraint Model

<i>Demand</i>	Drivers of the business = business situation, business purpose, business outcome
<i>Constraints</i>	Business boundaries = business roleplayer, business commitment
<i>Supply</i>	Business delivery system = business function, business behavior

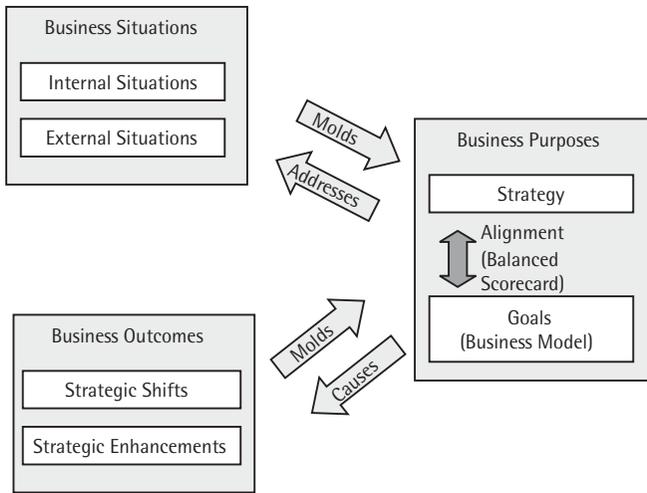


Figure 5.5 Applying McDavid subdomains to EBA evolution.

marketplace presents (external) and those situations that the company itself presents (internal). That is, McDavid asserts that the corporate strategy can't be written to accommodate just the marketplace movements, but that it should also be written to accommodate internal changes. Both of these fluid environments create situations that mold the strategy (see Figure 5.5).

Business outcomes are another source that molds the strategy. We saw this with how Joe's Telecommunications had to alter its desired strategic direction to satisfy the results (or the technical limitations) of some of its IT projects. Many think that the goals of the business result in initiatives that, in turn, are the only causes of business outcomes. But, as seen at Joe's, the undesirable results of IT projects can also cause business outcomes. We found that if the goals of the microstrategies of the company are kept aligned, then the frequency of misguided IT outcomes will be lessened.

The boundaries (or constraints) to business are, according to McDavid, made up of business role players and business commitments. Role players can be people, organizations, or devices that either bind initiatives to certain prerequisites or open them to more opportunities. For example, if a new CIO required all new projects to use a certain hardware vendor, then this could be a form of constraint. But, if that

hardware vendor was too expensive for the previous CIO, even though it offered much more functionality, the new CIO could actually be an enabler. Business commitments such as customer and supplier contracts also act as boundaries that can constrain or free initiatives.

Finally, we have the supply side of the business flows referred to by McDavid as the business delivery system. This system of supplying the various demands of the business is made up of business functions and behaviors. Figure 5.1 showed behaviors (or processes) as one layer of the EBA and business structures (or functions) as the other layer. In our example, we saw how both the structure and the behavior of accounting and human resources controlled how paychecks are supplied.

By combining McDavid's modeling approach with some others, we can recategorize business concepts into four basic buckets [7, 8]:

1. Resources and their associated context diagrams (e.g., organizational charts);
2. Rules (e.g., constraints);

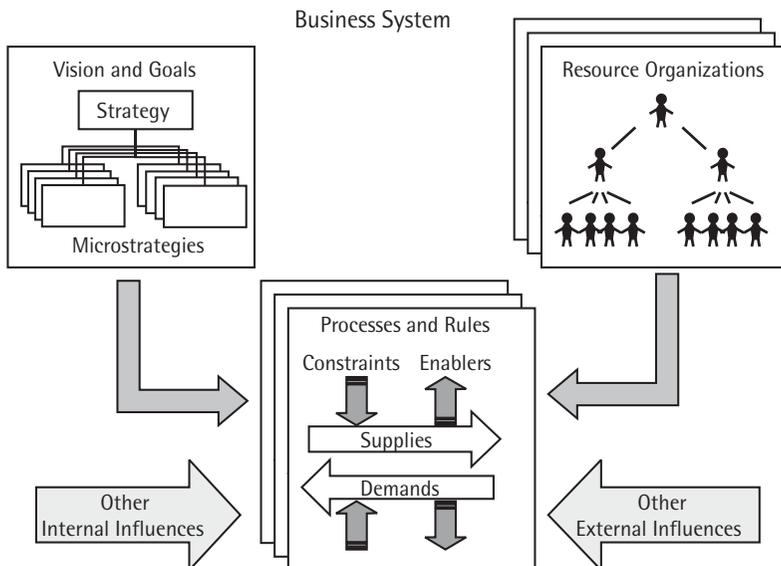


Figure 5.6 Combining advanced EBA paradigms into a business system model.

3. Processes (e.g., supply/demand flows, flow diagrams);
4. Vision and goals (e.g., strategies and microstrategies) (see Figure 5.6).

Using these four concepts, Figure 5.6 illustrates how the vision and goals (4) and the organization of the resources (1) make demands on, and thus mold, the lower level aspects of the business system [the processes (3) and the rules (2)]. This figure also takes into consideration that there might be other demands from both inside and outside the company that can mold the inner workings of a company. Sometimes a company might have to react to internal or external forces that the strategy or the organizational charts didn't anticipate. The influences of a natural disaster (external) or of an accounting/budget miscalculation (internal) are both examples of forces that can make a company react immediately rather than wait for the strategy to change.

5.1.3.2 Penker-Erikson Extensions

When computers were introduced to businesses in the 1960s and 1970s, the common modeling technique was the flow diagram. This paradigm served as a means to translate *business speak* into *IT systems speak*. As we entered the 1980s and 1990s, systems started being designed around things called objects. Instead of having central data stores and several applications that presented and built the data, we started seeing a distribution of the data in business objects. Systems designers felt that the IT architectures of the future would better represent the real world by combining data with functionality in these objects. Since then, new business modeling techniques have evolved that better map *business speak* to this new form of *IT business object speak*.

Many IT consulting companies have developed process-modeling techniques that allow them to map the flow of the business to an abstraction understandable by IT systems architects. A common theme among these process modelers is that they don't restrict themselves to the constraints of organizational charts. Many of the processes they model are horizontal to the organization and affect many functions across the business. "Object-oriented techniques can easily show these processes, as well as the traditional organizational structure" [8]. One

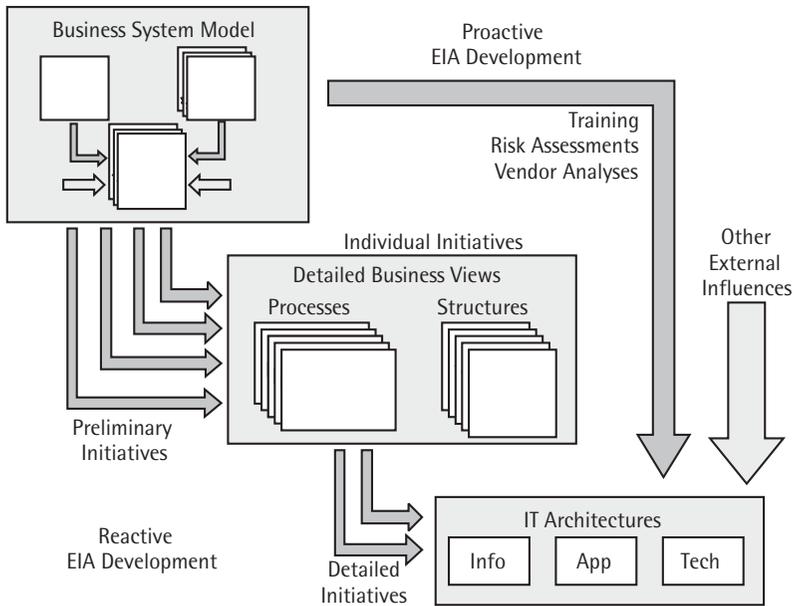


Figure 5.7 Leveraging prepared EBAs to reactively and proactively modify the EIA.

example of such a modeling technique is the Penker-Erikson extensions to the UML. UML sequence or collaboration diagrams can represent the interactions among different resources. Sequence (or process-oriented) and collaboration (or structure-oriented) diagrams can represent the interaction among a number of objects. (Figure 5.7 shows these two as process and structure diagrams.) The architecture review committee sees a business case that models its proposal at this level of detail as being very clear on what it wants. Such detailed modeling avoids the communication-tag delays that occur between the project sponsor and the architecture review committee.

Because business strategies and goals are constantly shifting to meet the demands of the market place, business modelers should be careful not to overmodel. That is, diagrams that don't aid in aligning any IT initiatives, don't aid in making strategic decisions, or may become obsolete quickly should be minimized. Figure 5.7 shows that the IT architecture committee can leverage the higher-level business system

model to plan training, assess risks for prebusiness case ideas, develop improved system designs, and conduct vendor reviews. Business-case writers, on the other hand, should take the business system model to one more level of detail whenever necessary (i.e., detailed business views). Such an approach helps to keep the IT architecture aligned with the business strategy without being mired in analysis paralysis.

Appendix 5A shows how Safeco Corporation put a priority on aligning the business architecture with the IT architecture. This was so central to the corporate strategy that the company made the CIO head of strategic development. Getting IT involved with strategy development is good. But because many proposed and ongoing IT-based projects can be out of IT's view, a portfolio-aware IT PMO may have a better feel for the technical heartbeat of the company.

5.2 The EIA

Where an EBA helps guide the business initiative stream, the EIA helps guide the acquisition and deployment of technology [2, 3]. But before any purchases can be made, they need to be associated with a business need. These needs come in the form of approved business initiatives. When a business idea is presented to the IT architectural committee, the EIA is used to help establish the risks that might be involved if the initiative is allowed to proceed. Then, as the business case is presented and the project proceeds, the IT PMO leverages the EIA for better prioritization. This is how the EIA influences the architectures of the various projects as they get approved. How then could initiatives continue to evolve the EIA in new directions?

An overriding principle when evolving an enterprise architecture should be to constantly ensure it is flexible to changing business needs. For example, architectures shouldn't be so rigid that they slow down projects or prevent companies from capitalizing on new technologies quickly. Standardization should only occur in areas where it would lower costs, provide greater efficiencies, or fuel competitive advantage [1]. For example, if every business unit was allowed to choose its own ERP system, the help desk staff would end up spending most of their time training on each of these systems. But if the IT PMO was able to

negotiate a good deal on an enterprisewide system, help desk, licensing, integration, and training costs would all be reduced. In other areas, however, it might be more efficient to not standardize. An example would be personal computer purchases. If the business unit was allowed to shop around for the best deal, the IT help desk should have no problem supporting them as long as they had the same core operating systems. That is, the business units would save money, but not at the expense of increased costs with the IT help desk. Such flexibility paired with firm standardization creates an architecture that both reacts well to market changes and takes advantage of cost reduction opportunities.

Earlier we showed how the EIA could be split into three layers: the information architecture, the application architecture, and the technology architecture. These layers are influenced by technical trends, the constant flow of IT-based initiatives, and the IT strategy. However, as we determined, the central influencer to the EIA is the fourth layer: the EBA. Once all four of these layers have been defined, the PMO is in a great position to maintain the architecture as the business changes. Every time a technical business initiative is proposed, the PMO will need to ensure that it doesn't conflict with any of the architecture layers. If new technology is proposed, it will need to be reviewed as an update to the existing architecture. Such a review should determine [5]:

1. How the new technology will fit with each of the four layers;
2. How it will be deployed;
3. The timeline for help desk training;
4. What external support will be available;
5. Whether the technology will be migratable to future technologies.

The EIA is made up of several subarchitectures that show how IT assets are dispersed and used throughout the enterprise. These subarchitectures can include configuration, process flow, integration timeline, and user interface diagrams. Network, telephony, client, server, protocol (e.g., Internet protocol), wireless, and security architectures can all be a part of the EIA. Because these can change so frequently,

focus should be on creating architectural documents that can be altered easily. If the document can be autogenerated from some inventory automation tool, all the better. Too much time spent on creating pretty documents can hamstring the productivity of an architecture team. Therefore, be sure to document only those elements that will help quickly determine risk levels for proposed business initiatives.

5.3 Implementing EIA

5.3.1 The EAM Team

It is very easy to establish a committee of cross-business unit representatives who crawl into a closet for six months and come out with a blueprint that represented the company to a T six months ago. It's an entirely more complex task to get the same committee to stand firm in the glare of the entire company and develop a blueprint that flexes quickly to changing market demands but that also clearly underscores

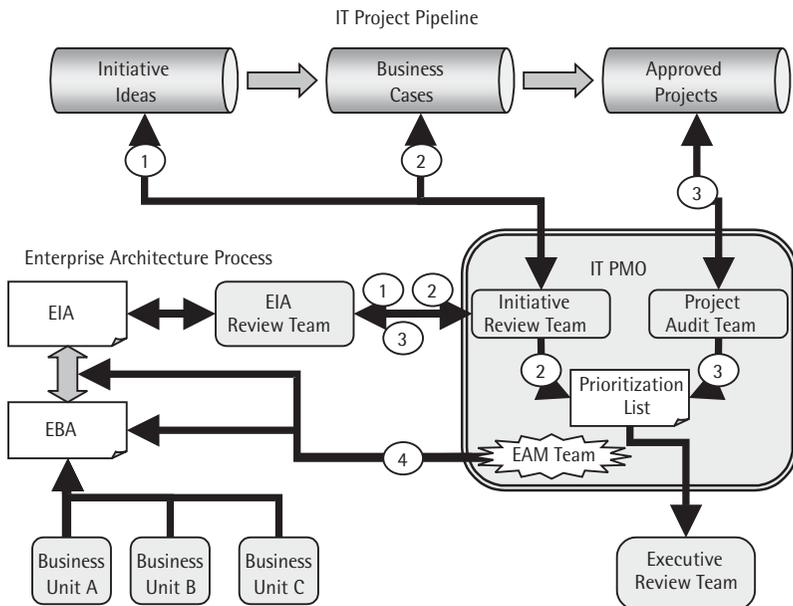


Figure 5.8 Virtual IT PMO–EAM team.

the company's core, unchanging values. If a committee can accomplish this task, that's great for the company for about a week after it is released. The real value returned to the company is if the PMO continues the duties of the committee. The duties associated with maintaining the business' blueprint is known as enterprise architecture management (EAM).

Figure 5.8 shows how an EAM team can help expand the boundaries of the IT PMO to become a more effective (and larger) virtual IT PMO. We know that the IT PMO supports the IT project stream by (1) providing early technical risk assessments, (2) reviewing the viability of initiatives and prioritizing them, and (3) auditing ongoing projects for health and prioritizing them. These tasks are supported by the initiative review and the project review teams within the IT PMO. The EAM team is another group within the IT PMO that coordinates the various business units and the IT architecture team to develop and evolve the EBA and the EIA (4).

When the EAM team coordinates the EIA review team, "there is a tendency to lose track of product priorities and developer concerns" [9]. The architecture team will not only have to overcome resentments that they are a select group off doing interesting things, but they also have to overcome overt or covert opposition to what they release to the developer community [9]. An organizational management priority is in how the EIA review team is organized and maintained. A single leader should be permanently assigned, with subject matter experts coming and going as component elements of the EIA get designed [9]. This approach allows the lead architect to focus on the big picture while providing fresh designers from the field to contribute designs that reflect the true needs of ongoing and future projects.

The case study on Toyota Motor Sales in Appendix 5B shows how this company developed the equivalent of an EAM team. The company not only staffed people to baseline the architecture, rather than pull architects part time for committee meetings, but they also hired someone for the task of monitoring architecture shifts. Such awareness of the dynamics of IT and business architectures is important if the IT PMO hopes to accurately compare initiative proposals to current-state systems.

5.3.2 Technical Process Reengineering

Most of the time, if there is no prior EIA, then the company will have a chaotic environment that will need to be migrated to a supportable architecture. Many enterprise architecture initiatives just come up with a large model and then start major migration projects. However, “most successful architecture implementations occur in four overlapping phases: 1) planning, 2) initial migration [quick hits], 3) major application migration and 4) post-migration” [2]. That is, to maintain ongoing support for the technical equivalent of a business process reengineering—known as a technical process reengineering (TPR)—effort, be sure to split out those migrations that will show early success. Table 5.2 lists some other critical elements for EIA migration success. The most common element here is the strong focus on maintaining

Table 5.2
List of Organizational Change Tasks for TPR Initiatives

<i>Organizational Change</i>	<i>Planning</i>
Be opportunistic (to help with selling the architecture).	Reorganize the work and the people to save money.
Build a sense of urgency.	Ensure a strong IT and business skill set representation.
Build a strong executive sponsorship.	Ensure architecture is business driven.
Gain commitment at the grassroots level.	Develop a good understanding of business drivers and form a vision.
Build a strong team dynamic.	Establish a framework and a methodology.
Communicate plans and benefits.	Establish baselines and performance metrics. There is an axiom that the perceived value of a service diminishes exponentially after the service is rendered. That phenomenon can derail any initiative.
Empower others to act on the vision.	Combine technical and financial planning.
Publicize shared architecture values.	
Regularly publish progress updates.	
Unify the enterprise architecture efforts.	
Remain flexible.	

Source: [2, 10].

continued organizational support when creating an EIA or when overhauling an existing EIA.

5.4 Summary

When IT-based business initiatives get submitted for review, the EAM team of the IT PMO acts as middle man between the business case writer and IT's architecture review team. The business case writer understands that the technical risks returned from such a review are based on architectures developed by representatives from business units and from IT. The EBA and the EIA both comprise the overall EA. We showed that Balanced Scorecards, McDavid subdomains, and the Penker-Erikson UML extensions allow for progressively more detailed modeling to bridge the business/IT strategy gap. Many organizations develop such EBAs and EIAs only to see them collect dust as weighty architectural documents ignored by developers [2, 11]. To prevent this, the architectures need to be flexible in some areas and firm in others. Create a plan that outlines goals, standards, and policies; post it to solicit ongoing input; and then update it annually [1]. To ensure that the architecture is understandable, as well as implementable, develop training curricula that are updated with the architecture [9, 12]. The IT PMO will be responsible not only for coordinating the architecture teams, but also in gathering the architecture collateral from each project.

References

- [1] Schneider, Polly, "Blueprint for Harmony," *CIO Magazine*, September 1, 1999, http://www.cio.com/archive/090199_acrimony.html (last accessed on January 15, 2004).
- [2] Cecere, Marc, "Architecting Architecture," *CIO Magazine*, April 15, 1998, <http://www.cio.com/archive/041598/view.html> (last accessed on January 15, 2004).
- [3] Sims, David, "Enterprise Architecture: The Executive Advantage," <http://www.eacommunity.com/articles/art10.asp> (last accessed on January 15, 2004).

-
- [4] Slater, Derek, "The Whole... Is More Than Its Parts," *CIO Magazine*, May 15, 2000, <http://www.cio.com> (last accessed on January 15, 2004).
- [5] Miner, Clyde, "IT Architecture—Where, What, Why?" <http://www.eacommunity.com/articles/art1.asp> (last accessed on January 15, 2004).
- [6] Genovese, David, "CIO Q&A," *CIO Magazine*, November 17, 1998, <http://www2.cio.com/ask/date.cfm?DATE=1998&Go=Go> (last accessed on January 15, 2004).
- [7] McDavid, D. W., "A Standard for Business Architecture Description," *IBM Systems Journal*, October 7, 1998 (electronic version).
- [8] Penker, Magnus, and Hans-Erik Eriksson, *Business Modeling with UML*, Needham, MA: OMG Press, 2001.
- [9] Bredemeyer, Dana, and Ruth Malan, "Architecture Teams," *Bredemeyer Consulting*, January 26, 2001, http://www.bredemeyer.com/Architecture_Teams.htm (last accessed on January 15, 2004).
- [10] Foroozesh, Mehrdad, "The Making of a Successful Enterprise Technical Architecture," <http://www.eacommunity.com/articles/art3.asp> (last accessed on January 15, 2004).
- [11] Meta Group, "Centralizing Management of Project Portfolios," *Meta Group*, January 29, 2002, http://www.umt.com/site/Documents/IT_World_-_Leading_Organisation_Centralize_Management_of_Project_Portfolios_-_29Jan02.pdf (last accessed on January 15, 2004).
- [12] Bredemeyer, Dana, and Ruth Malan, "The Role of the Architect," <http://www.eacommunity.com/articles/art14.asp> (last accessed on January 15, 2004).
- [13] Banham, Russ, "Safeco's Alignment Strategy," *CIO Insight*, July 1, 2002, <http://www.cioinsight.com/article2/0,1397,334057,00.asp> (last accessed on June 24, 2004).

Appendix 5A: Case Study—Safeco—Aligning IT and Business Architectures

In January 2001, Safeco hired Roger Eigsti as the new CEO to turn around the insurance company. With net income at half of what it was the previous year, Eigsti decided to take a radical approach by driving a new business strategy with a new IT strategy. Rather than have the different business units first define their substrategies and then ask IT for support, Eigsti asked the new CIO, Yom Senegor, to act as the chief strategist. This way, the new corporate strategy had no choice but to evolve through the eyes of a technologist.

Realizing that Safeco's core products of automobile and small commercial lines insurance were commodities, they focused on a strategy of improving the two differentiators in their market: price and service. To help guide the business in improving both of these while also improving corporate growth, Senegor showed how the relationship between business and technical strategies were so codependent. By obtaining credit histories of policy applicants through more efficient interfaces with motor vehicle records, Safeco was able to both refine price segmentation and improve response time to the customer. And by improving the systems in customer support centers, complaints and field agent inquiries were able to be handled quickly. For the chief strategist to have such a clear understanding of how technology could be applied in achieving the corporate strategy, IT project alignment became a nonissue.

Senegor explains that "Technology doesn't run the business, but the business cannot run without technology; it is part and parcel of the enterprise. Once you integrate technology with business strategy, you learn immediately that it can drive enormous value" [13].

Appendix 5B: Case Study—Toyota Motor Sales USA—Flexible IT Architecture

When CIO Barbara Cooper joined Toyota, she found that the technology was 10 years behind current trends and that the IT organization was not aligned with the sales, distribution, and marketing businesses. One of her reorganization efforts involved creating an eight-person

architecture committee headed by Architecture Manager Karen Nocket. Understanding that the new architecture manager position would involve a lot of negotiation and relationship building with the various business and IT units, she placed someone who had strong communication skills and strategic vision.

5B.1 The Architecture Committee

While the architecture committee was pulled from different areas in the IT organization to provide direction, Nocket hired three more employees to work solely as architecture experts. With Nocket, the three architects' first job was to market the concept of a standardized architecture to the right people, solicit additional volunteers for the architecture committee, and then spend four weeks taking inventory of the current-state architecture. While the next phase of developing the architecture should take no more than six months, Nocket realized that architectural needs could shift in this timeframe. As a result, she hired a fourth person to keep track of such shifts and manage the review process.

5B.2 Flexible IT Architecture

Once the business architecture is completed, Nocket understands the need to market the final plan as an added value to the businesses. By explaining that the business can flex much easier if it isn't tied down by a web of complex and nonstandard technologies, business units would be more willing to have IT dictate what software goes on their desktops. On the other hand, while Nocket understands that a standard IT architecture would improve IT-market flexibility, she also knows that tech-savvy "users will learn to get around your standards" [1]. Therefore, the architecture should dictate core, necessary systems but also allow some flexibility with the end users. That is, let them request secure, nonstandard software for their desktops that make them more productive as individuals but that don't conflict with the backbone architecture.