Combining Business Process Management and Enterprise Architecture for Better Business Outcomes

- Learn how to transform your enterprise from conflicting tribes to a modern nation
- Discover a unique synergistic approach to BPM and EA
- See how to link planning and delivery effectively

Claus T. Jensen
Owen Cline
Martin Owen

Redbooks

ibm.com/redbooks

International Technical Support Organization

Combining Business Process Management and Enterprise Architecture for Better Business Outcomes

March 2011

SG24-7947-00

Note: Before using this information and the product it supports, read the information in “Notices” on page vii.

First Edition (March 2011)

This IBM Redbooks publication provides information about how to combine business process management (BPM) and Enterprise Architecture (EA) for better business outcomes.

Contents

Notices

This information was developed for products and services offered in the U.S.A.

IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:
IBM Director of Licensing, IBM Corporation, North Castle Drive, Armonk, NY 10504-1785 U.S.A.

The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law: INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product and use of those Web sites is at your own risk.

IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

COPYRIGHT LICENSE:

This information contains sample application programs in source language, which illustrate programming techniques on various operating platforms. You may copy, modify, and distribute these sample programs in any form without payment to IBM, for the purposes of developing, using, marketing or distributing application programs conforming to the application programming interface for the operating platform for which the sample programs are written. These examples have not been thoroughly tested under all conditions. IBM, therefore, cannot guarantee or imply reliability, serviceability, or function of these programs.

Trademarks

IBM, the IBM logo, and ibm.com are trademarks or registered trademarks of International Business Machines Corporation in the United States, other countries, or both. These and other IBM trademarked terms are marked on their first occurrence in this information with the appropriate symbol (® or ™), indicating US registered or common law trademarks owned by IBM at the time this information was published. Such trademarks may also be registered or common law trademarks in other countries. A current list of IBM trademarks is available on the Web at http://www.ibm.com/legal/copytrade.shtml

The following terms are trademarks of the International Business Machines Corporation in the United States, other countries, or both:

IBM®	Redbooks®	Smarter Planet™
Rational®	Redbooks (logo)  ®	WebSphere®

ITIL is a registered trademark, and a registered community trademark of the Office of Government Commerce, and is registered in the U.S. Patent and Trademark Office.

Other company, product, or service names may be trademarks or service marks of others.

Preface

Modern history began with independent, often warring, tribes. Each tribe had their own language and culture and had achieved self sufficiency through incorporation of all major skills in their own society. Although self sufficient, not all tribes had similar access to natural resources. Thus, trading emerged as an important part of early civilizations.

With basic trading in place, increased specialization occurred. Different cultures specialized in different types of high quality goods, and classical bartering was replaced by trading based on established monetary systems. To avoid conflict among tribes, national legislation and international treaties were established. Libraries and the invention of the printing press allowed for rapid spread of news and knowledge, ultimately fueling technological innovation. All of these advancements lead us to today's interconnected, digitized societies where collaboration towards common objectives is the norm rather than the exception.

There are striking analogies between the historical evolution of our industrialized world and the challenges facing modern enterprises. Many enterprises are still "tribal" in nature, in that they have not yet established common languages and landscapes (maps). In addition, many of the enterprise tribes do not have visibility to other parts of the enterprise nor, in many cases, do they care. Libraries are not established and processes are not defined or digitized. Knowledge is not analyzed to support innovation, and cross domain collaboration is the exception rather than the rule. We could carry on with this analogy. Suffice it to say that to realize better business outcomes, an enterprise needs to transform itself from a *tribal society* to a *modern nation*, in years not centuries. How do we accelerate that process?

This IBM® Redbooks® publication provides guidance on how to combine business process management (BPM) and Enterprise Architecture (EA) for better business outcomes. This book provides a unique synergistic approach to BPM and EA, based on a firm understanding of the life cycles of the enterprise and the establishment of appropriate collaboration and governance processes. When executed together, BPM provides the business context, understanding, and metrics, and EA provides the discipline to translate business vision and strategy into architectural change. Both are, in fact, needed for sustainable continuous improvement.

The intent of this book is to provide thought leadership and direction on the topic of BPM and EA synergies. Although technical in nature, it is not a typical IBM Redbooks publication. The book provides guidance and direction on how to

collaborate effectively across tribal boundaries rather than technical details about IBM software products.

This book includes the following parts:

- Part 1, “Better business outcomes” on page 1 focuses on the value of direct collaboration across BPM and EA boundaries and describes the principles for aligning and interconnecting BPM and EA from a business perspective.
- Part 2, “From tribes to nations” on page 51 focuses on how to achieve the BPM and EA synergies in practice by transforming the enterprise landscape from a set of independent tribes to a collaborating and coherent inter- and intra-enterprise network.
- Part 3, “A worked example” on page 119 contains a fictitious example of how to apply the principles and practices described in parts 1 and 2 in practice.

The primary audience for this book is leaders and architects who need to understand how to effectively combine BPM and EA to drive, as a key differentiator, continuous improvement and transformational change with enterprise scope.

The team who wrote this book

This book was produced by a team of specialists from around the world working at the International Technical Support Organization (ITSO).

Claus T. Jensen is an IBM Senior Technical Staff Member in the US. He is part of the BPO Foundation team and is Chief Architect for SOA-BPM-EA technical strategy, driving their alignment and integration both conceptually and practically. Claus has 12 years of experience with SOA, BPM, and EA. Prior to joining IBM in March 2008, he was Group Chief Architect, VP of Architecture and Business Development, in Danske Bank, a regional European bank, where one of his responsibilities was driving Danske Bank’s SOA initiative and SOA center of excellence since its inception in 1999. Claus holds a PhD in Computer Science from Aarhus University, Denmark. He has written extensively on various modeling and architecture topics within his areas of expertise.

Owen Cline is a member of the IBM Software Services for WebSphere® team based in San Diego, CA. He has over 20 years of experience in the software development field. He holds four software patents, has written several IBM Redbooks publications, and has presented at multiple technical conferences. For the past five years, Owen has specialized in SOA and J2EE architecture, application development, and deployment, with an emphasis on the WebSphere platform. In addition, he has also worked on many high profile websites over the

past few years. Owen earned a Bachelor of Science degree in computer science from the University of Pittsburgh and a Master of Science degree from San Diego State University.

Martin Owen is worldwide product manager for Enterprise Architecture at IBM Rational®. He has over 20 years of experience in the Enterprise Architecture and Business Process Analysis field. He has worked at IBM since 2008 and joined IBM through the acquisition of Telelogic, where he was Vice President of product management for Enterprise Architecture. Prior to Telelogic, Martin was head of EMEA consulting for Popkin Software, a founder of Enterprise Architecture tooling with System Architect. His areas of expertise include The Open Group Architecture Framework (TOGAF), Business Process Modeling Notation (BPMN), and Strategic Planning. He was co-author of the original BPMN. Martin studied for a masters degree in Information Technology at Liverpool University in the UK.

Now you can become a published author, too!

Here's an opportunity to spotlight your skills, grow your career, and become a published author—all at the same time! Join an ITSO residency project and help write a book in your area of expertise, while honing your experience using leading-edge technologies. Your efforts will help to increase product acceptance and customer satisfaction, as you expand your network of technical contacts and relationships. Residencies run from two to six weeks in length, and you can participate either in person or as a remote resident working from your home base.

Find out more about the residency program, browse the residency index, and apply online at:

ibm.com/redbooks/residencies.html

Comments welcome

Your comments are important to us!

We want our books to be as helpful as possible. Send us your comments about this book or other IBM Redbooks publications in one of the following ways:

- Use the online **Contact us** review Redbooks form found at:

  ibm.com/redbooks

- Send your comments in an email to:

  redbooks@us.ibm.com

- Mail your comments to:

  IBM Corporation, International Technical Support Organization
  Dept. HYTD Mail Station P099
  2455 South Road
  Poughkeepsie, NY 12601-5400

Stay connected to IBM Redbooks publications

- Find us on Facebook:

  http://www.facebook.com/IBMRedbooks

- Follow us on Twitter:

  http://twitter.com/ibmredbooks

- Look for us on LinkedIn:

  http://www.linkedin.com/groups?home=&gid=2130806

- Explore new Redbooks publications, residencies, and workshops with the IBM Redbooks weekly newsletter:

  https://www.redbooks.ibm.com/Redbooks.nsf/subscribe?OpenForm

- Stay current on recent Redbooks publications with RSS Feeds:

  http://www.redbooks.ibm.com/rss.html

Part 1

Better business outcomes

Planning for change is a necessity for most modern enterprises, yet plans that are never executed have little value. Continuous business performance improvement is derived from proper coordination between planning and execution. This coordination in turn requires a firm understanding of the life cycles of the enterprise, and the establishment of appropriate collaboration and governance processes.

Business process management (BPM) and Enterprise Architecture (EA) each have value on their own, they are also naturally synergistic and best when done together for better business outcomes and strategic alignment of business and IT. When done together, BPM provides the business context, understanding and metrics, and EA provides the discipline for translating business vision and strategy into architectural change. Both are, in fact, needed for sustainable, continuous improvement.

Important: This book distinguishes between *Enterprise Architecture* (mixed case), or the acronym EA, as a discipline and an *enterprise architecture* (lowercase) as a construct.

Part 1 of this book focuses on the value of direct collaboration across BPM and EA boundaries and describes the principles for aligning and interconnecting BPM and EA from a business perspective. The primary audience for this part is leaders and architects who need to understand how to effectively combine BPM and EA as a key differentiator for successful enterprises in their drive toward continuous business improvement.

1

Coordinating planning and delivery

The best plans in the world have little value if they are never executed. This chapter explains how to coordinate planning and delivery life cycles throughout the landscape of a modern enterprise.

1.1 The imperative for business agility

In today's business environment, Chief Information Officers (CIOs) and Chief Executive Officers (CEOs) are often focused on how to accomplish agile change and innovation. In fact, organizational, business process, IT, and many other types of changes are at the forefront of any discussion about how to succeed in the post-recession landscape. In a recent IBM survey, 8 out of 10 CEOs said that their organizations were facing substantial change over the next three years. This information indicates that many industries are reaching a process inflection point as the gap grows between the need for change and the ability to effect such change.

Figure 1-1 illustrates this inflection point and the challenge of promoting dynamic growth and at the same time optimizing operational costs.

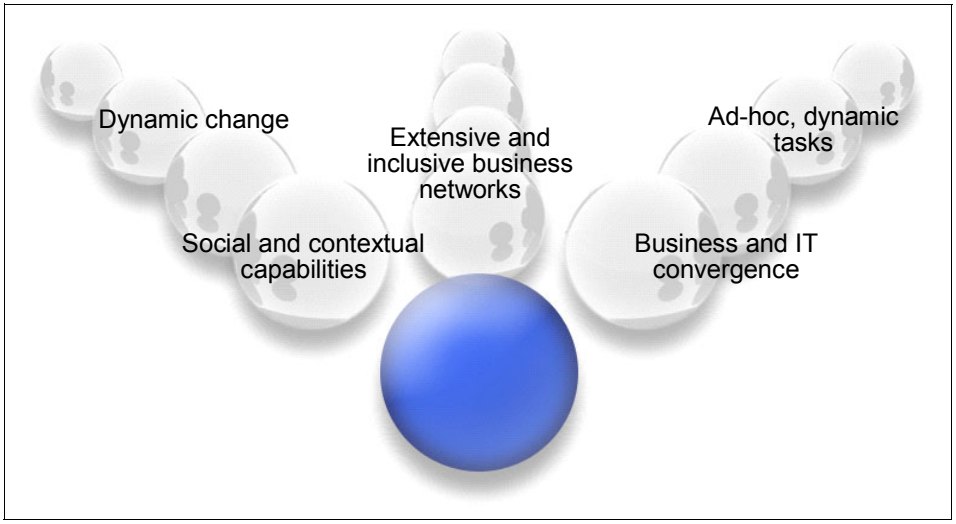

Figure 1-1 Processes and information need to fuel new growth while optimizing costs

Although agile change is a critical component of most modern enterprise strategies, the key is going about change in an effective and sustainable way. Reading recent blogs, articles, and reports, you might infer that being successfully agile is all about being fast, but does agile really equal fast? No, not at all! The underlying premise driving towards business agility is that such agility delivers superior business value, but what if haste to achieve agility results in low quality? Or, what if the speed of change is unsustainable from a business operational perspective, thereby leading to deteriorating efficiency? These are just two examples of the fundamental challenge of how doing things in haste,

implementing the wrong changes, or even implementing the right changes but in the wrong way can quickly lead to ruin.

If your core business cannot keep up with the changes and, therefore, loses efficiency, if quality suffers resulting in significant loss of customers, or if you mortgage your company's future by over-investing and taking too many risks, then what? What is the point in preparing for the future if in the process you ruin your current business?

The following fundamental premises must be in place for agile change to be valuable over time:

- Choose the right changes that deliver better business outcomes with the least amount of resources and disruption.
- Maintain business performance and integrity while executing change.

Agility is not really about speed but is about choosing the right changes and implementing those changes the right way in a timely fashion. Figure 1-2 illustrates the need to balance efficiency and effectiveness.

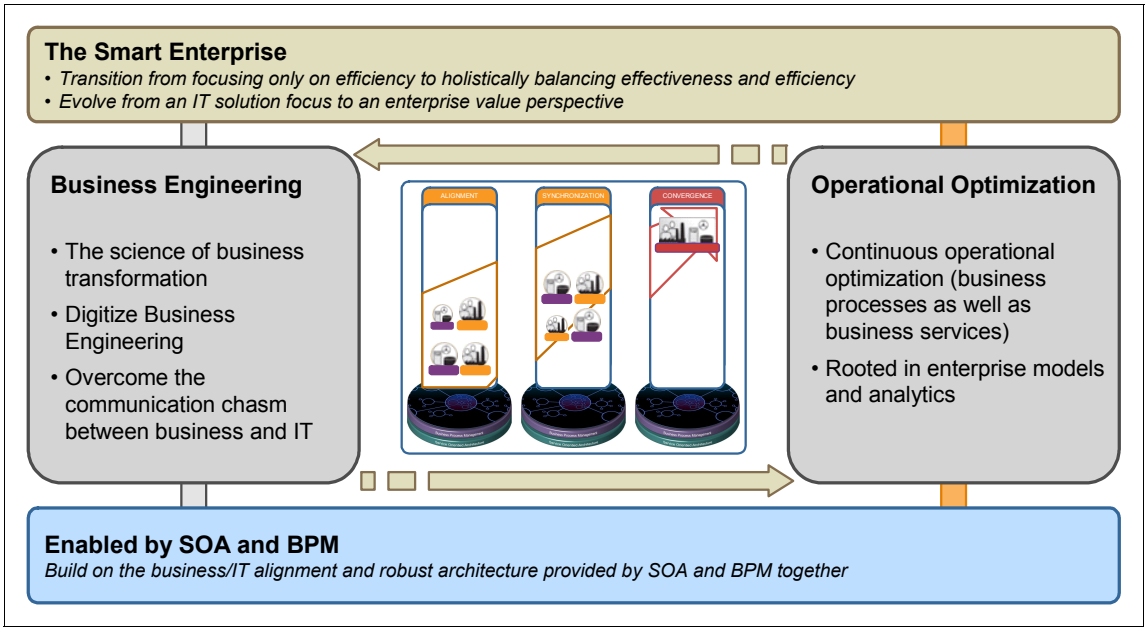

Figure 1-2 The smart enterprise balances efficiency and effectiveness for sustainable agile change

For agile change to be sustainable, the enterprise needs to carefully plan and maintain an appropriate balance between effectiveness and efficiency. Long-term effectiveness is based on continuous business re-engineering

towards strategic objectives. Yet while on that strategic journey, an enterprise needs to continuously adjust and optimize the current state efficiency and ultimately maintain business integrity and performance.

1.2 Improving business outcomes

The IBM Smarter Planet™ initiative points out how we live in a world where everything is interconnected and intelligent. Agile change is becoming table stakes for enterprises that want to be successful. There are many approaches to agility, yet all of these approaches share the notion that we need to align strategy with execution to improve business outcomes. How difficult can that be? All we need to do is to create an enterprise architecture and implement the defined future state architecture, correct?

In reality, there is much more to the challenge. For any architecture to be actionable it needs to be contextual, collaborative, connected, and consumable. These concepts, termed *the four C's* are the foundation for architected change. (See 3.2, “Actionable architecture” on page 34.) To deliver tangible business value, we need to go beyond business and IT alignment and achieve true business and IT convergence, without getting stuck on “lets understand everything before we act.”

Again, how difficult can it be to make an enterprise architecture actionable? We simply need to collaborate on that enterprise architecture, understand why we are creating it, and make sure to push down stream for architectural governance, correct? Well, yes and no. Many enterprise architects do not necessarily appreciate that enterprise architecture does not address how to execute change or how to establish the critical feedback loop that provides insight on whether the architecture worked as intended. To make enterprise architecture actionable, we need to link enterprise architecture artifacts to the solution delivery initiatives that actually deliver operational improvement and agile change, initiatives such as business process management (BPM).

A good and scalable approach to coordinating planning and execution is to combine BPM and enterprise architecture. Each has value on its own. However, the two are also naturally synergistic, and best when done together for better business outcomes and strategic alignment of business and IT. When combined, BPM provides the business context, understanding, and metrics, and EA provides the discipline to translate business vision and strategy into architectural change.

From an organizational perspective, the enterprise needs to engineer planning and delivery processes to take advantage of the synergistic powers of robust architectural planning (represented by EA) and agile business improvement

(represented by BPM). From a technological perspective, the enterprise needs to establish a platform that enables the appropriate collaboration by creating visibility, traceability, and integrity between targets and solutions throughout all roles and tools. Both capabilities are required components for a sustainable approach to agility, as illustrated by Figure 1-3.

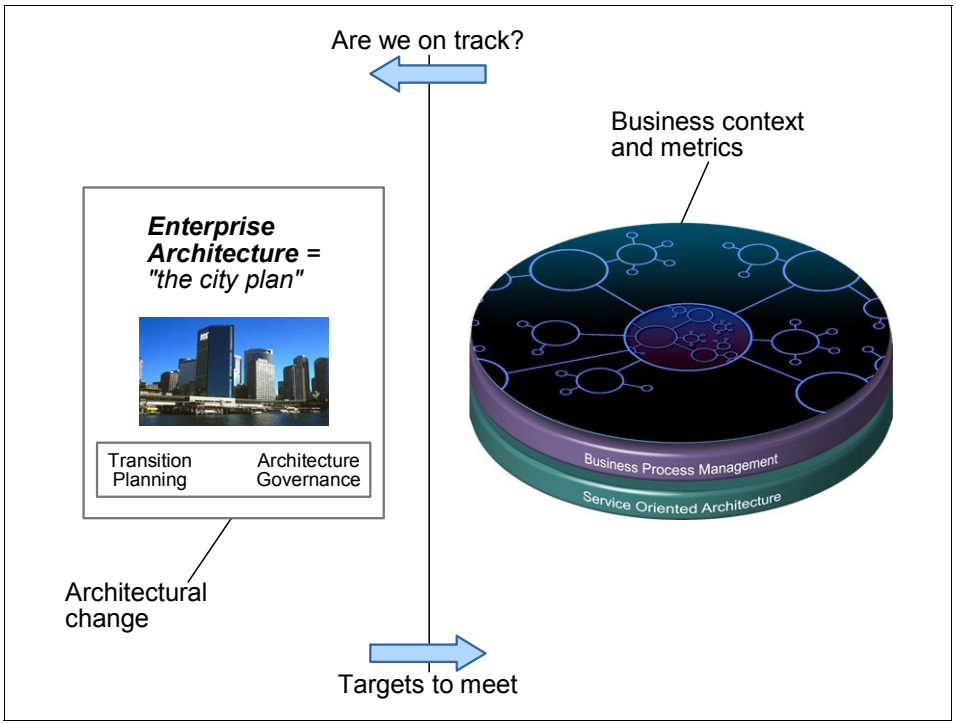

Figure 1-3 Coordinate planning and delivery by combining BPM and EA

Planning for change is a necessity for most modern enterprises, yet plans that are never executed have little value. Continuous business improvement is derived from proper coordination between planning and execution. This coordination requires a firm understanding of the life cycles of the enterprise and the establishment of appropriate collaboration and governance processes. Thus, optimizing business processes and solutions is no longer enough; the enterprise needs to optimize the process of change itself.

It is important to realize that addressing only IT planning and execution aspects is not sufficient to meet these new imperatives. Changes must also occur in the way an enterprise approaches business planning and execution.

Figure 1-4 illustrates how organizations can achieve greater agility by strategically embedding flexibility and intelligence throughout their business.

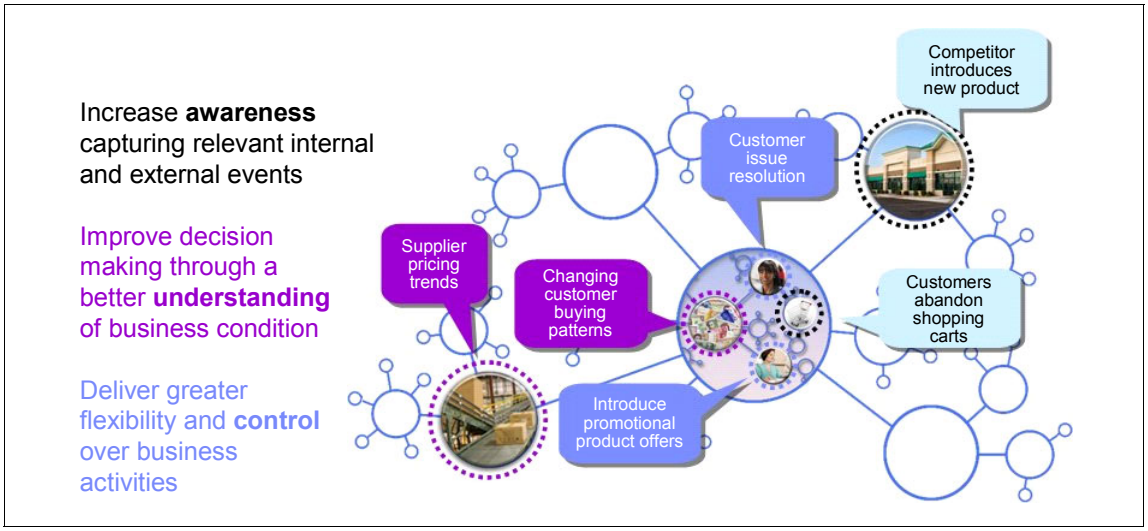

Figure 1-4 Take control of the business by holistically integrating processes, information, and analytics

By taking control of its processes and information, an enterprise can take control of its business through better business intelligence and improved decision making.

1.3 Taking control of the enterprise landscape

If we accept the fundamental premise that to take control of processes and information and to integrate planning and delivery throughout the enterprise, BPM and EA need to be synergistically combined, the natural question of how to do so effectively arises. How do you identify the most important changes, find the optimal time to implement those changes, and finally execute change effectively?

Several resources address these questions, but depending on viewpoint (BPM, EA, business architecture, software engineering, and so on), each resource provides a different answer. This variety in views illustrates that different people have different objectives and different opinions about what constitutes effective changes and that most often these views are based on the discipline with which they themselves are most familiar.

How do we overcome the “tribal” nature of a complex organization and evolve to a nation that is working together towards common goals based on each of our

specialties and skills when often these different enterprise “tribes” do not even share a common language base or the same concepts as a foundation for understanding?

First, you need to establish a common and recognized landscape for change. Only then can you discuss how to collaborate and govern within that landscape. In this context, we have chosen the landscape analogy intentionally, because we believe that the first prerequisite for building a nation is to map and understand the various tribes that live within the borders of that future nation. After you know who is out there, and perhaps go further to understand some of their languages and goals, then fears and concerns are reduced and challenges are more tractable. You have, in fact, progressed from an unknown void to an explored and known landscape. Admittedly, there are still many challenges ahead on the journey to become a nation, but now you can identify and address these challenges, as opposed to simply fearing the unknown, often irrationally.

We are not suggesting that a modern enterprise is the same as a tribal environment full of fears and superstitions. Still the analogy holds in that something known and recognized is much easier to address than something unknown and not recognized. With knowledge and recognition, it becomes easier to set up appropriate collaboration patterns to guide and govern change.

Returning to the notion of a common and recognized landscape for change, Figure 1-5 illustrates at a conceptual level the different life cycles and practices found in most enterprises.

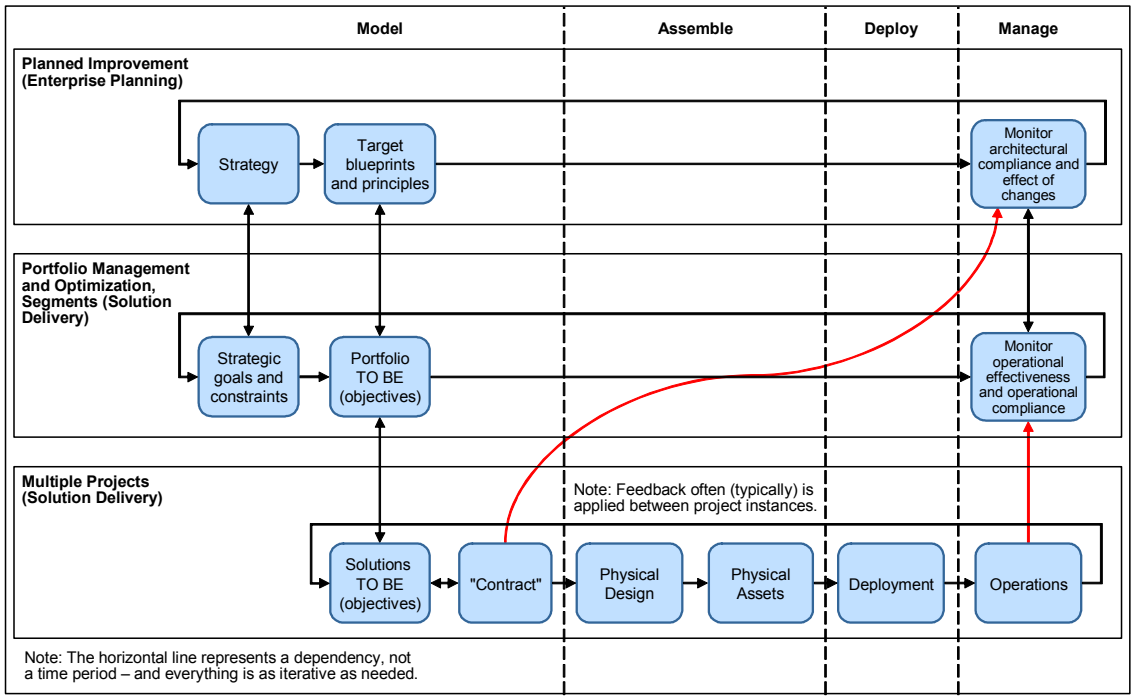

Figure 1-5 Defining the enterprise landscape

The exact details of the actual enterprise landscape depend on the enterprise in question. Nevertheless, concrete practices, roles, methods, and even tools can be mapped to the generic landscape, which in turn then functions as the foundation for better understanding, desired interaction, and collaboration patterns.

Concretely the generic landscape illustrates three fundamentally different life cycles that are asynchronously coordinated. Because these different life cycles have different scopes and purposes, they are not a “stack” and are not linked in any linear or hierarchical fashion. The differences between the extended timeline and enterprise perspective of a road map and the execution of a specific project with limited scope and deadline makes it undesirable to combine the cycles into one.

As an example, consider a five-year road map for a business merger. Although the intended result is known, it is impractical to analyze all projects in the road map in solution-level detail before delivering and acting on a definition of the road

map itself. Similarly, for an service-oriented architecture (SOA) transformation road map, it is impractical to analyze the entire existing portfolio before delivering a single new service or solution.

The perhaps most elusive of the three life cycles is the portfolio management and optimization life cycle. Often overlooked in SOA, BPM, or EA initiatives, this life cycle illustrates that there is a significant role played by the owners and portfolio managers of the current state of the enterprise and their need for continued efficiency and operational optimization. To be precise, this is the life cycle that is the efficiency counterbalance to the effectiveness drive that is provided by the enterprise planning life cycle. We consider the role and importance of portfolio management and optimization in more detail when we return to the notion of actionable architecture in Chapter 3, “BPM and EA synergies” on page 25.

Two important feedback loops, illustrated by the red arrows in Figure 1-5 on page 10, are part of the generic landscape:

- Feedback from “contract” to enterprise planning

  This feedback loop creates visibility towards the things that projects intend to build and whether such intent is aligned with current enterprise plans and blueprints. The metric for success is not related to any particular solution or deliverable but rather is related to the progression over time towards long-term enterprise objectives.

- Feedback from operations to portfolio management and optimization

  This feedback loop provides the insight as to whether current operations meet defined key performance indicators (KPIs) and metrics and form the foundation for adjustment and optimization of the efficiency of the current state of the enterprise.

Both of these feedback loops are critically important for maintaining an appropriate balance between long-term effectiveness and short-term efficiency in a rapidly changing environment. Without the feedback from operations to portfolio management and optimization, the enterprise is acting blindly with no ability to detect the operational effect of changes and the operational health of the enterprise. Without the feedback loop from contract to enterprise planning, plans quickly become stale and out of sync with reality, leading to the so called “ivory tower syndrome” that traditionally has hit many EA initiatives. The plans look good on paper, but nobody takes them seriously and they have no real impact on the evolution of the enterprise.

Note that the different characteristics and purposes of these feedback loops speak to the differences between EA and BPM, with EA incorporating feedback against planned change and BPM incorporating feedback against improved operational efficiency.

2

BPM and EA defined

To fully understand the synergies between business process management (BPM) and Enterprise Architecture (EA), we need to first define each in isolation and understand how it is placed on the enterprise landscape. We provide information about these topics in this chapter.

2.1 The value of architecture

Some would say that architecture is anathema to agility, citing as a reason that time used on architecture could be better used on agile delivery of business solutions. Yet how can you really take control of the enterprise landscape without understanding its structure? How can you empower people without defining the scope within which they are empowered? And how can the tribes of the enterprise collaborate effectively without well-defined components and boundaries upon which to communicate?

Architecture in its generic meaning is simply the structure and design of a system or product. Architecture as a discipline analyzes a problem and decomposes that problem into its constituent buildings blocks. The architect role is responsible for the coherency and consistency of the set of buildings blocks that are applied to solve a problem or to build a solution. Architecture is a key enabler for doing the right things the right way rather than doing some (arbitrary) things quickly. The value of the architecture lies in the outcomes it enables, rather than the price of construction.

More specifically, value of the architecture is economical, functional, and constructional:

- Economical, understanding the value and interactions of business activities
- Functional, understanding the systems (business and IT) that are required to support key business activities
- Constructional, understanding the (reusable) components of which such systems are composed

There is an architectural foundation for any information system; in fact, an information system by its nature cannot be built without some level of understanding of the parts of which it is composed. In the context of this book, the building blocks of primary interest are those common to BPM and EA, building blocks such as processes and information entities. Without an understanding of these building blocks, including how they interact across the three enterprise life cycles shown in Figure 1-5 on page 10, it is practically impossible to make the tribes of the enterprise come together as a nation. Part of the trading language of the enterprise must be a common understanding of architecture and its constituent components.

Some types of architecture, such as enterprise architecture, help us with doing the *right things* by describing the components of the vision for tomorrow and the standards by which we measure ourselves. Other types of architecture, such as BPM solution architectures, help us do things in the *right way* by describing the components of an optimized solution and the means by which that solution

(when operational) is monitored and measured over time. There is no “right order” in which such architectures must be applied. Rather, an effective enterprise understands and appreciates the value of appropriately merging different architectural approaches.

The remainder of this chapter focuses on understanding the approach and role of BPM and EA in isolation. Chapter 3, “BPM and EA synergies” on page 25, provides guidance about how to use them together for continuous business improvement.

2.2 Business process management

The notion of business process optimization has been around for almost a century and has been a key component of the industrial revolution. Yet in the last decade, the focus in many process improvement communities shifted subtly to one of BPM. The key distinction for BPM as a discipline is added focus on flexible and dynamic process design as well as process orchestration and automation through IT enablement. In addition to reduced cost through continued process improvement and automation, BPM also provides the foundation for converged and agile business and IT responsiveness.

Figure 2-1 illustrates these concepts.

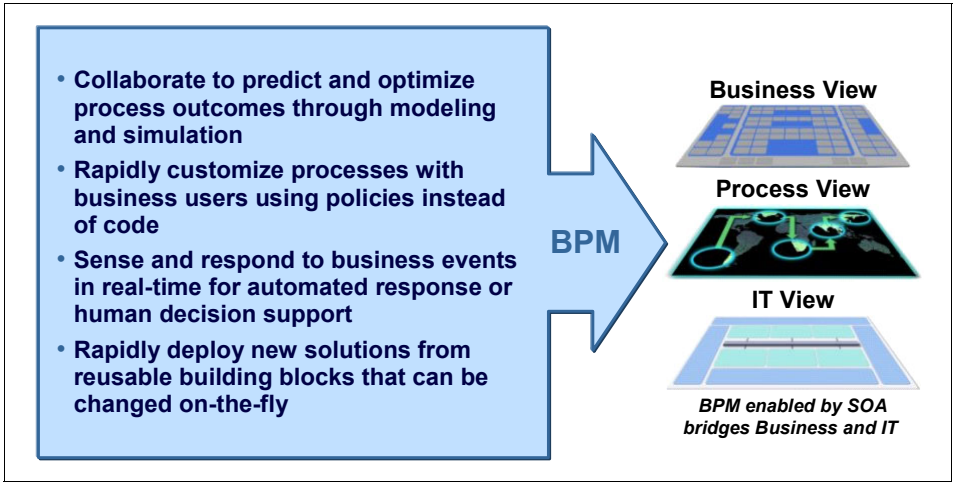

Figure 2-1 BPM drives business and IT alignment and responsiveness

Intrinsic to BPM is the principle of *continuous operational improvement*, perpetually increasing value generation and sustaining market competitiveness (or dominance) of the organization. BPM focuses on driving overall bottom-line

success by horizontally integrating business verticals and optimizing core work (for example order-to-cash, integrated product development, and integrated supply chain), thereby directing the deployment of resources throughout the organization into efficient processes that create customer value. This focus differentiates BPM from traditional (compartmentalized) functional management disciplines.

Table 2-1 defines BPM as described in the IBM white paper *Leveraging SOA, BPM and EA for Strategic Business and IT Alignment*, which is available at:

http://www.ibm.com/developerworks/websphere/bpmjournal/0812_jensen/0812_jensen.html

Table 2-1 Definition of BPM

Base definition	Main value proposition	Key results
A solution delivery discipline, based on service-oriented architecture (SOA) practices that drives business agility, efficiency, and improvement around organizational concerns and measurable business objectives	Business optimization and IT responsiveness using process definition, analysis, customization, and deployment ("The right organizational resources doing the right things")	► Collaboration to predict and optimize process outcomes and operational efficiency ► Rapid deployment of new solutions from reusable building blocks ► Rapid customization of flexible processes ► Real-time sensing and response to business events providing end-to-end visibility and actionable insight

BPM solutions can be delivered to the business operational environment with or without IT enablement, yet will always have operational efficiency as a key factor. The delivery of improved business processes through non-IT means, such as documented operational procedures, is completely analogous to the delivery of, for example, IT-enabled workflows. Both types of solutions are encompassed by the discipline of BPM. It is important to notice that BPM is squarely focused on *solution delivery*, not enterprise planning.

Placed on the enterprise landscape illustrated in Figure 1-5 on page 10, BPM is positioned as described in Figure 2-2.

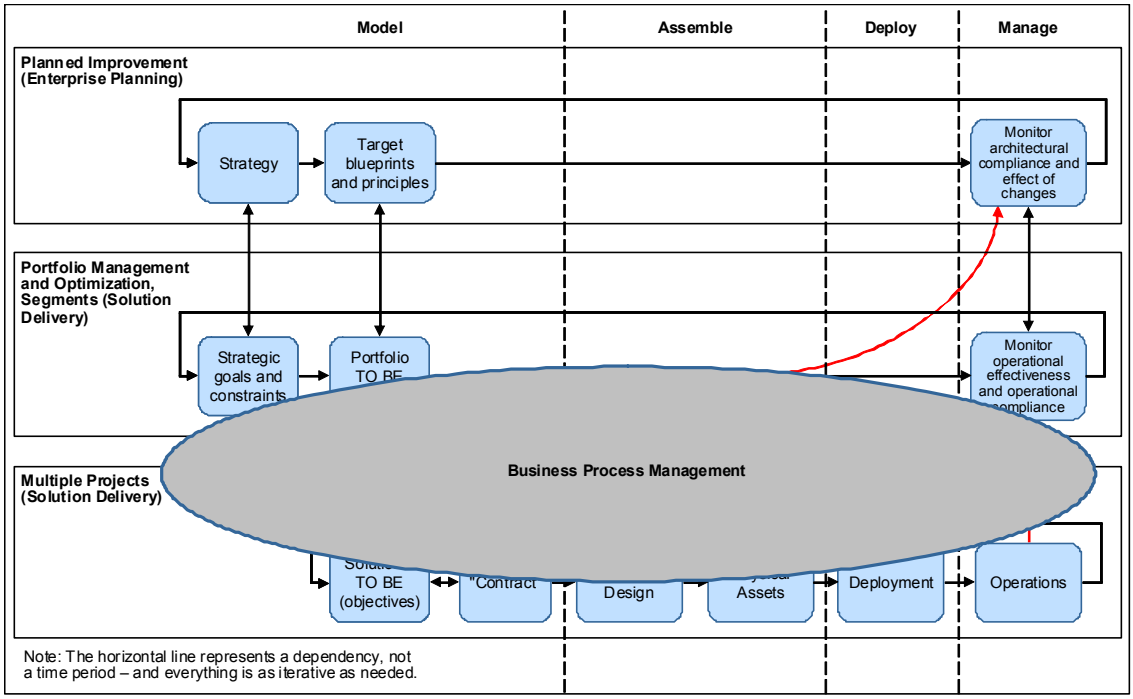

Figure 2-2 Placing BPM on the enterprise landscape

After a business process is deployed, it must be managed. To manage the business process, visibility into process performance is required. When a process is no longer meeting its performance goals, it is time to assess the root cause of the performance problem and to look for additional improvement opportunities, thereby triggering yet another project in the continuous process improvement cycle of the enterprise.

BPM is often associated with the life cycle of a single business process, with that life cycle spanning from identifying and improving a process to deploying and managing the process when it is operational. What is often less appreciated is that a large scale (enterprise) BPM initiative also relies heavily on a holistic understanding of the portfolio of operational processes and the key metrics and measures that apply to that portfolio perspective. Thus, as a BPM initiative matures, it must reach into the portfolio management life cycle, managing both the initiation of and the structured harvesting from a multitude of (parallel) BPM projects.

As shown in Figure 2-2 on page 17, BPM is not enterprise planning. In fact, a typical BPM project is focused on nondisruptive improvement of current processes rather than the re-engineering of the business itself. Enterprise planning is the realm of EA, the definition of which is the topic of the next section.

2.3 Enterprise Architecture

EA as a discipline provides the foundation for an organization to align strategic objectives with opportunities for change. This is achieved through portfolio gap analysis, transition planning, and architectural governance. Table 2-2 defines EA as described in the IBM white paper *Leveraging SOA, BPM and EA for Strategic Business and IT Alignment*, which is available at:

http://www.ibm.com/developerworks/websphere/bpmjournal/0812_jensen/0812_jensen.html

Table 2-2 Definition of EA

Base definition	Main value proposition	Key results
An architectural discipline that merges strategic business and IT objectives with opportunities for change and governs the resulting change initiatives	Driving portfolio planning in a strategic context and directing change toward common enterprise goals (“The right changes enacted the right way”)	► Faster, better-informed strategic and tactical decisions with validated results ► Prioritized investments to support business goals ► Improved risk management of organizational transformation ► Enterprise-level communication and visibility for people, processes, and assets ► Standardization and governance of shared business and IT building blocks

The resulting enterprise architecture (as a construct) is used to identify impacts of changes on the enterprise and to drive the gap analysis between current and future states. Different transition plans, which are required to move from one state to another, are also considered as part of enterprise architecture analysis. Note that such transitions can be disruptive to the current state and in general cannot be “implemented” through a (single) solution delivery project.

Applying an enterprise architecture provides the following benefits:

- The ability for an organization to make specific decisions about which future states to implement based on cost, resource, and architectural fit
- Architectural direction to projects
- A governance mechanism for IT in the adoption of new applications and technology, a governance mechanism based on business need and value

These benefits are related to *enterprise planning* rather than solution delivery.

Placed on the enterprise landscape illustrated in Figure 1-5 on page 10, the EA discipline is positioned as shown in Figure 2-3.

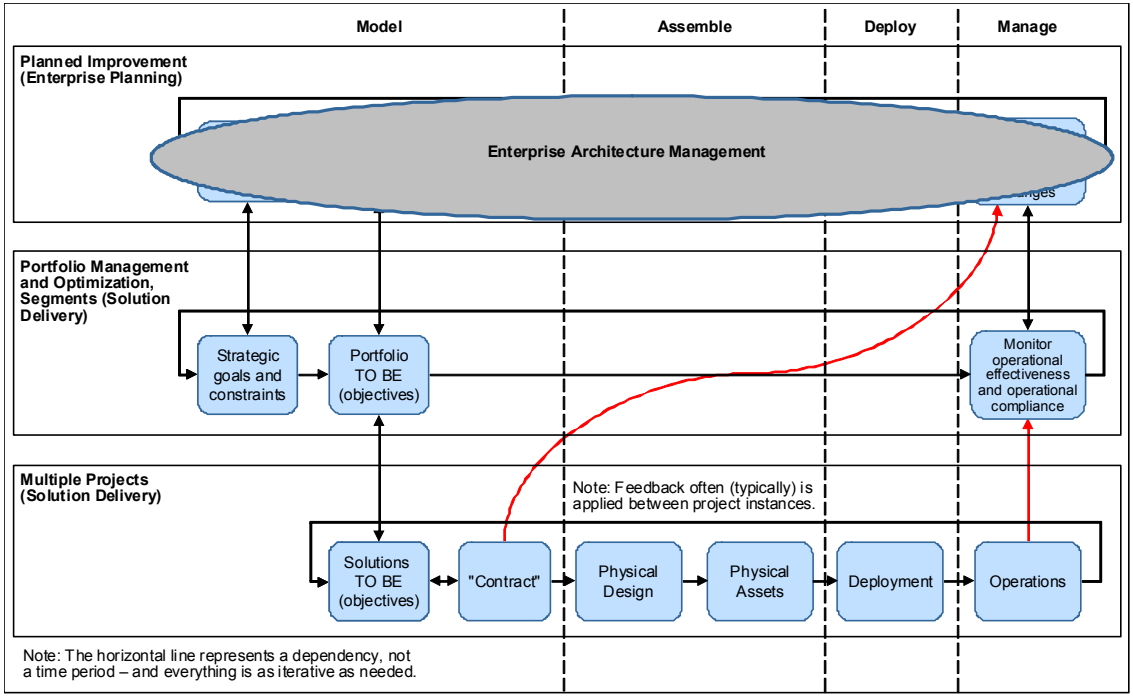

Figure 2-3 Placing EA on the enterprise landscape

Intrinsic to enterprise architecture is the notion of a “blueprint” providing a reusable pattern, a desired standard, or a desired future state of the enterprise, including the organizational structure, its supporting information systems, and the IT infrastructure that hosts them. As shown in Figure 2-3, EA blueprints are not intended to be used (directly) in a particular solution. Rather, they are applied as enterprise planning guidance to any solution delivery activity within their scope of influence.

Typical value propositions for EA include the following concepts:

- Creating a blueprint of enterprise information to make faster, better informed decisions
- Using EA blueprints as a communication platform between business and IT to ensure that IT investments are in line with business needs

- Gaining insight into the impact that changes will have on all aspects of the business to better manage transformation initiatives
- Converting business strategy and enterprise-wide processes into effective supporting IT technologies
- Validating IT investments to assure alignment with business value and expectations

In the sections that follow, we explore typical EA entry points as well as the EA frameworks that allow us to organize and use EA artifacts effectively.

2.3.1 EA frameworks

EA *frameworks* usually provide a context in which all stakeholders in an organization can communicate and collaborate about their enterprise architecture.

EA frameworks typically support the domains of change illustrated in Figure 2-4.

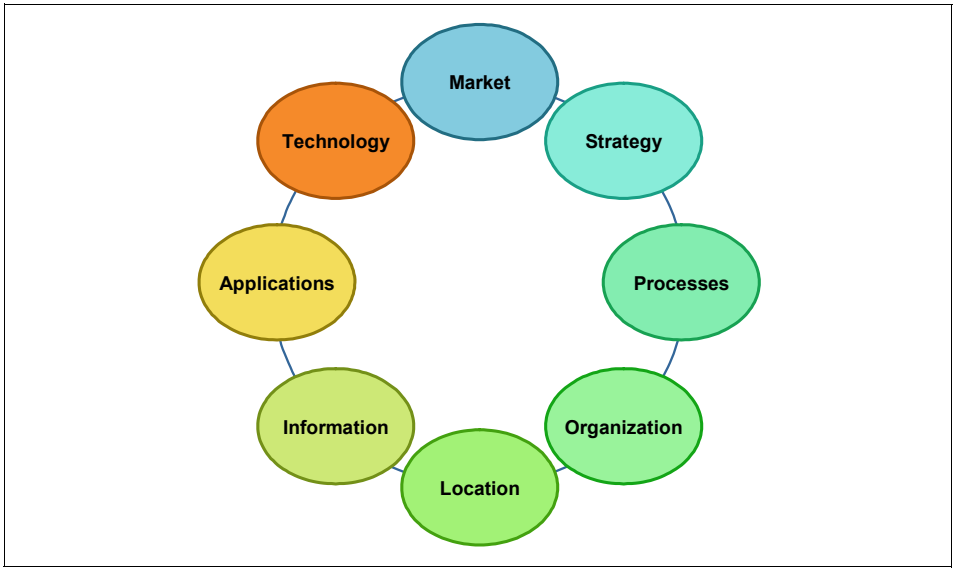

Figure 2-4 Domains of change

The enterprise architecture is expressed using models, which are based on a metamodel that defines model types and their relationships. Different EA frameworks have their own particular metamodel and taxonomy, but in general, all EA frameworks cover the domains of change shown in Figure 2-4.

In the industry, many different standardized EA frameworks can be used to represent the model of the enterprise architecture itself and the associated (categorization of) model views. Such frameworks include the following examples:

- Department of Defense Architecture Framework (DODAF) uses defense taxonomy to describe the model and the model views of the architecture
- Ministry of Defense Architecture Framework (MODAF) uses defense taxonomy to describe the model and the model views of the architecture
- Archimate: An EA framework from the Open Group with explicit notation for model views of the architecture
- The Open Group Architecture Framework (TOGAF): An EA framework also from the Open Group with a conceptual model for EA and non-prescriptive views
- The Zachman Framework: An EA framework that represents a catalog of the model elements of EA.

For more details about EA frameworks from an industry standards perspective, see Chapter 7, “The role of standards” on page 89.

EA frameworks address both business and IT domain aspects. Business-related model types/views include the following examples:

- Business Motivation Model provides a comprehensive view of the motivation and strategy views of the architecture.
- Business Process Modeling Notation (BPMN) provides a common metamodel and notation for representing business processes. BPMN can be used in many different ways in the modeling landscape, including views outside of EA.
- Entity Relationship Diagrams provide a standard view of data and relationships.
- Organization Charts provide specific views on organization units and associated roles.

Model views can be produced in specific visualizations for different stakeholders in the organization. For example, an IT director might be interested in a dashboard of applications, their capabilities, risks, and ongoing costs. An IT architect might be interested in an application portfolio model view of all of the applications and their associated interfaces.

2.3.2 Entry points for EA

Organizations that can accurately strategize, execute, and manage the impact of change can quickly identify risks, resource requirements and quantify their ability

to execute without resorting to “trial and error” mechanisms. These types of considerations are an important part of the strategic and IT planning functions of a modern enterprise.

In a business climate where enterprises are experiencing increased competitive pressure and shifting market conditions, organizations that thrive have defined a capability and framework that allow them to act quickly and decisively. In turn, they can accelerate change to seize business opportunities.

There are a number of explicit entry points for which EA can be used to solve particular business challenges related to planning and managing change. Figure 2-5 provides an overview of the most typical EA entry points.

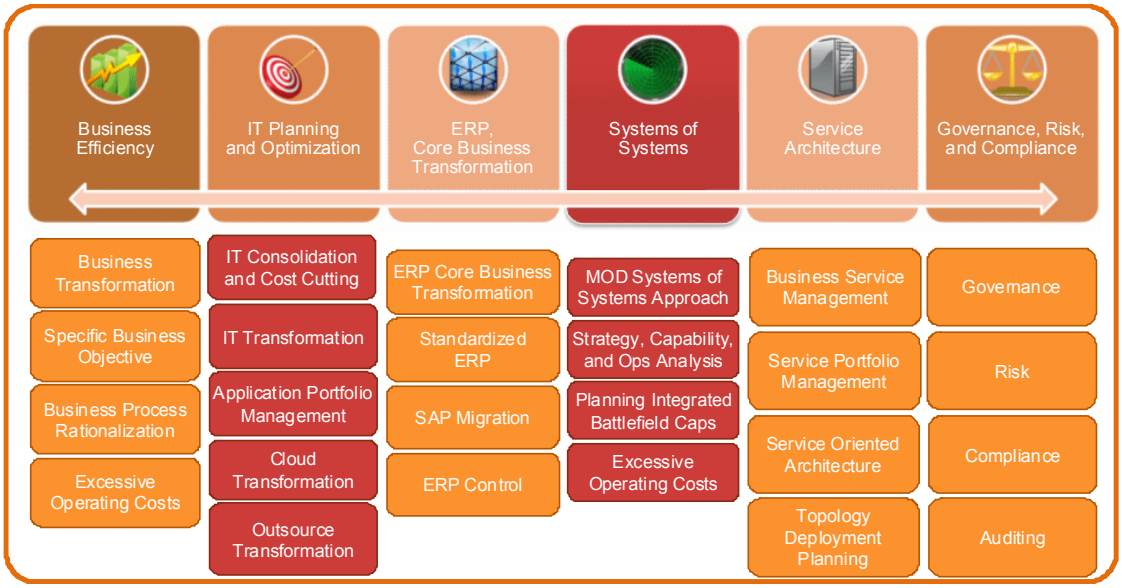

Figure 2-5 Typical EA entry points

These typical EA entry points are loosely described as follows:

- *Business Efficiency or Planning* allows organizations to become more proficient in their planning particularly around addressing specific business aligned issues, such as achieving a particular business goal or driving costs out of the operations of the organization.
- *IT planning and Optimization* entry points solve IT-related issues, such as managing and transforming an IT portfolio. IT planning is key to ensuring that the IT environment is lean, responds to business needs, and is perceived as an enabler for the organization.

- *ERP* is usually a core business strategy and can be a major contributor to the IT infrastructure that an organization runs. ERP also affects the way that many of the business processes operate within an organization.
- As organizations look at a wider enterprise vision of their organization, they typically describe a *Systems of Systems* vision. This vision includes suppliers, partners, and other channels in the enterprise ecosystem, which needs to be understood as a whole.
- *Service (Enterprise) Architecture* addresses the challenges of the modern day enterprise where products or business services need to be *service-aware* and provisioned on the cloud or as part of a Software as a Service (SaaS) offering. The architecture needs to be represented in a way that makes consumption of a service uncomplicated.
- *Governance, Risk and Compliance* looks at the typical issues that an organization faces in terms of market compliance, risk, auditing and tracking, and overall governance. Although many organizations try to track these often mandatory business controls with individual programs and initiatives, EA can provide additional valuable insight.

2.4 Business process analysis

Business analysis is typically defined as the discipline of identifying business needs and determining solutions to business problems.[1] What is *business process analysis* (BPA) then? Is it the discipline of identifying business process needs and determining solutions to business process problems? While it is alluring to assume so, what would that say about BPM, which incorporates the same kind of objectives and activities for BPM solutions? Or about EA, which incorporates similar analysis activities for the business architecture component of an enterprise architecture?

We conjecture that despite parts of the marketplace designating BPA a discipline, in fact it is not. Rather, it is a set of techniques that can be applied for multiple purposes. Consider the following examples of BPA techniques:

- Decide the scope of a process and its integration points (both input and output, whether business or IT).
- Model the flow of a process, including identifying all of the activities within it and how they interoperate.
- Analyze and assign capacity to activities and identify bottlenecks in the process as a whole.

[1] Defined in “From Analyst to Leader: Elevating the Role of the Business Analyst Management Concepts” by Kathleen B Hass, Richard Vander Horst, Kimi Ziemski, 2008. ISBN 1567262139.

- Refine the process or offer remediation steps to eliminate bottlenecks one by one.
- Analyze and optimize resource use within each activity and across the process as a whole.

These examples illustrate that at the heart of all BPA techniques is the desire to improve a process by understanding the activities in it, how those activities relate to other activities, and how activity metrics can provide insight about the process as a whole.

In the context of this book, the BPA techniques can be applied within both BPM and EA and throughout all three life cycles of the enterprise landscape, illustrated in Figure 1-5 on page 10. (For an activity focused elaboration of the enterprise landscape, see 9.1, “Refining the enterprise landscape” on page 110.)

- BPA techniques applied in the context of the enterprise planning life cycle rationalize long-term architectural objectives and desirable disruptive changes for process building blocks.
- BPA techniques applied in the context of the portfolio optimization cycle identify operational processes that require improvement and define key performance indicators (KPIs) that new versions of these processes should fulfill.
- BPA techniques applied in the context of a project will aid in designing an improved “to be” process that can be implemented by the project.

The net of which is that business processes, whether those processes result from BPA activities, have different semantics within each of these three life cycles, even if by chance they should have the exact same flow of activities.

3

BPM and EA synergies

Now that we have defined explicitly the disciplines of business process management (BPM) and Enterprise Architecture (EA), we consider in this chapter in more detail how to use them together for continuous business improvement.

3.1 Continuous improvement

In a globally integrated marketplace, the ability to effectively plan and execute change is quickly becoming a survival skill. Historically, semi-annual or annual business and IT planning was the norm and projects were often driven with a budgeting mindset. However, as our environment becomes ever more dynamic, our world ever more interconnected, instrumented, and intelligent, businesses must now continuously improve business processes and optimize costs.

Too often enterprises find themselves restrained in meeting these imperatives by lack of coordination between planning and execution. The road toward strategic change involves the right vision, the proper understanding of the existing portfolio, the ability to define and execute the right projects with the right scope, and finally a robust platform that ensures the integrity, reliability, and scalability of business processes throughout the enterprise. All these aspects need to be governed and managed collaboratively between those who are planning the future of the enterprise and those who are optimizing and managing the portfolio of existing processes and solutions.

The classical value proposition of EA is centered on the translation of business vision and strategy into effective enterprise change by creating and communicating key requirements, principles, and models that describe the future state of the enterprise and that enable its evolution. The ability to architect the future of the enterprise is a hallmark of EA and is the cornerstone for enterprise-wide planned improvement.

The notion of business process optimization has been around even longer than EA. Yet, around the same time that EA became a mainstream topic in the context of business and IT alignment, the focus in many process improvement communities shifted subtly to BPM. The key distinction for BPM as a discipline is added focus on flexible and dynamic process design, as well as process orchestration and automation through IT enablement. In addition to reduced cost through continued process improvement and automation, BPM also provides the foundation for converged and agile business and IT responsiveness.

As BPM and EA have evolved independently without explicit recognition of each other and without consideration of the need for collaboration between the two disciplines, historically many architects have had a hierarchical view of the enterprise as illustrated in Figure 3-1.

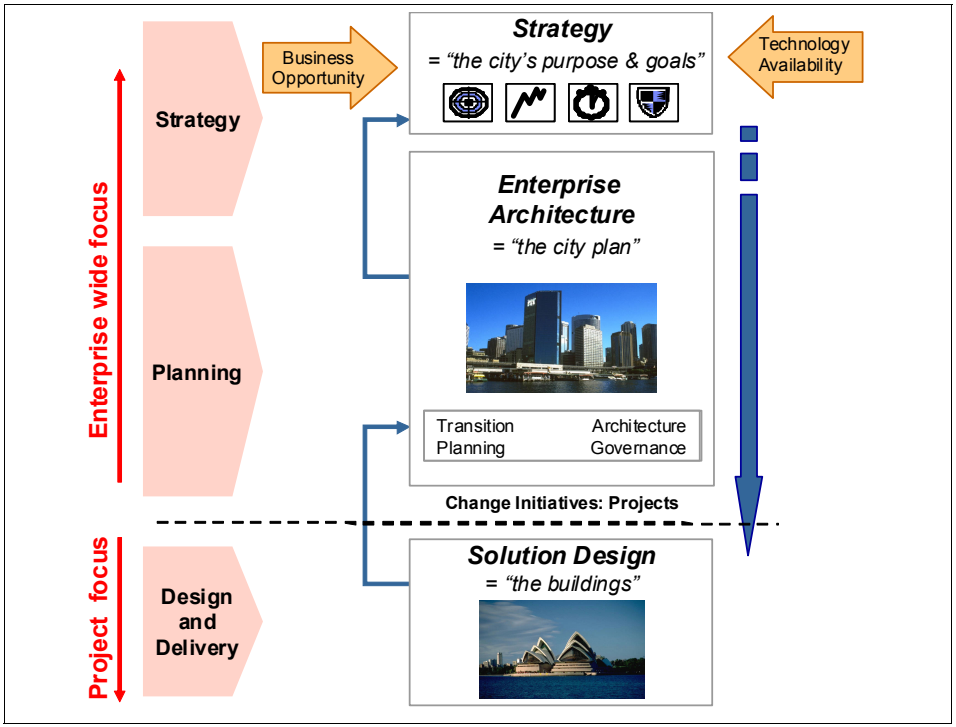

Figure 3-1 Hierarchical view of the enterprise: Directing change towards strategic goals

Typically in the context of EA, a practitioner will talk about doing transition planning based on the enterprise architecture, deriving change projects that in turn are governed according to that enterprise architecture. This view of the world has EA at the top of a strict hierarchy. Enterprise strategy is defined as a balance between business opportunities and technology constraints. Enterprise planning then creates the city plan for the enterprise, identifies relevant change initiatives, and through transition planning and architectural governance guides the projects executing these changes. However, projects focus on solution design and delivery for the intended change for which each is responsible as defined in their transition plan.

Unfortunately, as indicated previously, such a hierarchical "stack" perspective on the relationship between EA and BPM is overly simplistic and not conducive to appropriate collaboration between planning and delivery. Typically, such a view either leads to disregard for operational efficiency (and ultimately the ruin of the

enterprise) or alternatively to the irrelevance of the EA function (the “ivory tower syndrome”).

In most cases, continuous business improvement cannot happen without effectively merging the holistic planning aspects of EA with the process improvement focus of BPM. We need to work smarter throughout the enterprise, transforming organizations so that people can make more informed decisions, build deeper relationships, and work with more agile and efficient business processes.

Working smarter, however, requires more than simple alignment of efforts; it requires a deep understanding of the business processes of the enterprise and the ability to execute change on these processes by collaboration between business and IT. This meld of planning and delivery is exactly where BPM and EA are strong when done together, as illustrated in Figure 3-2.

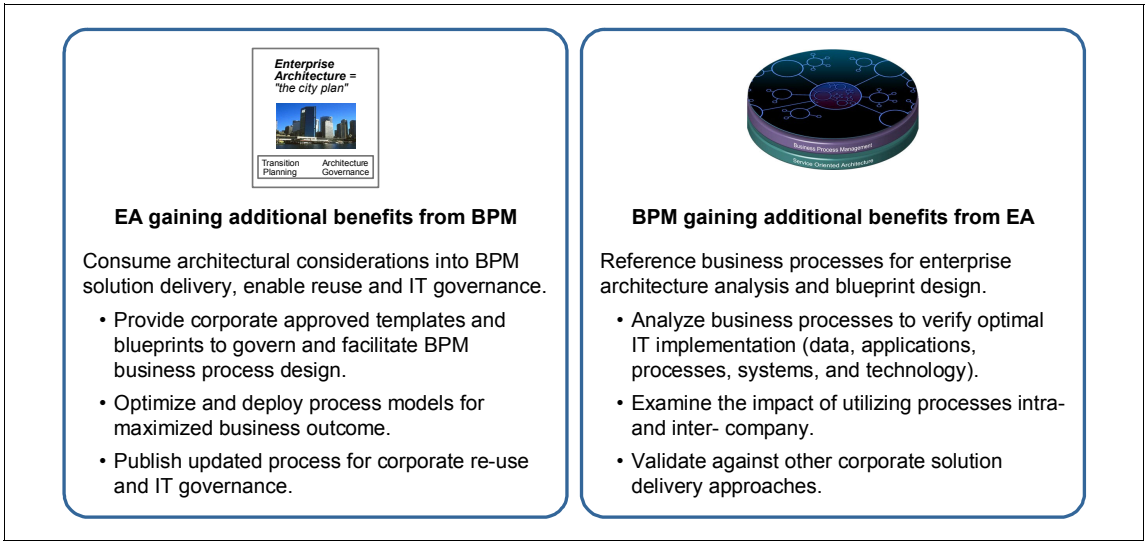

Figure 3-2 Integrated planning and delivery with BPM and EA

From an EA perspective, in one direction, establishment of the proper business context is a prerequisite for effective planning of architectural change - a business context which naturally includes BPM artifacts and metrics. In the other direction, BPM projects are governed and guided by architectural considerations and targets, which can be provided naturally by EA.

From a BPM perspective, in one direction, process change can lead to the need for IT architecture change, which can be driven naturally by EA. In the other direction, EA can reference business processes for architectural analysis and design - business processes which are naturally provided by BPM.

Furthermore, by adding service-oriented architecture (SOA) to the mix, it is possible to realize additional synergies. The value proposition of SOA is centered on agile and aligned business and IT design and delivery. The ability to architect the alignment between business and IT is a hallmark of SOA, and is the cornerstone for derived business agility, reduction of cost and risk, as well as improved portfolio management. Consequently SOA as an architectural style is well suited for modern EA. Furthermore, SOA provides horizontal transactional strength to a BPM initiative, thereby enabling business integrity and operational excellence.

Additional resources: For more information about SOA as a foundation for BPM and EA, see the following resources:

- The IBM white paper *Leveraging SOA, BPM and EA for Strategic Business and IT Alignment*, which is available at:

  `http://www.ibm.com/developerworks/websphere/bpmjournal/0812_jensen/0812_jensen.html`

- The IBM white paper *Achieving business agility with BPM and SOA together: Smart work in the smart enterprise*, which is available for download at:

  `ftp://public.dhe.ibm.com/common/ssi/ecm/en/wsw14078usen/WSW14078USEN.PDF`

- The IBM white paper *BPM and SOA require robust and scalable information systems: Smart work in the smart enterprise*, which is available for download at:

  `ftp://public.dhe.ibm.com/common/ssi/ecm/en/wsw14104usen/WSW14104USEN.PDF`

These synergies are enabled by appropriate collaboration and governance processes that must coordinate plans and solutions without hampering effectiveness by requiring overly detailed synchronization. As indicated previously, we must optimize the process of change itself. In that context, the prerequisite for proper collaboration and governance is that we first understand the placement of BPM and EA on the enterprise landscape. We have already defined the placement of each in isolation. Now we combine the two as shown in Figure 3-3 on page 30.

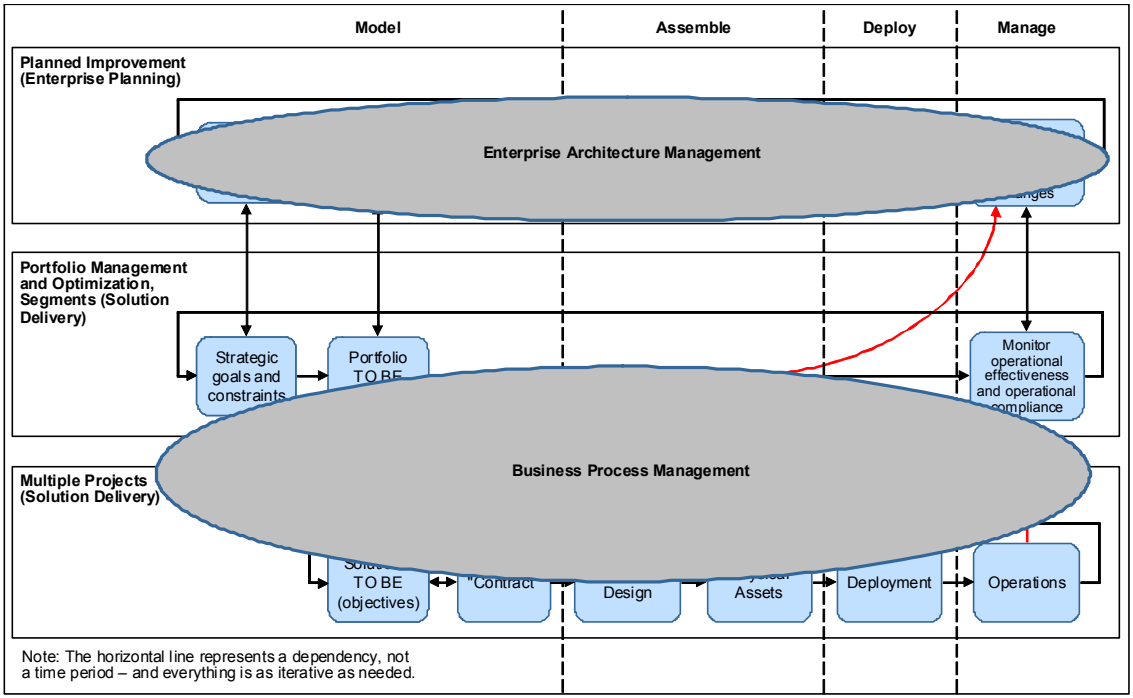

Figure 3-3 Placing EA and BPM together on the enterprise landscape

As shown in Figure 3-3, the EA focus on identifying and governing long-term change fits nicely into the enterprise planning life cycle. The BPM focus on optimizing the portfolio of operational processes fits nicely into the two solution delivery life cycles (portfolio and project level).

This is not to say that EA does not need a delivery mechanism or that BPM does not need a planning mechanism. Rather, it proposes that such adjuncts are a necessary prerequisite for the effectiveness of each discipline but are not part of the discipline itself. As a simple example, a BPM initiative cannot identify and drive the need for a changed sales approach throughout an enterprise, but it *can* be an important execution mechanism for key parts of such a concept. Similarly, based on business strategy, an EA initiative can identify the need for the changed sales approach but needs solution delivery focused disciplines, such as BPM, to execute on those desired changes.

Figure 3-3 reinforces the notion that the proper relationship between EA and BPM is not a “stack” but is rather the dynamic interaction between independent parallel life cycles, each with their own goals and timelines. From a planning and delivery convergence perspective, we must ensure that enterprise plans are

evolved in coordination with the delivery of solutions through change programs and projects.

It is tempting to assume that such coordination always happens from the top down, with enterprise plans driving the definition of projects and governing their execution. However, in practice, plans and solutions are truly interdependent, and the need for coordination can be triggered in either direction. Even the best of plans is bound to change in the face of dynamic realities.

To harness change, we need to separate enterprise planning concerns from solution delivery concerns. However, as illustrated by Figure 1-3 on page 7, we should not try to continuously synchronize the planning cycle with the delivery cycle. Rather, we should use the powers of iterative planning and iterative development separately and coordinate only as appropriate, as illustrated in Figure 3-4.

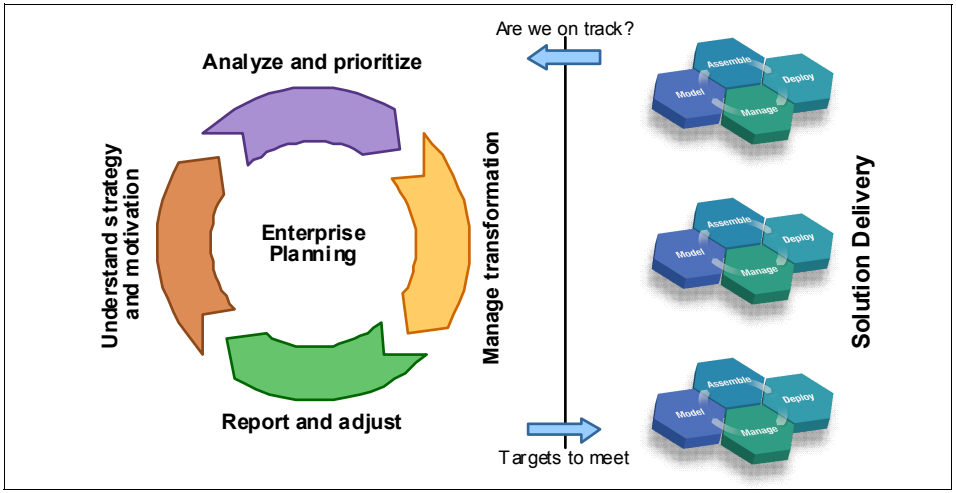

Figure 3-4 Separating and coordinating the planning and delivery life cycles

Because EA and BPM have different scopes and purposes, these life cycles are not linked in any linear or hierarchical fashion. The differences between the extended timeline and enterprise perspective of an EA road map and the execution of a specific BPM project with limited scope and deadline makes it undesirable to combine the two in a single life cycle.

Consider the example of a five-year road map for a business merger, now made concrete in the context of BPM and EA life cycle coordination. Although the intended result is known, it is impractical to analyze all BPM projects in the road map in solution-level detail before delivering and acting on a definition of the road map itself (part of the EA enterprise plan). Similarly, for a business

transformation road map, it is impractical to deliver on the entire five-year plan in a single BPM delivery effort. It is much more natural to continuously define and adapt the scope of the next BPM project based on earlier results and overall progress.

Note that this is not a matter of scope, because a BPM initiative can and often will have enterprise scope. It is a question of trying to achieve different goals. A clear separation of enterprise planning concerns and solution delivery concerns is important, because the two types of activities are targeted at different purposes and roles.

The *enterprise planning cycle* results in enterprise blueprints that define a desired future state and are used to prioritize, select, guide, and govern the execution of projects. The purpose is the planning of potential changes. Examples of enterprise blueprints are organizational blueprints, standard process templates, enterprise data models, and standard network topologies.

The *solution delivery cycle* results in solution constructs that are deployed in the business and IT operational environments. The purpose is the building of solutions. Examples of solution constructs are operational business processes, software design models, and actual network designs.

Planning and delivery activities are typically interleaved, alternating, and iterating as objectives and assets evolve overtime. Note that within a business and IT alignment context, both the enterprise planning cycle and the solution delivery cycle need coverage across business and IT, including all relevant conformance and key performance indicator (KPI) monitoring. The level of detail and the rigor of governance can vary depending on environment and corporate culture, yet some amount of planning and some amount of delivery always occurs to ensure that the goals of the business are met. As far as the coordination between the two is concerned, at a minimum, coordination ought to occur at the beginning and end of each project in the enterprise.

How can an enterprise practically enact the coordination between the enterprise planning and solution delivery life cycles? Do not fall into an engineering mindset by default. Although it is tempting to directly connect enterprise blueprint designs to solution constructs, typically this approach fails because enterprise planning and solution delivery concerns have intrinsically incomparable intentions and work products. For example, there is no direct translation between an organizational blueprint that outlines a desired future organizational structure and the business processes that are part of a new accounting solution. Understanding the relationship between the two types of models requires first understanding the building blocks that are used to construct each of them, such as standard roles, activities, and services.

To provide a dynamic bidirectional link between enterprise planning and solution delivery, we need an explicit awareness of (and distinction between) architectural principles, enterprise patterns, and reusable solution building blocks. Separating concerns into building blocks and designs facilitates effective collaboration and communication between the planning teams and the delivery teams in an organization, keeping the architecture consistent, dynamic, and alive. (For more details about the distinction between designs and building blocks, see 3.2, “Actionable architecture” on page 34.)

For example, the standardization (as building blocks) of accounting activities and the organizational roles performing them can help bridge the gap between the enterprise design represented by the new organizational blueprint and the solution constructs represented by the business processes of the new accounting solution.

From a life cycle perspective, in one direction we should synthesize the principles and patterns of the enterprise using these shared building blocks to govern solution delivery projects. This approach gives us better span of control in achieving a collective and coordinated impact throughout the project portfolio. In the other direction, mature solution delivery projects should synthesize their experiences and solution designs to produce shared building blocks to add to the enterprise inventory. Solution organizations should take ownership of their contributions to the enterprise portfolio and ensure that their projects remain aligned to the enterprise architecture. For additional details, see 3.2, “Actionable architecture” on page 34, and the IBM white paper *Leveraging SOA, BPM and EA for Strategic Business and IT Alignment*, which is available at:

http://www.ibm.com/developerworks/websphere/bpmjournal/0812_jensen/0812_jensen.html

Approaching the coordination between enterprise planning and solution delivery in this manner results in clear targets being set by the enterprise planning cycle—not as things to build for a single project, but as targets to live up to for any project in the enterprise, targets that can be anything from an architectural principle to a desired enterprise capability.

Similarly, from the multitude of solution delivery life cycles (one for each project or change initiative), clear and relevant feedback to the enterprise planning life cycle is provided. This feedback is not in the form of enterprise blueprints to incorporate directly into the enterprise architecture but is feedback on project experiences that can range from opinions on applied targets to suggestions for new enterprise standards. In that manner, targets and solutions are not substitutes for each other, and are also not different levels of detail of the same underlying concept. Targets and solutions are intrinsically different things but must still be linked together so that their relationships can be tracked and governed, thereby enabling continuous improvement throughout the enterprise.

We provide information about the notion of linking related artifacts in 6.2, “Start linking” on page 85.

It is important to realize that the BPM and EA synergies are important not only to IT but to the line of business as well. Without proper integration of planning and delivery processes throughout the enterprise, business evolution becomes opaque and uncoordinated. Without rigor in managing architectural change across business and IT, BPM solutions can quickly become brittle. Conversely, development of a business architecture is a principal activity that needs to be undertaken by EA unless appropriate artifacts can be derived from, for example, BPM activities. For more information, see the IBM white paper *Actionable Business Architecture,* which is available for download using FTP from:

`ftp://public.dhe.ibm.com/common/ssi/ecm/en/gbw03113usen/GBW03113USEN.PDF`

Note that improvement derived from BPM and EA has lasting value only when supported by appropriate collaboration and governance processes. Done in isolation, either discipline can trigger confusion and distrust among stakeholders throughout the enterprise. Done effectively, combining BPM and EA can be a key differentiator for successful enterprises in the drive toward continuous business improvement and a more agile enterprise.

3.2 Actionable architecture

We introduced the concept of actionable architecture as an enabler for doing the right things at the right time for the right reasons in Chapter 1, “Coordinating planning and delivery” on page 3. Actionable architecture includes the following characteristics:

- Contextual with a clearly defined purpose, motivation, priority, scope, and time horizon
- Collaborative with availability to and accessibility by all stakeholders to get participation and commitment, often even collaboratively evolved
- Connected with traceable links across purposes and domains, including appropriate levels of change and configuration management.
- Consumable that can be understood from (different) stakeholder perspectives and viewpoints as required for their understanding and buy-in

In Chapter 2, “BPM and EA defined” on page 13, we explained the value of architecture itself as it applies to alignment, integration, change, time to market, and cost reduction, noting that the value cannot be unlocked unless the architecture in question is indeed actionable. If for example context is lacking,

alignment suffers or if traceability is not maintained, integration quality and time to market deteriorates.

Making architecture actionable is no small task, yet it is critical for maintaining coherence and consistency throughout the many moving parts that are integral to the combined EA and BPM space. Simply enumerating all those parts throughout a significant portion of the enterprise can be a daunting task and is certainly something that one would not want to do on a regular basis. This complexity points to the critically important role of the portfolio management and optimization life cycle. It is this cycle that keeps track of changes and ensures that you always have a consistent and coherent view of the current state of the enterprise as the foundation for both future planning and future solutions. Stated another way, to act on your architecture, you first need to understand its elements and their contextual relationships—a task for which we need a robust element classification scheme.

Part of such a classification scheme has already been provided by the enterprise landscape defined in Figure 1-5 on page 10; however we need to classify not only the life cycle within which an architecture element is used, but also the intrinsic type of the element itself. Industry and reference models can assist in classifying and grouping content, but fail to call out the architectural characteristics that apply to such content. (For details about the role of industry models and standards, see Chapter 7, “The role of standards” on page 89.)

3.2.1 Dimensions of the architectural classification scheme

Although this book does not address architectural frameworks in general, we explain the following two dimensions that any architectural classification scheme should include:

- Distinguishing between a building block and a design or construct
- Distinguishing between business architecture, information systems architecture, and technology architecture

Distinguishing between a building block and a design or construct

The first dimension of architectural classification that we explain is the distinction between a *building block* and a *design* or *construct*, as illustrated in Figure 3-5.

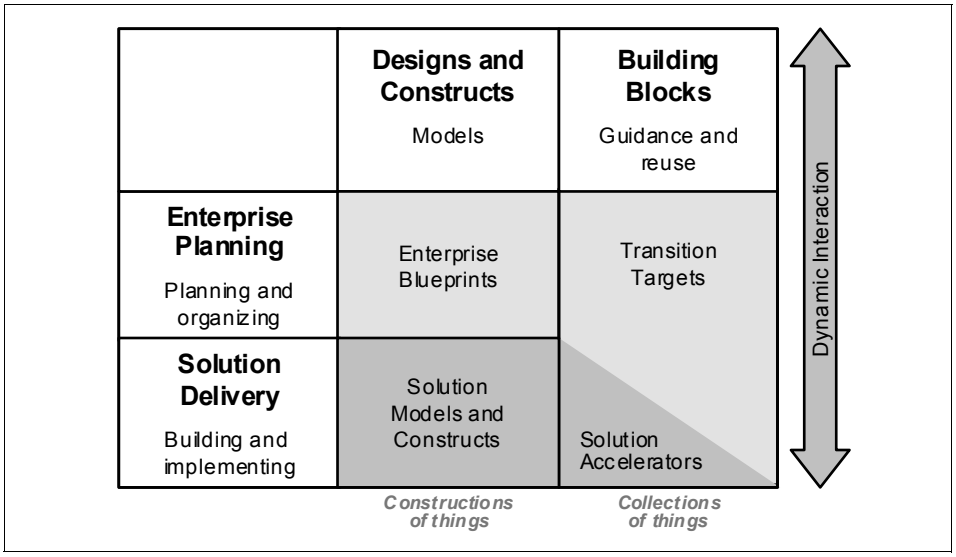

Figure 3-5 Classifying architectural elements as building blocks or constructs

The collection of *building blocks* constitutes the reusable assets of the enterprise, whereas *designs* are constructed by composing building blocks. From this definition, for example, a process model is definitely a design. However, if you choose to promote that process model to be a reusable template or solution accelerator, from that perspective the process model is also a building block. Nevertheless, do not confuse the two concepts. Looking at a process as a (immutable) building block and looking at that same process as a (ever changing) design represents two different viewpoints and assigns different semantics to the process in question.

Separating concerns into building blocks and designs can facilitate effective collaboration and communication between the planning teams and the delivery teams in an organization, keeping the architecture consistent, dynamic, and alive. As explained in our earlier example, the standardization (as building blocks) of accounting activities and the organizational roles performing them can help bridge the gap between the enterprise design that is represented by the new organizational blueprint and the solution constructs that are represented by the business processes of the new accounting solution.

Importantly from cross correlating with enterprise planning and solution delivery (which includes both portfolio management and optimization and projects), the following types of building blocks are produced by enterprise planning and solution delivery activities:

- *Transition targets* (produced by enterprise planning activities) are templates, guiding principles, constraints, and architectural objectives, “things to live up to” and cannot be injected directly into a solution. Instead, they are used to guide and govern all solutions throughout the enterprise.
- *Solution accelerators* (produced by solution delivery activities) are reusable solution building blocks that become an integral part of any solution design or construct that is using them.

Not distinguishing between the types of building blocks can often lead to confusion and misunderstanding, for example the erroneous notion of EA elements and BPM elements being interchangeable just because they look the same, when in fact they have different semantics. EA building blocks are transition targets that guide and govern solutions but might never be 100% achievable. BPM building blocks are, from a classical software and engineering perspective, reusable assets from which to build BPM solutions.

There are also two different types of design or construct:

- Enterprise blueprints that align the designs of the enterprise with strategy and objectives
- Constructs that are a part of a solution in a project or portfolio context

As explained in 3.1, “Continuous improvement” on page 26, although it is tempting to directly connect enterprise blueprint designs to solution constructs, typically this approach fails. Understanding the relationship between the two types of model requires first understanding the building blocks that are used to construct each of them, building blocks such as standard roles, activities and services. Remember, it is absolutely crucial for a dynamic, bidirectional link between enterprise planning and solution delivery that there is an explicit awareness of (and distinction between) architectural principles, enterprise patterns, and reusable solution building blocks. Figure 3-5 on page 36 illustrates the dynamic relationship between different types of designs and a collection of shared building blocks that facilitates their construction.

Distinguishing between business architecture, information systems architecture, and technology architecture

The second dimension of architectural classification that we explain is the classical distinction (as witnessed by The Open Group Architecture Framework (TOGAF) and similar architecture frameworks) between business architecture, information systems architecture, and technology architecture. Business and IT

alignment is not restricted to providing line of business (LOB) with the appropriate level of IT support. Rather, it includes optimizing both business operations and technology platforms throughout the enterprise.

Consequently some building blocks and constructs will be focused on the business only, without direct recognition of the use of IT (IT implementation neutral, business architecture). Some will be business-dependent IT, automating or digitizing parts of the business architecture (IT support for LOB, information systems architecture). Some will be pure technology, the IT operational environment of the enterprise (business independent infrastructure, technology architecture).

This distinction, combined with the first classification dimension from Figure 3-5 on page 36 (designs or building blocks), results in the well-defined framework for business and IT convergence illustrated in Figure 3-6.

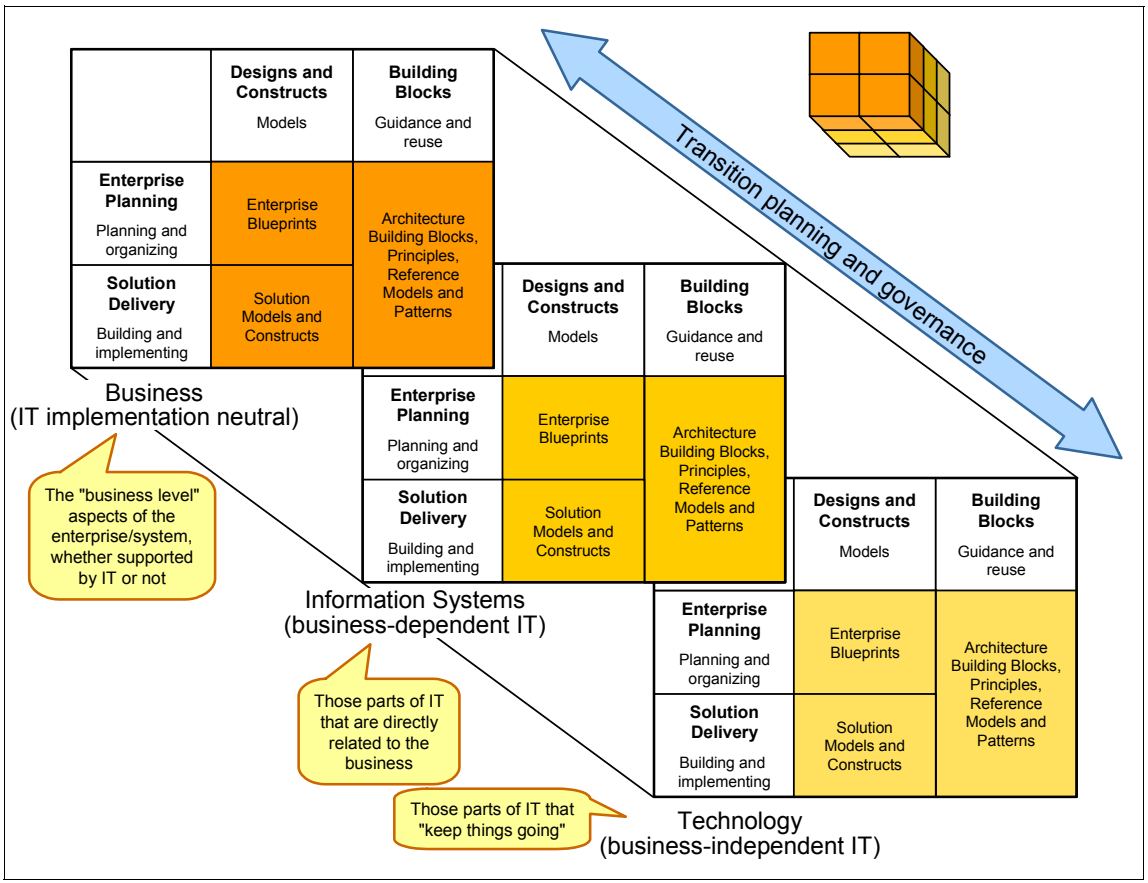

Figure 3-6 Architectural Framework for Business and IT Convergence

Both the enterprise planning cycle and the solution delivery cycle unfold across all three architectural planes:

- Business architecture includes things such as organizational blueprints (as planning designs), business process models (as solution designs), and standard roles (as building blocks).
- Information systems architecture includes things such as enterprise data models (as planning designs), software design models (as solution designs), and software components (as building blocks). Note that information systems architecture encompasses data and information architecture aspects.
- Technology architecture includes things such as standard network topologies (as planning models), actual network designs (as solution designs), and standardized router components (as building blocks).

Most business and IT alignment initiatives explicitly or implicitly have within their scope assets from all three planes. By splitting into three distinct labeled architectures, an organization can ensure proper separation of concerns and the necessary focus on all three. Realization of a design or a construct can then occur either within a plane, driving higher level of detail, or across planes, driving IT support for a business blueprint or solution.

This framework enables a clear definition of roles, responsibilities, and relationships across business and IT boundaries:

- Business Executives focus on transition planning for the business architecture, linking business objectives to prioritization of projects.
- Enterprise Architects focus on enterprise planning across the three planes of architecture, establishing and driving the necessary changes across the enterprise.
- Business Architects focus on business architecture vision and blueprints, establishing the business context across projects in the enterprise road map.
- IT Architects focus on aligning the information systems and technology architectures across the enterprise, optimizing and standardizing this part of the enterprise architecture
- Solution Architects focus on solution delivery across the three planes of architecture, architecting deployable solutions in an efficient and effective manner for each project in the enterprise road map.
- Business Analysts focus on solution delivery, creating and realizing the business solution design for each project in the enterprise road map.

These roles are only examples. Similar contexts apply to other roles, all based on the shared architectural framework.

3.2.2 Applying the architectural classification scheme to EA, BPM, and SOA

The architectural framework allows us to again refine your understanding of the synergies and interactions between EA, BPM, and SOA, as illustrated in Figure 3-7.

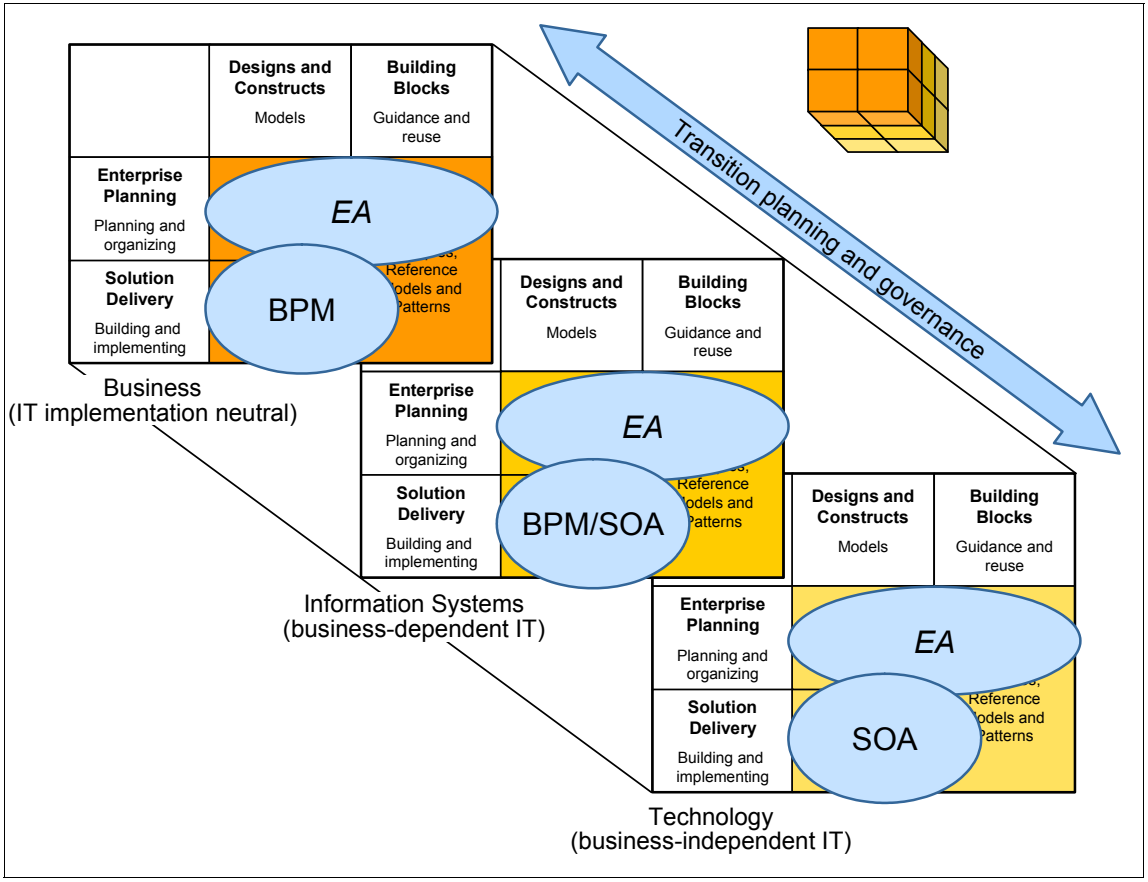

Figure 3-7 The synergies and interactions between EA. BPM, and SOA

Foundational BPM and SOA projects focus mostly on technology and information systems solution issues. Yet as an enterprise moves toward more advanced and mature understanding and objectives, the scope and impact of projects grow beyond the departmental level. With projects maturing through a desire to extend end-to-end, to transform the enterprise, and to adapt dynamically to change, enterprise planning becomes critical. Business architecture directs and governs SOA-based BPM solutions. Information systems architecture with SOA

governance coordinates and controls IT support for processes and services. Technology architecture standardizes the BPM and SOA foundation platform throughout the enterprise.

In the other direction, the disciplined and systematic approach to BPM and SOA solution design impacts the enterprise architecture, using service-oriented principles and experiences in the enterprise planning activities and in establishing architecture principles.

An actionable integration between enterprise planning and solution delivery across all planes of architecture is what ultimately drives strategic business and IT convergence. With the architectural synergies between EA, BPM, and SOA, service-orientation becomes not only the enabler of business and IT alignment but also the key factor that makes that alignment actionable.

Determining which entry point to choose and discerning where the journey should ultimately end depends on immediate goals and challenges and on long-term enterprise objectives.

For more information, see the IBM white paper *Leveraging SOA, BPM and EA for Strategic Business and IT Alignment*, which is available at:

http://www.ibm.com/developerworks/websphere/bpmjournal/0812_jensen/0812_jensen.html

3.3 Integrated strategic planning

The concept of strategic planning is well known to any modern enterprise. However, strategic planning is often performed in an isolated fashion by a distinct group of people. In the context of optimizing the process of change, strategic planning cannot be done in isolation but needs to be integrated with the other change components of the enterprise. This section focuses on four key aspects of integrated strategic planning, aspects that are important to BPM and EA synergies.

3.3.1 Portfolio management

We explained portfolio management, or rather one particular aspect of portfolio management, the asset aspect, when we defined the enterprise landscape in Figure 1-5 on page 10. However, there is more to portfolio management than the asset aspect. Generically, a portfolio is simply a collection of “stuff” with the following characteristics:

- Somebody owns it
- It represents a consistent subset of the system under consideration (typically representing a certain “tribe view” of that system)
- It has associated with it defined value criteria (again typically representing a “tribe view”)

The purpose of portfolio management is to optimize the collection of “stuff” according to the defined criteria. This type of management typically requires governance and collaboration (both of which we explain in Chapter 8, “Governing change” on page 99, and Chapter 9, “Effective enterprise collaboration” on page 109).

The scope of interest can be different for different portfolios (such as an enterprise, an LOB, a department, an IT system, and other types of portfolios.) The type of “stuff” being considered can be different as well. For example, a CEO might ask if we have the right products, considering the portfolio of products offered by the company. A CFO might ask if we are making the right investments, considering the portfolio of investment opportunities. Also, an architect might ask if we have the correct architectural components, considering the portfolio of enterprise assets.

It is quite natural for an architect or engineer to default to an asset portfolio view, and such a view does remain important in the context of BPM and EA synergies as witnessed by its prominent position in the enterprise landscape. Still, from a continuous business improvement perspective, other portfolio management considerations must be taken into account as well.

The following types of portfolio management can be identified in most enterprises:

- Product portfolio management: Managing the set of products provided by the enterprise typically using economically based KPIs
- Change portfolio management: Managing the set of potential and ongoing changes of the enterprise typically using criteria for compliance and net impact or value of change

- Change resource portfolio management: Managing the set of resources that is available for changes typically using criteria for resource allocation and metering
- Asset portfolio management: Managing the set of enterprise assets typically using criteria for consistency, configuration management, and reuse

From an integrated enterprise planning perspective, it is critical to ensure that these basic types of portfolio management act in a synergistic fashion, making 2+2=5 and not 2+2=3 (which would be the typical result of local suboptimization).

Graphically, Figure 3-8 illustrates the desired synergies.

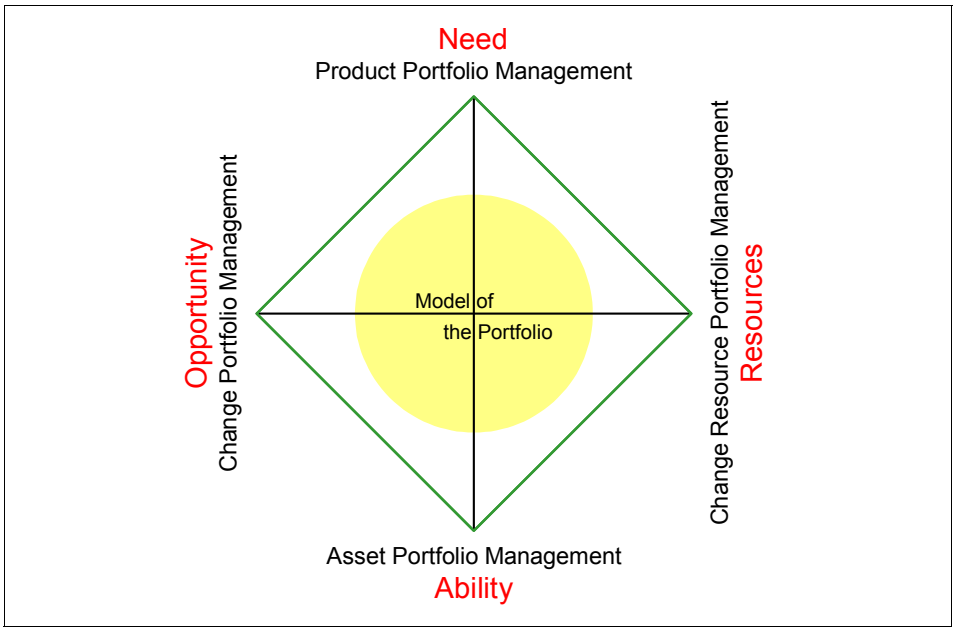

Figure 3-8 Four related portfolio views on the enterprise

Each line in Figure 3-8 on page 43 indicates a relationship that needs to be synergistic. For example, change portfolio management and resource portfolio management need to come together for effective project (portfolio) management, as illustrated in Figure 3-9.

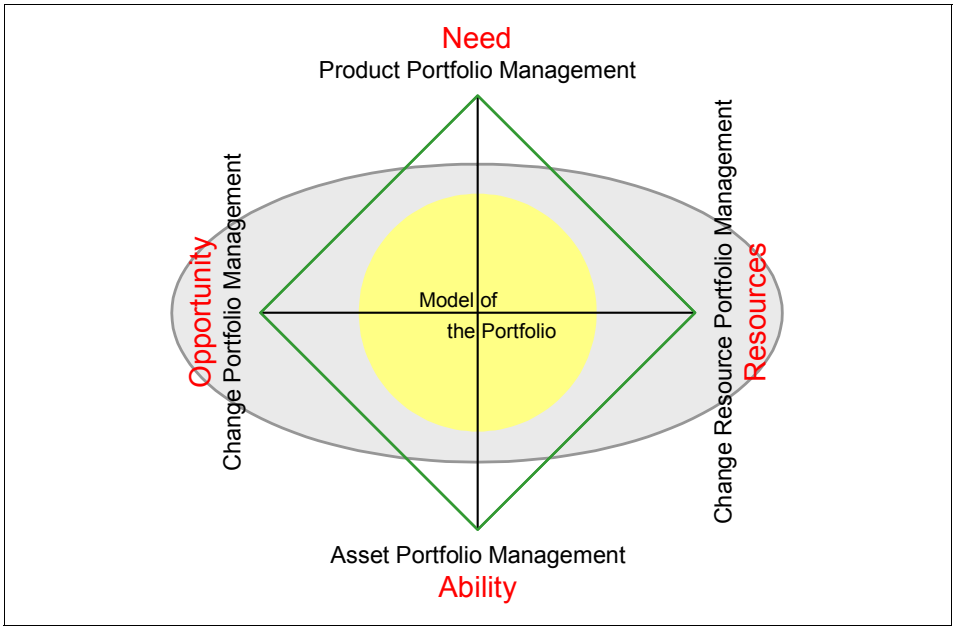

Figure 3-9 “Project management” that governs opportunities and optimizes resource use

Similarly, product portfolio management and asset portfolio management need to come together for effective configuration management, managing the dependencies and relationships between business products and the assets from which they are built, as illustrated in Figure 3-10.

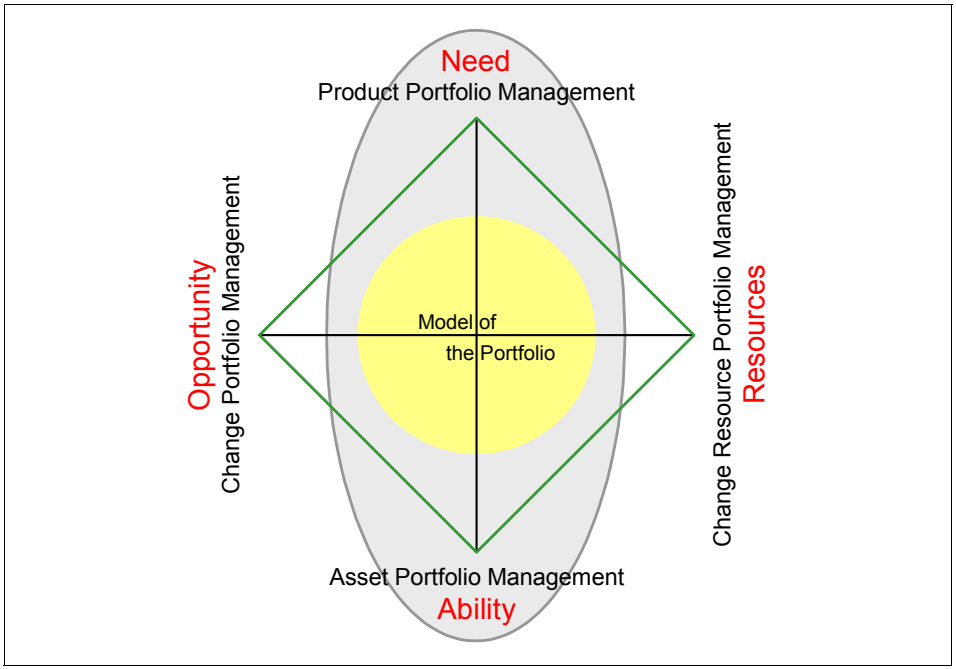

Figure 3-10 Configuration management that governs assets and optimizes changes to product composition

These are just two examples of the synergistic relationships between the different portfolio management views. Suffice it to says that a good holistic understanding of these relationships is important to BPM and EA synergies in general and integrated enterprise planning in particular. We explain at length the asset portfolio management aspects in 3.1, “Continuous improvement” on page 26, and 3.2, “Actionable architecture” on page 34. In this section, we briefly consider the other three types of portfolio management.

Change portfolio management

Many tribes in the enterprise landscape have both the right and the obligation to propose desirable changes as seen from their viewpoint. This statement holds true for the “BPM tribe” that suggests changes based on operational improvement of processes and for the “EA tribe” that suggests changes based on the long-term architectural direction of the enterprise but also for the “management tribe,” the “auditor tribe,” the “public legislation tribe,” and so on.

The key to integrated enterprise planning is to properly register, assess, and prioritize all of these potential changes. Optimizing the process of change begins with optimizing the selection of changes to execute.

Resource portfolio management

The resources that are available for change are always finite and never uniform. Assigning proper resources and skills to the desired change initiatives is the next key step to optimize the process of change. Some local control needs to be retained, or the organization will stall in extensive bureaucracy. Having said that, resources must also be available to prioritize for and assign to long-term enterprise-wide initiatives. Finding the proper balance between optimizing the current state (efficiency) and re-engineering the future state (effectiveness) is never easy, yet remains an important part of integrated enterprise planning.

Product portfolio management

Finally, when changes are governed and resources properly controlled, an optimized change process can actively manage the portfolio of products that are offered by the enterprise. Organizations can adjust these products based on market trends and projections as well as current internal and external product performance.

3.3.2 Compliance

It has been said that “you get what you measure.” Thus, measuring compliance is an important part of integrated enterprise planning. In general, compliance is a “down stream” process that ensures conformance with higher level goals and policies. Compliance is needed both for investments and solutions.

Capital planning and funding control

Most organizations have a formal planning and control process for investments. As part of a funding review for any investment, a decision is made as to whether this investment fits the current change portfolio management plan. For small projects, such decisions are typically made locally either by a project manager or a portfolio manager. For large or cross-organizational projects, management and lead architects typically come together for formal scoping, sizing, and approval of the project.

Note that capital planning and funding control does not stop with project initiation. Any major project should go through subsequent reviews as it moves through the various phases of the defined project life cycle.

Architectural compliance

Specifically in the context of BPM and EA, downstream BPM solutions need to align with the enterprise architecture. BPM architects (and project teams in general) can seek recognition and guidance from the enterprise architects so that their solutions meet the guidelines and recommendations that the enterprise architecture provides. Compliance certification (part of compliance measurement processes) can be achieved using the following methods, depending on the criticality and complexity of the solution in question:

- Project self certification: For self certification, solution developers and project teams consult the enterprise architecture building blocks and patterns for alignment and compliancy. In these cases, the project regularly consults with the enterprise architecture throughout the life cycle of development to ensure compliance, yet no formal review is performed.
- Formal architectural review: For a formal architectural review, representatives of the EA function participate, providing a formalized external reviewer viewpoint.

Regardless of the certification approach for a particular project, at any stage in that project's life cycle, the project team can request an ad hoc compliance review by the EA team. Such informal reviews are a good source of information for the enterprise architects and an excellent way to demonstrate value on a daily basis.

Note that, as explained previously, the enterprise architecture is *not* always right. In some cases, practical concerns must overrule architecture purity in a deliberated fashion. In other cases, new insight is gained in the course of a project that can lead to improvements in the enterprise architecture itself. Thus, well-defined exception handling processes must be part of integrated enterprise planning.

3.3.3 Exception handling

Exception handling is crucial in the management of risk and complexity as well as the tracking of emergent technologies and their success. Furthermore, good exception handling is a necessity to ensure that the enterprise architecture is flexible and valuable, not just an idealistic ivory tower. In fact, exceptions add experience-based insight and value that is otherwise unachievable.

The exception handling process is usually initiated by a project manager who makes a request for an exception. Each exception request has its own life cycle, throughout which access is needed to any assets that are part of the exception request, including business case, architectural impacts, and project schedule. Good exception handling processes are usually formally defined and

standardized throughout the enterprise, an example of which is illustrated in Figure 3-11.

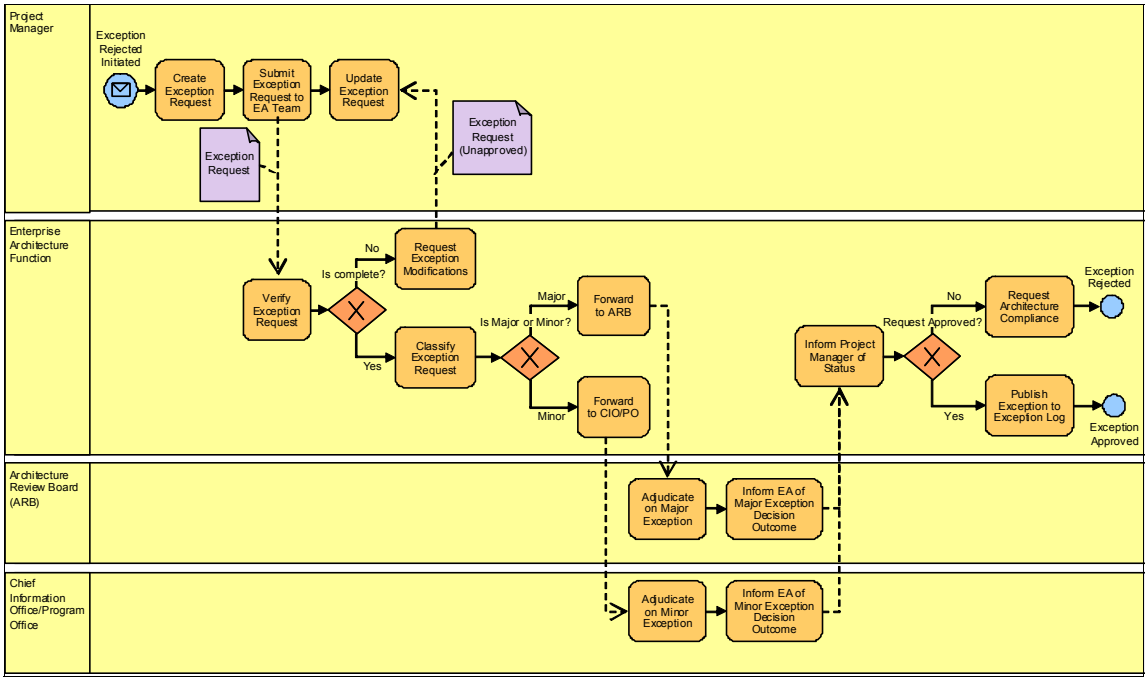

Figure 3-11 Exemplar exception handling process

The decision making about an exception request includes the following criteria:

- The impact (both business and technical) of not approving the exception
- The impact on the existing infrastructure, architecture, projects, and business
- The alternatives that have been considered
- The cost and resource requirements for implementation of the exception

To maintain transparency and visibility, exceptions need to be managed holistically throughout the enterprise, typically involving disciplines, artifact domains, and tools. As a consequence, exception handling might need to be performed outside the local “tribal” context. The trigger for such externalized exception handling is whether an exception is major, a perception that is unfortunately relative to the eyes that see. Although no definitive definition can be given, we provide here a selection of criteria that can aid in the assessment of an exception.

First some exemplar criteria for when an exception request is major:

- The implementation of the exception is greater than 15% of the projects total budget
- The exception introduces a new process, technology, database, location, organizational structure, or system that is not in the current enterprise architecture or that is marked as an emerging domain (for example cloud technology)
- The exception relies on technology or applications that have a retirement date set for them
- The exception relies on third-party or outsourced solutions

An organization usually has an architecture review board (ARB) that reviews and arbitrates major exceptions. The ARB includes, but is not limited to, representatives from the enterprise architecture function.

Next, some exemplar criteria for when an exception request is minor:

- The implementation of the exception is less than 15% of the projects total budget
- The exception does not fall into the major category
- The exception is well bounded and understood with limited impact on other areas of the business

Minor exceptions are usually approved directly by a project lead or program office.

3.3.4 Benchmarking

Benchmarking is not required for integrated enterprise planning but is a useful addition. There are two types of benchmarks that should be considered:

- Internal benchmarking of organizations, systems, and solutions against an enterprise target
- External benchmarking where the enterprise measures itself against an industry or standard benchmark

Some benchmarks have the nature of metrics or measurements, and other benchmarks are architectural or organizational. Common for all benchmarks is that they provide a means by which progress and achievements can be objectively measured over time.

Part 2

From tribes to nations

Modern history began with independent, often warring, tribes. Each tribe had their own language and culture and had achieved self sufficiency through incorporation of all major skills in their own society. Although self sufficient, not all tribes had similar access to natural resources. Thus, trading emerged as an important part of early civilizations. With trading came the need for common trading languages; for instance the ancient world lingua franca of the Phoenicians became the basis for modern western alphabets.

With basic trading in place, increased specialization occurred. Different cultures specialized in different types of high-quality goods, and classical bartering was replaced by trading based on established monetary systems. To avoid conflict among tribes, national legislation and international treaties were established. Libraries and the invention of the printing press allowed for rapid spread of news and knowledge, ultimately fueling technological innovation. All of these advancements lead us to today's interconnected, digitized societies where collaboration towards common objectives is the norm rather than the exception.

There are striking analogies between the historical evolution of our industrialized world and the challenges facing modern enterprises. Many enterprises are still

“tribal” in nature, in that they have not yet established common languages and landscapes (maps). In addition, many of the enterprise tribes do not have visibility to other parts of the enterprise nor, in many cases, do they care. Libraries are not established and processes are not defined or digitized. Knowledge is not analyzed to support innovation, and cross domain collaboration is the exception rather than the rule. We could carry on with this analogy. Suffice it to say that to realize better business outcomes, an enterprise needs to transform itself from a *tribal society* to a *modern nation*, in years not centuries. How do we accelerate that process?

Part 2 focuses on how to achieve the business process management and Enterprise Architecture synergies in practice by transforming the enterprise landscape from a set of independent tribes to a collaborating and coherent inter- and intra-enterprise network. The primary audience for this part of the book is leaders and architects who need to drive transformational change with enterprise scope.

4

BPM methods and tools

In practice, to achieve business process management (BPM) and Enterprise Architecture (EA) synergy you first need a good understanding of the methods and tools for each discipline in isolation, including a well-defined scope for when such methods and tools can and cannot be applied.

In this chapter, we use the BPM variant of IBM Software Services for WebSphere (ISSW) Solution Implementation Standard, referred to as *ISIS*, as an example of a core BPM method. Although this example is not an exhaustive treatment of BPM methods in general (with all their possible extensions), it serves the purpose of illustrating the key aspects of a BPM methodology. Regarding the BPM tooling aspects, see the example in Part 3, “A worked example” on page 119.

4.1 The scope of BPM

As an engineering approach to process improvement, many organizations expect BPM to provide visibility, accountability, and control over business processes. The difficulty with that expectation is that, because many current business processes are dynamic or ad hoc, it is difficult to define a structured process model that represents them. In practice, the tribal language of BPM is suited only for processes that lend themselves to structured flow modeling. Thus, you should apply BPM methods and tools only to such processes. This scope includes processes that fall into the following categories:

- *Structured*, where all process activities, rules, user roles, UI forms, and metrics are defined up front
- *Structured plus dynamic*, where some processes that are invoked (as subprocesses) from an otherwise structured process are dynamic in nature. The dynamicity can include both the choice of subprocess to invoke and the flow of the subprocess itself
- *Dynamic*, where the start and end points of the process are known but the flow of activities is determined dynamically at run time, based on process state, information, policies, and so on

> **Note:** The scope for which BPM is well suited does not include processes for which an activity-centric flow cannot be defined. For example, BPM is not well suited for processes that can be rendered only in the form of business entity life cycle models.

The core part of any BPM methodology must address all aspects of the life cycle of a structured business process, from analysis through design, implementation, deployment, execution, and finally monitoring. In addition, and in accordance with the BPM position in the enterprise landscape (Figure 2-2 on page 17), enterprise BPM methods include methodology components that address the portfolio management and optimization aspects of BPM, providing guidance and methods for identifying processes that are ripe for improvement and for improving the enterprise portfolio of operational processes as a whole.

Figure 4-1 illustrates a generalized BPM life cycle.

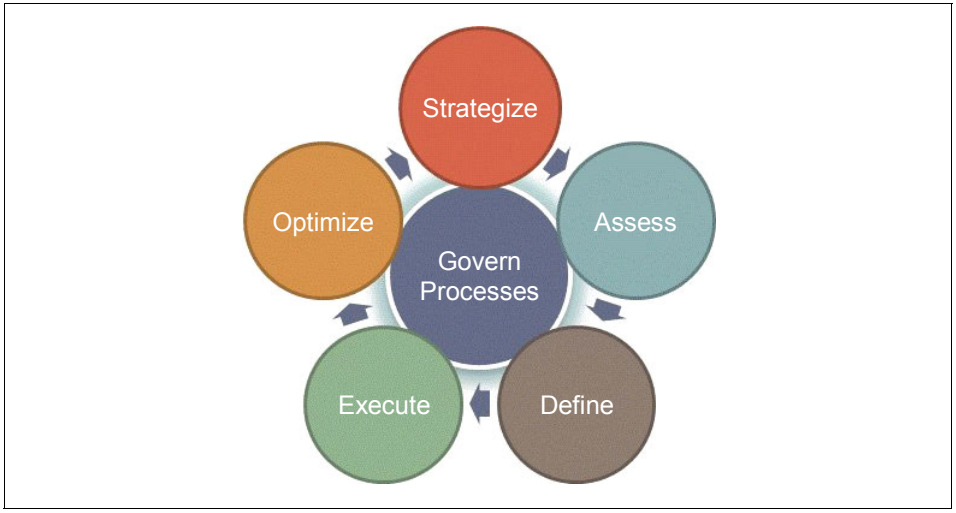

Figure 4-1 Generalized BPM life cycle

Although the exact method steps can differ for structured and dynamic processes, the overall conceptual life cycle remains the same and is a core part of the tribal language of BPM.

Note: The strategize stage in Figure 4-1 is not a part of enterprise planning. Instead, it specifically addresses measurable goals for operational process improvement.

On the tooling and infrastructure side, most BPM suites appropriately support structured processes. However, not all BPM suites work as well for dynamic processes, depending on how executable artifacts can be built from process models, which illustrates the important point that the choice of BPM suite is not just about the tools. It is equally important to make sure that the BPM infrastructure and run times provide the desired functional and non-functional characteristics.

For more information about non-functional considerations, consult the following resources:

- The IBM white paper *Achieving business agility with BPM and SOA together: Smart work in the smart enterprise*, which is available for download at:

  `ftp://public.dhe.ibm.com/common/ssi/ecm/en/wsw14078usen/WSW14078USEN.PDF`

- The IBM white paper *BPM and SOA require robust and scalable information systems: Smart work in the smart enterprise*, which is available for download at:

  ftp://public.dhe.ibm.com/common/ssi/ecm/en/wsw14104usen/WSW14104USEN.PDF

4.2 The ISIS methodology

The ISIS methodology maximizes return on investment in WebSphere products. In addition to technical guidance, ISIS codifies specific project management skills that have been acquired and defined by ISSW over the years with a goal of minimizing project and technical risks.

ISIS provides product-specific best practices and artifacts based on the experience gathered from hundreds of consulting projects. ISIS builds on the Unified Method Framework (UMF) and the Unified Process (UP). UP is a well-defined and well-documented software development process, invented by Rational Software, and is the de facto industry-standard process for software engineering. Because of its industry-standard nature, UP is an excellent foundation for a method “trading language” in that the types of method artifacts are standardized and understandable to more than the BPM “tribe.” UP provides a disciplined approach to assigning tasks and responsibilities within a software development organization (BPM or otherwise) and is aimed at producing high-quality software that meets the needs of its users within a predictable schedule and budget. It covers the entire life cycle of a software development project and guides the development team through project management and technical activities.

For more information about the Unified Process, see:

http://epf.eclipse.org/wikis/openup/

As shown in Figure 4-2, ISIS has the following phases:

- Inception
- Elaboration
- Construction
- Transition
- Production

The production phase is particularly important for software-related disciplines with a monitoring and feedback aspect (such as BPM).

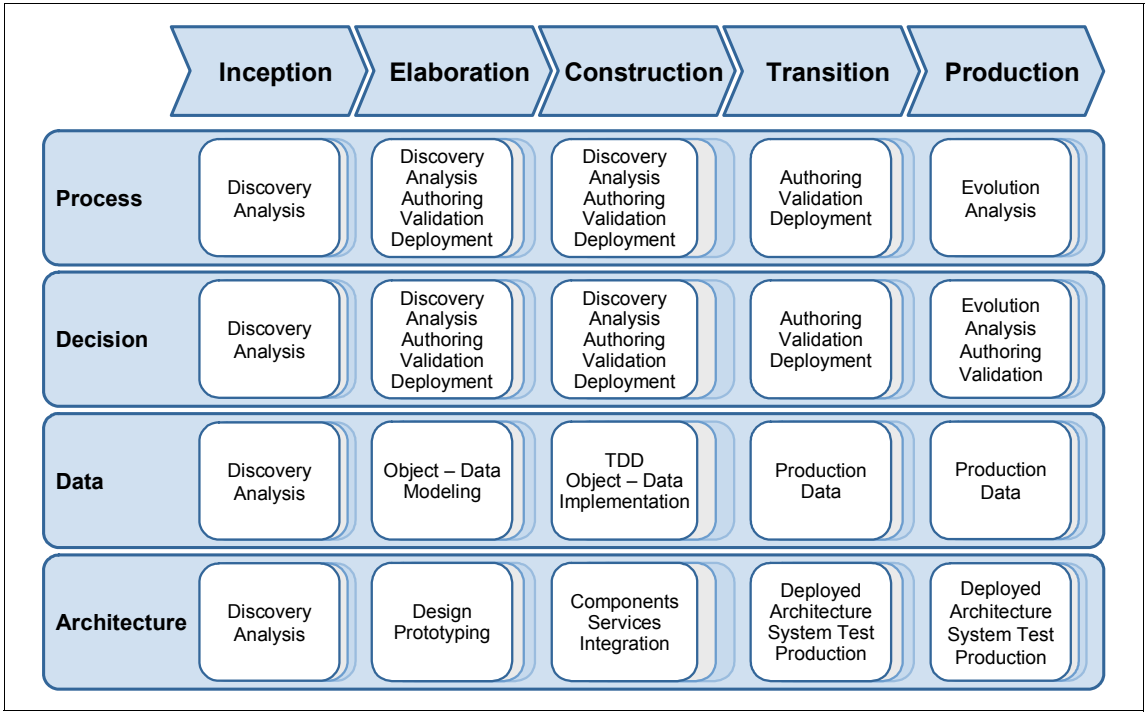

Figure 4-2 ISIS phase model

The ISIS phase model is an elaboration of the underlying generic UP architecture illustrated in Figure 4-3.

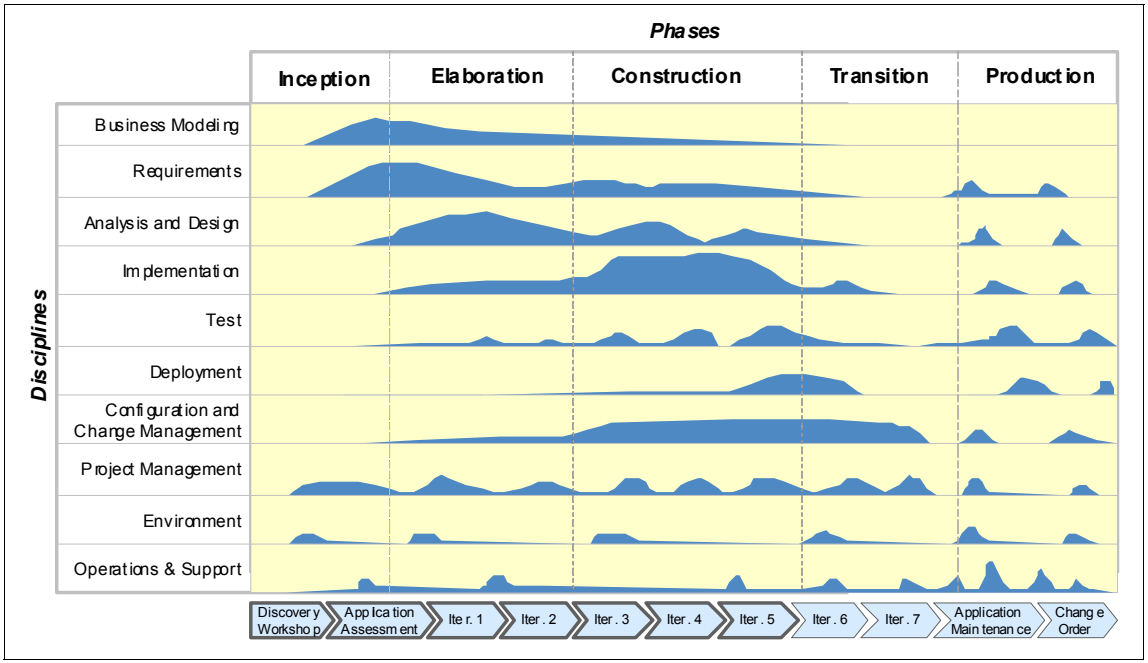

Figure 4-3 Unified Process architecture

The vertical dimension, Disciplines, represents core software engineering activities. The horizontal dimension, Phases, represents time and shows the life cycle aspects of the software engineering process as it unfolds.

The first four phases cover all parts of a project:

- Inception: During the inception phase, project stakeholders define the scope of the project and its business case. At the end of this phase, all the stakeholders need to agree on the scope definition, cost, and schedule estimates. If the project fails to pass this phase, it will be canceled or changed significantly.
- Elaboration: In the elaboration phase, team members analyze the project's needs in detail and define its architectural foundation using the scope definition from the inception phase. To accomplish these objectives, members must have a deep understanding of the entire system. This phase is critical because, upon its completion, most of the system's functionality and architecture must be established.
- Construction: During the construction phase, the software is designed, built, and tested in iterative cycles. Developers frequently consult with management

and customers to get feedback. At the end of the construction phase, the system can be released.

- Transition: In the transition phase of development, the software product is distributed to the user community. The users need to be trained to use the product, and new business processes often need to be rolled out. At this point, feedback from the users drives a new set of requirements, and the system's long-term life cycle is put into place.

The production phase occurs after the system is deployed and the project that delivered it is completed. This final phase addresses the ongoing support, operation, and monitoring. The following key activities take place in parallel during this phase:

- Solution maintenance, during which potential defects are corrected.
- Implementation of changes that correspond to the evolution of the requirements within the framework of the initial solution.

4.3 ISIS for BPM

BPM, as a business- and process-centric discipline, is not just about software. ISIS for BPM builds on the general ISIS base but adds extensions and enhancements that are specific to BPM projects (although it does not add portfolio management and optimization extensions, those BPM aspects are covered in other methods). ISIS for BPM provides best practices for developing a BPM solution using WebSphere BPM products and an agile development approach.

The following value statements from the Agile Alliance manifesto have particular relevance for BPM:

- Individuals and interactions over processes and tools

  The business process discovery, analysis, and validation activities require an active and efficient communication between the business (process) analyst, business process developer, and the subject matter experts (SMEs). Such activities are designed to remain as light as possible.

- Working software over comprehensive documentation

  The suggested iterative process development approach, with its validation steps, is based on evidence that a working and executable process has much more business value than a statically documented process. All project stakeholders benefit from such a principle, but in particular the business users can rely on what they see (working process) will be run in the deployed solution.

- Customer collaboration over contract negotiation

  SMEs who define the business process, goals, and challenges are strongly involved in the development process. They are the customers of the final system, owners of the processes, and should be co-located with the development team during the project.

- Responding to change over following a plan

  Business processes evolve, more often and faster than other typical pieces of software. This evolution is a key value of a BPM approach, enabling organizations to cope with the pace of change. For this fundamental reason, the methodology that supports process development must be tailored to a rapid change life cycle and must include the appropriate activities, processes, best practices, and work products to support such changes efficiently.

Additional resource: For information about the Agile Manifesto, see:

http://www.agilealliance.org/the-alliance/the-agile-manifesto/

Executable and working processes correspond to the activities of the stakeholders and the organization. Processes that are defined on paper tend to lack accuracy, become outdated and out of sync with the actual business operations, and often lack this connection. This issue does not mean that BPM should not adopt a model-driven approach. Instead, those process models should simply be executable in their own right, which is one of the value propositions of resource format standards such as Business Process Modeling Notation (BPMN) and Business Process Execution Language (BPEL). For more information about the role of standards, see Chapter 7, “The role of standards” on page 89.

ISIS for BPM addresses the following goals of a BPM project:

- Separate processes as manageable artifacts using well-defined discovery, analysis, and authoring activities.
- Trace processes during their full life cycle from elicitation through deployment and maintenance.
- Link processes to business context, challenges, and goals.
- Develop process models using BPMN and BPEL.
- Prepare the logical data model related to the business process modeling and execution.
- Base the business process implementation on the orchestration of SOA-based business services.
- Articulate the business process governance processes.

One of the fundamental drivers governing successful BPM projects is the unforgiving honesty of executable processes and software. The other fundamental driver is the effectiveness of people working together with goodwill, shared vision, and common interests (the business user, the development team, and other tribes involved in a BPM project).

Roles and activities are two of the core components of a tribal language. The third core component—work products—play an important role in the establishment of appropriate collaboration across the unified enterprise. Consequently ISIS for BPM includes specific guidance on the following key project roles and the activities they are responsible for:

- BPM analyst (Figure 4-4)

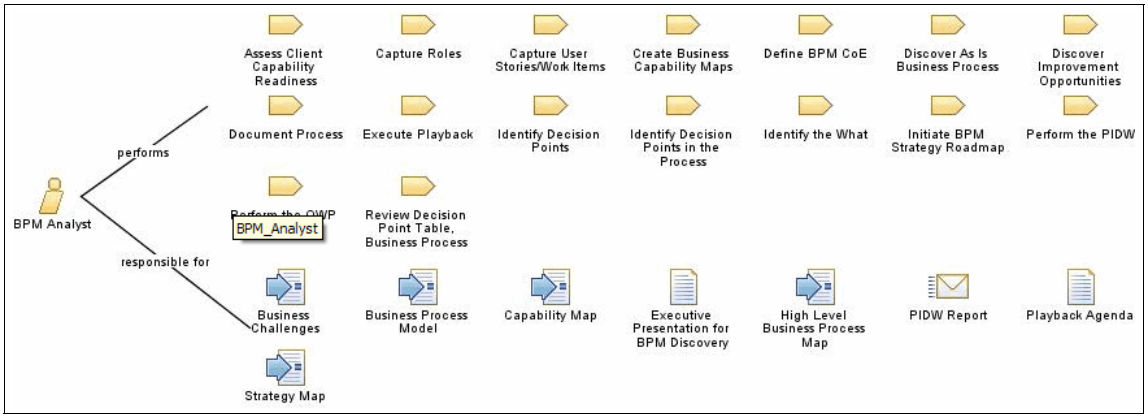

Figure 4-4 BPM analyst responsibilities

- BPM developer (Figure 4-5)

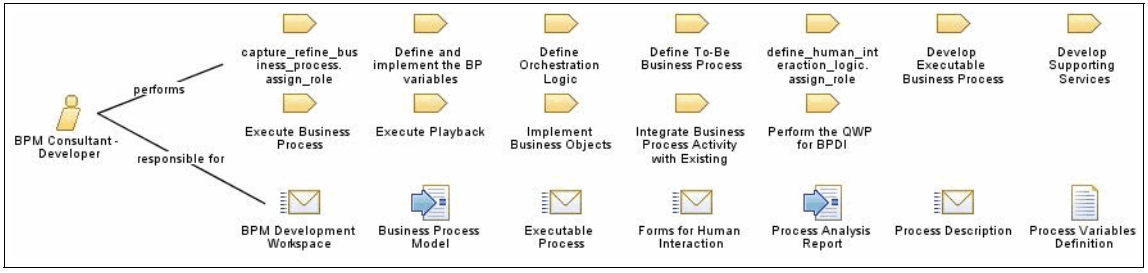

Figure 4-5 BPM developer responsibilities

- BPM integration developer (Figure 4-6)

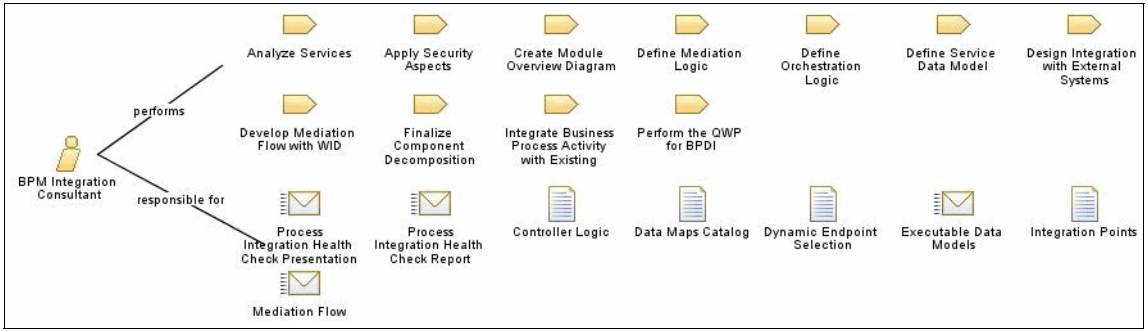

Figure 4-6 BPM integration developer responsibilities

- BPM project manager (Figure 4-7)

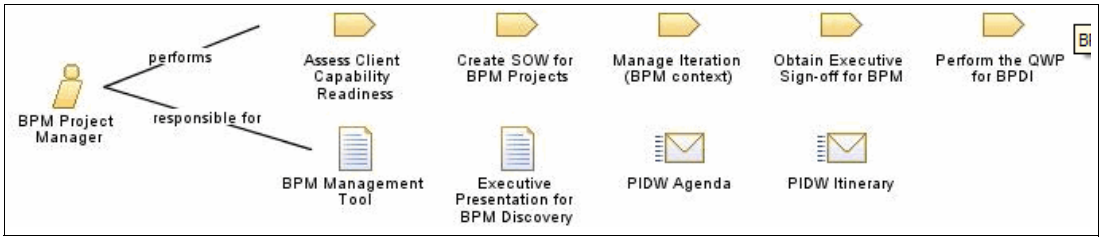

Figure 4-7 BPM project manager responsibilities

- BPM solution architect (Figure 4-8)

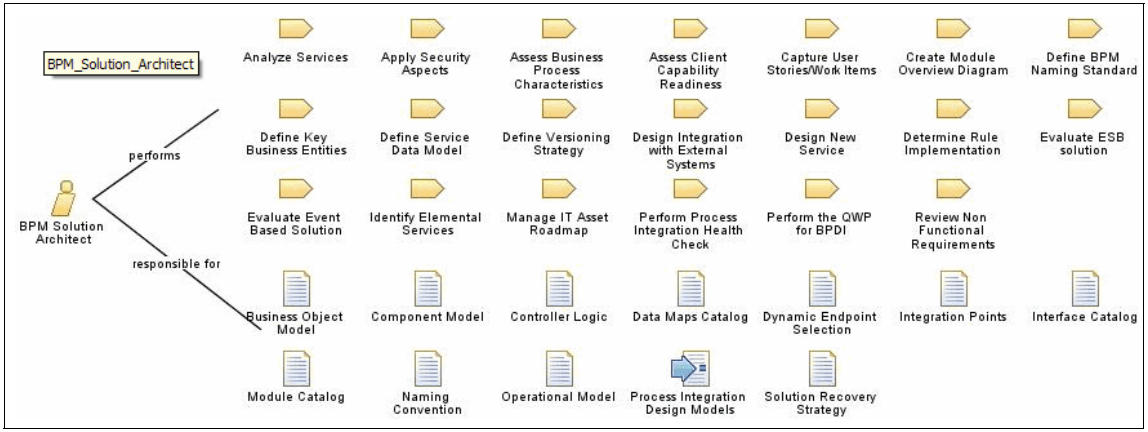

Figure 4-8 BPM solution architect responsibilities

- Infrastructure specialist (Figure 4-9)

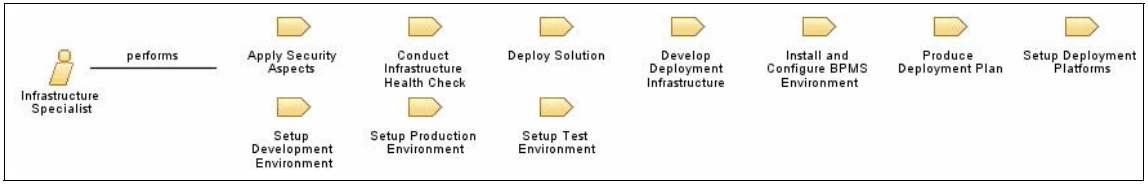

Figure 4-9 Infrastructure Specialist responsibilities

- Interface developer (Figure 4-10)

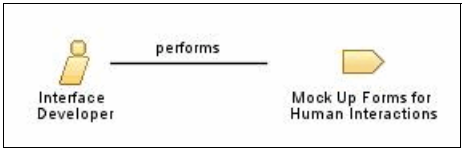

Figure 4-10 Interface developer responsibilities

- Monitor Specialist (Figure 4-11)

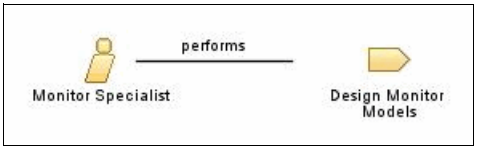

Figure 4-11 Monitor specialist responsibilities

- Rule analyst (Figure 4-12)

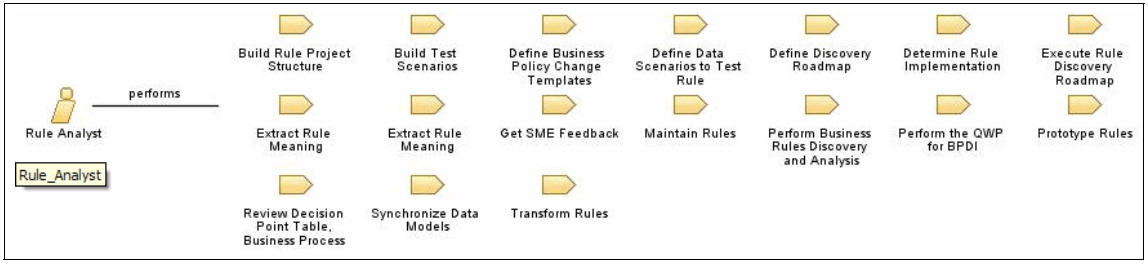

Figure 4-12 Rule analyst responsibilities

For practical reasons, including the fact that these details are IBM proprietary, we do not include any additional details about the specific ISIS for BPM roles and activities in this book. Mapping the ISIS for BPM roles to the enterprise landscape defined in Figure 1-5 on page 10 might look similar to what is shown in Figure 4-13.

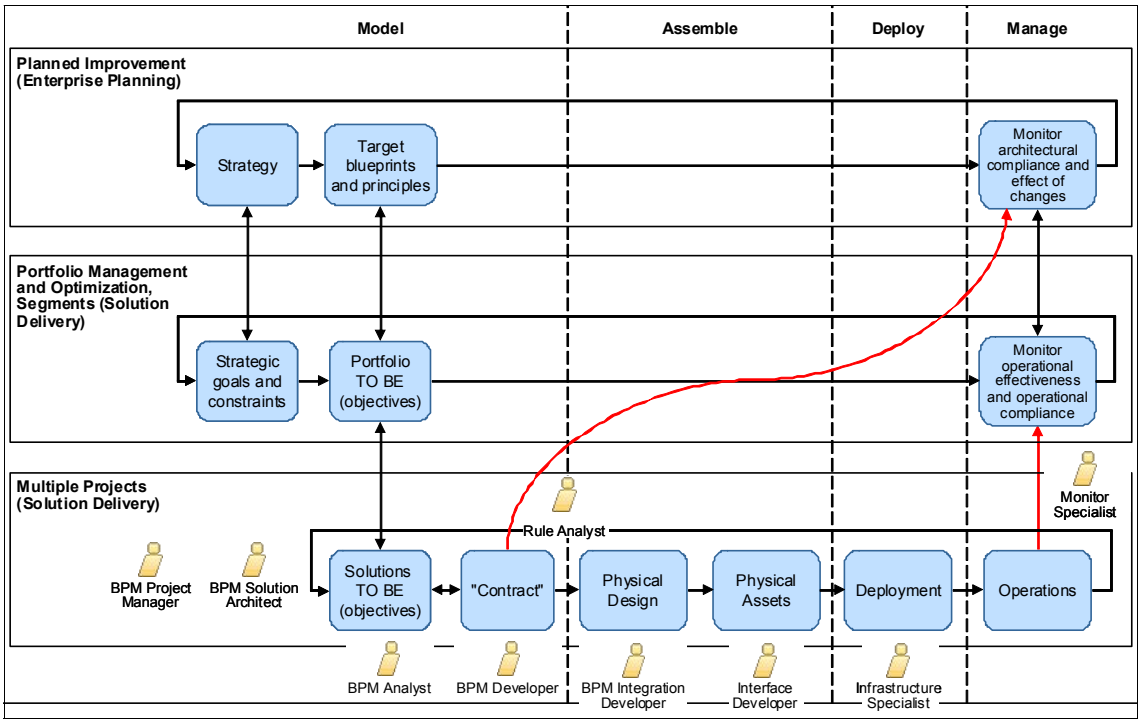

Figure 4-13 Mapping ISIS for BPM roles to the enterprise landscape

Note in particular how the monitor specialist has a role that extends beyond the boundary of a traditional project. As previously explained, the engineering, deployment, and operation of appropriate monitoring mechanisms is a key element in the feedback loop that allows continuous process improvement.

5

EA methods and tools

Turning next to EA methods and tools, a typical Enterprise Architecture (EA) life cycle allows you to ensure that the organization is concentrating on the right things and that your architecture is aligned with the needs of the business. As already explained, EA does not deliver anything in and of itself; it is an enterprise planning discipline. Consequently, to realize the value of EA, it is important to focus not only on the internal tribal language of EA itself, but also on the “trading goods” that provide value when applied to the remainder of the enterprise.

5.1 ‘Trading goods’ of the typical EA life cycle

Figure 5-1 illustrates a typical EA life cycle.

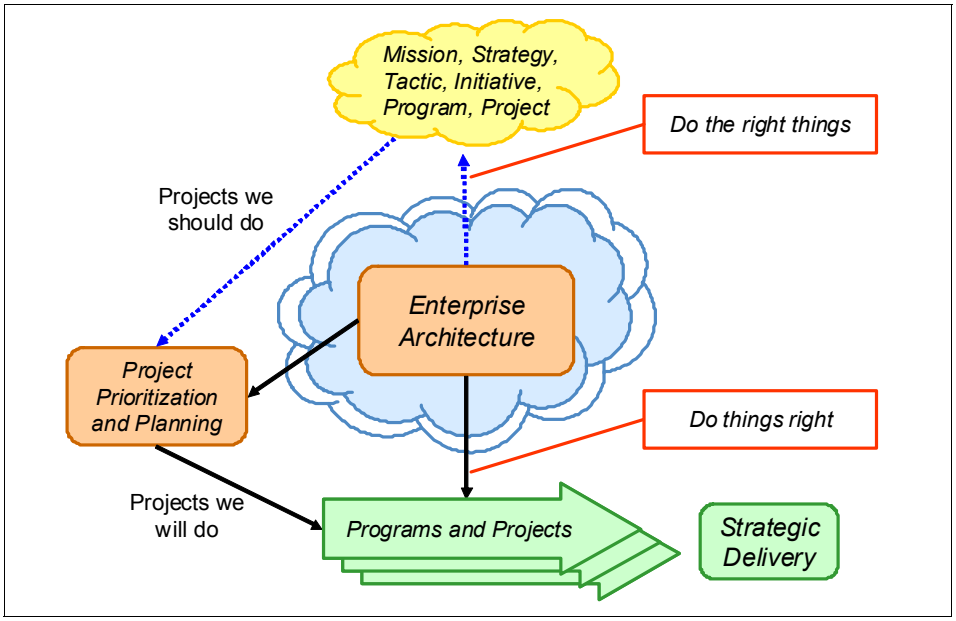

Figure 5-1 A typical EA life cycle

Project prioritization and planning is a fundamental element of the strategic planning component for any organization. With project prioritization and planning, potential initiatives are evaluated, assessed for architectural fit or risk, and prioritized according to long-term (enterprise) business and architecture objectives.

The enterprise architecture is used as a basis for transition planning (“do the right things”), by creating a set of future state road maps. The future state road maps contain both a *target state* architecture and a *transition plan* to get to the future state from the current state. The project prioritization and planning function takes the future state road maps (one of EA’s “trading goods”) as input and goes through a series of trade-offs based on a correlation of market demand and requirements, current commitments, and the target state architectures, resulting in a defined set of projects (such as business process management (BPM) initiatives) that the organization will deliver.

Additionally, as explained previously, EA methods provide blueprints for alignment with and governance of solution delivery (another one of EA’s “trading

goods"), so that prioritized programs and projects are executed in a consistent manner. Good EA methods describe and define appropriate governance functions and capabilities to track project architectural compliance and the effect of executing planned changes ("do things right").

Changes in projects can result in updates to the enterprise architecture or can be classified as valid exceptions. (See also 3.3, "Integrated strategic planning" on page 41.) The EA governance function re-evaluates plans and prioritizations as modifications are assessed. Note that the exact embodiment of an EA governance function typically depends on the culture and behavior of the organization in which it is to be deployed.

Based on this more detailed understanding, we can now provide a more elaborate version of Figure 5-1 on page 66, illustrating in particular the ongoing processes that are related to EA's role within enterprise planning and within the enterprise at large.

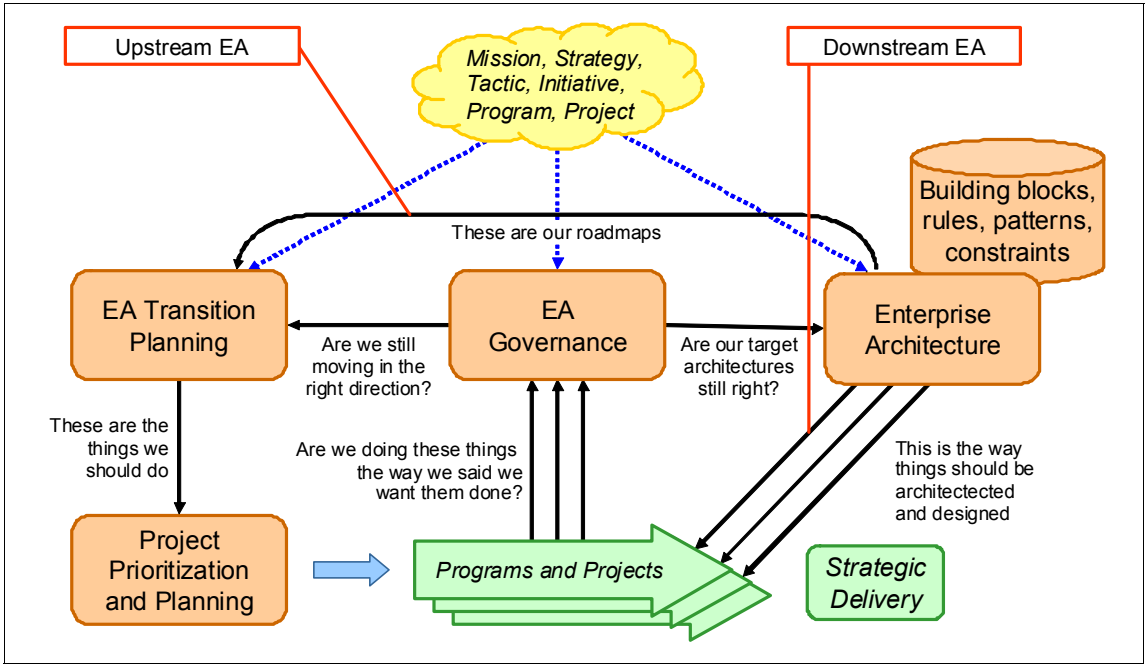

Figure 5-2 EA's role in enterprise planning

The colors in Figure 5-2 separate the organization's strategy and vision activities, the EA life cycle components, and the solution delivery activities. Some people argue that strategy and vision are part of the enterprise architecture, while other people argue against this view. Both views can be valid depending on the

enterprise in question. What is “right” depends on how the enterprise planning life cycle processes are defined.

Considering Figure 5-2 on page 67 in detail, the organization is constantly in a state of looking at the market inputs, defining its corporate vision and strategy, and examining its current resourcing requirements. Typical organizations ask the following types of questions:

- What will differentiate our enterprise from its competitors in five years?
- What value propositions will we offer customers to create that differentiation?

From this assessment, the company can look at the resources that are required on both the business and the IT side to deliver the capabilities that are needed to realize the desired value propositions. For example, a superior customer experience might demand better Internet interactions, for which are needed new applications, processes, and infrastructure. These concrete needs are often referred to as the *future state* of the enterprise architecture. After the needs are understood, they are compared to the current state architecture (that is, the assets and capabilities that the organization already has) and a transition plan is defined that shows how the organization can progress from the current state to the future state. This is often referred to as *upstream EA*.

With the strategy and transition plans in place, EA “execution” begins. Although nothing tangible is “executed” or delivered within EA itself, the EA function needs to guide and govern solution delivery activities throughout the enterprise. From an EA perspective, projects that are aligned with the transition plans are typically prioritized over those projects that do not align. This determines the projects that the EA function would like to have funded and initiated (or continued) within solution delivery.

As solutions are developed, EA assets such as models, building blocks, rules, patterns, constraints, and guidelines are used for guidance and governance (often referred to as *downstream EA*). Where the standard EA assets are not suitable for a project, exceptions are requested from the governance board. These exceptions are tracked carefully. Where EA assets are frequently the subject of exception requests, they must be examined to see if they really are suitable for the organization. If we are not doing things the way we said we wanted them done, then we must ask if our target architectures are optimal as is or whether they should be adjusted. This helps keep the enterprise architecture current and useful.

Periodic updates to the organization’s vision and strategy require a periodic re-assessment of the enterprise architecture future state. This re-assessment typically results in another look at how the organization can differentiate itself in five years, what value propositions it can offer, the capabilities and resources needed, and so on. Then, the transition plan is examined to see if it is moving the

enterprise in the right direction, if it is not, the transition plan is updated. This illustrates the continuous, independently, cyclic nature of EA.

The remainder of this chapter defines typical EA method and tooling capabilities and addresses in some detail EA maturity and value propositions. Note that most enterprises need to start small and only grow scope and ambitions as their architectural maturity increases.

5.2 EA capabilities

Although the EA method, tool, and middleware capabilities that we describe in this section are not exhaustive, they are nevertheless fundamental in that any mature EA function will apply them in one form or another. Thus, they are all part of the core “tribal language” of EA.

5.2.1 Supported domains of change

In the context of EA, we briefly explain potential domains of change in 2.3, “Enterprise Architecture” on page 18. In practice, a particular EA framework uses its own taxonomy for the domains of change that it supports, which in turn affects the terminology and metamodel of the framework.

As an example, The Open Group Architecture Framework (TOGAF) 9 defines the domains of change illustrated in Figure 5-3.

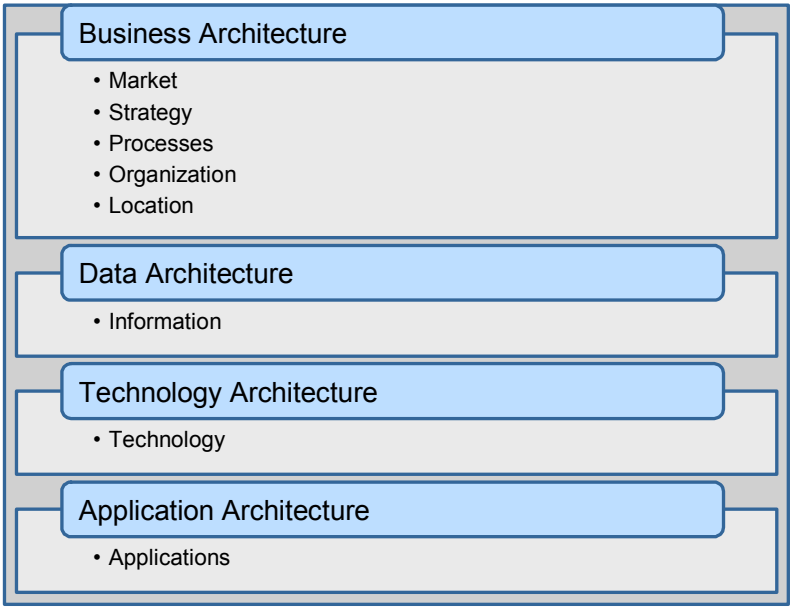

Figure 5-3 TOGAF 9 change domains

Notice how the four main domains are directly mappable to the generic architectural framework for business and IT convergence defined in Figure 3-6 on page 38. The business architecture maps to the business domain, the technology architecture maps to the technology domain, and the data and application architectures combined map to the information systems domain. This mapping illustrates that although a particular EA framework has its own domain structure, any general-purpose EA framework will always be mappable to the fundamental domains of business, information systems, and technology.

5.2.2 EA artifacts

This section addresses the types of artifacts that are an integral part of the definition of an enterprise architecture. Artifacts are goods that are produced by the EA tribe. They are required components for the enterprise architecture to be represented and documented in a standardized manner.

Model

An EA *model* is the definitive representation of the target system, thereby also defining the bounds of the EA working environment. The EA model must contain

all the core model elements and their relationships and is, in general terms, not directly visible as a whole. Some EA models might contain alternative or additional model elements or relationships. Note that models do not include visual representation information.

Metamodel

A *metamodel* defines the types of elements that are allowed in the EA model, together with their permitted relationships. The element types are typically categorized according to the domain structure in the applied EA framework, as shown in Figure 5-4.

Figure 5-4 Part of the core metamodel for TOGAF

Views and viewpoints

A *view* is a rendering of part of the EA model that displays a selected set of model elements and their relationships. Views can be visualized as tables, matrixes, textual stanza, relationship diagrams, or other types of visual elements to satisfy the consumability needs of a particular stakeholder. A view is different from the EA model in that it is a visual representation of some select set of model elements.

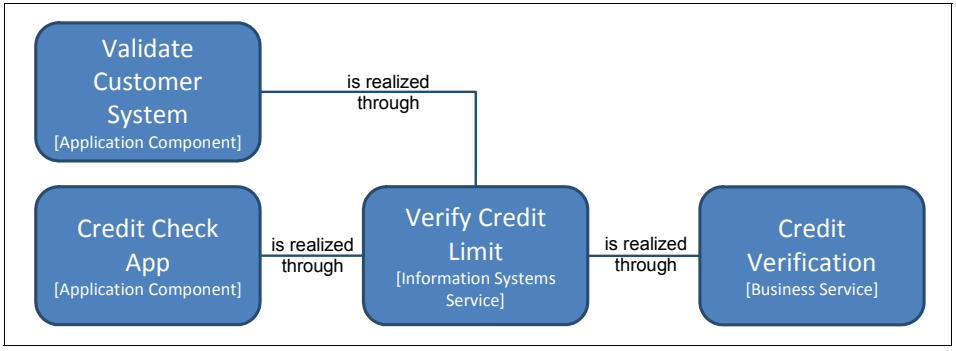

Figure 5-5 A view of the EA model showing the Credit Verification business service

An EA model can be visualized in various manners, using different views on that same model. To standardize stakeholder views, many EA frameworks include predefined viewpoints. A *viewpoint* is a description of information that is found in a view. Optionally, a viewpoint includes a declaration of the view's notation (table

structure, matrix format, diagram symbols, and layout) and model manipulation rules for that view. Generally, predefined viewpoints are associated with a modeling role. Table 5-1 shows sample viewpoints that are defined in TOGAF 9 and the domain within which each viewpoint is typically used.

Table 5-1 TOGAF 9 viewpoints and domains

Viewpoint	**Domain**
Principles Catalog	General
Stakeholder Map	Architecture vision
Value Chain Diagram	
Stakeholder Position Matrix	
Stakeholder Management Approach Dashboard	
Stakeholder Category Diagram	
Solution Concept Diagram	
Strategy Map	
Enterprise Direction Diagram	
Organization/Actor Catalog	Business architecture
Role Catalog	
Business Service/Function Catalog	
Business Interaction Matrix	
Actor/Role Matrix	
Business Footprint Diagram	
Business Service/Information Diagram	
Functional Decomposition Diagram	
Product Lifecycle Diagram	
Organizational Decomposition Diagram	
Business Process Diagram	

Viewpoint	Domain
Data Entity/Data Component Catalog	Information systems (data architecture)
Data Entity/Business Function Matrix	
System/Data Matrix	
Class Diagram	
Data Dissemination Diagram	
Entity Relation Diagram	
Application Portfolio Catalog	Information systems (application architecture)
Interface Catalog	
System/Organization Matrix	
Role/System Matrix	
System/Function Matrix	
Application Interaction Matrix	
Application Communication Diagram	
System Architecture Diagram	
Application and User Location Diagram	
System Use-Case Diagram	
Technology Standards Catalog	Technology Architecture
Technology Portfolio Catalog	
Network Concept Diagram	
System/Technology Matrix	
Environments and Locations Diagram	
Platform Decomposition Diagram	
Project Context Diagram	Opportunities and Solutions
Benefits Diagram	
Requirements Catalog	Requirements Management

5.2.3 EA repository and automated harvesting of EA artifacts

The task of maintaining an enterprise architecture model is often seen as expensive, involving lots of hard work. The more you can automate and reduce the cost of maintaining the enterprise architecture, the easier it can be to adopt and use. Organizations applying EA require a capability to create or update their architecture from existing sources.

Fundamental to automating the maintenance of the EA model is to have a repository for storing and managing its model elements. A well-structured repository also supports the ability to distribute architecture content globally to different teams and the ability to access the EA model at different levels of detail.

With an EA repository in place, the operational part of the EA model can be populated directly from a number of sources that are associated with specific architecture domains, such as the following examples:

- Lightweight Directory Access Protocol (LDAP) directories for organizational information
- Process servers for process models
- Change and configuration management databases for application and technology components and configurations

Similar sources exist for development-related artifacts in the form of development repositories and registries. Note that appropriately leveraging the synergies between BPM and EA also has an effect on harvesting solution delivery artifacts and experiences for use in the enterprise architecture.

5.2.4 Impact analysis and analytics

Understanding the impact of change is a key benefit of EA. Thus, the impact analysis for a model change is important. As illustrated in Figure 5-6, you must be able to view traceability across selected subsets of the EA model and to create views that represent the specific impact questions that are asked.

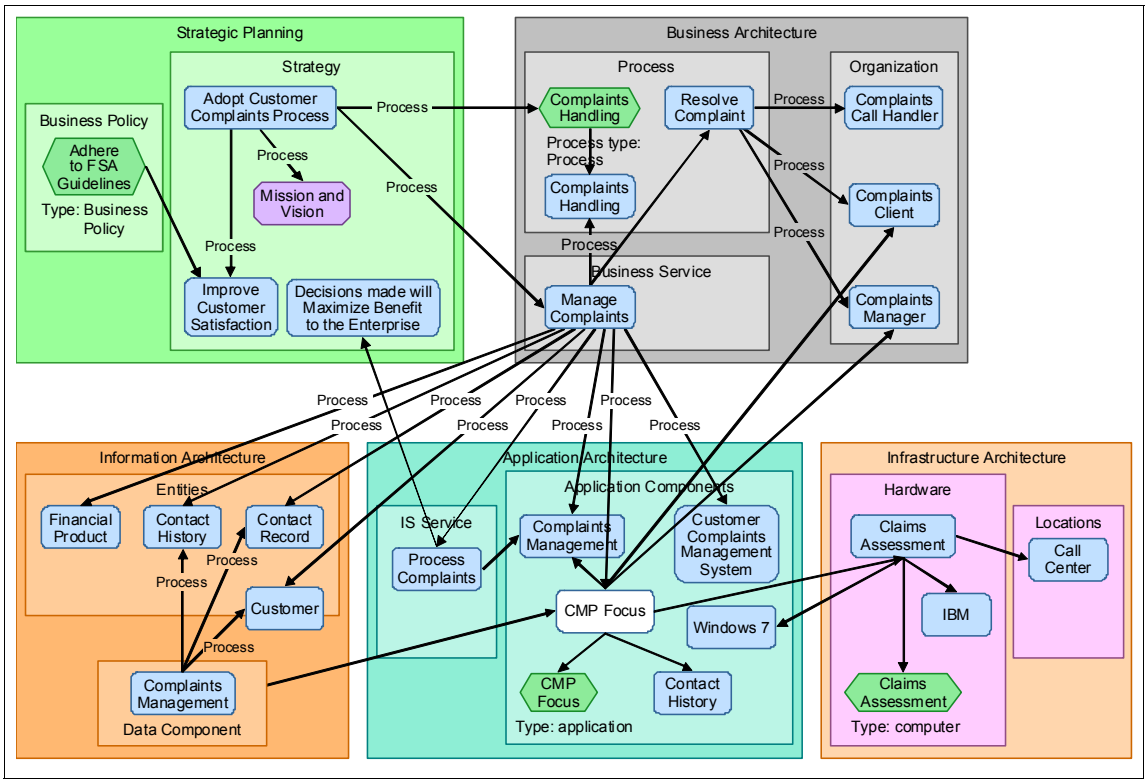

Figure 5-6 Example of selected relationships of EA assets for impact analysis

For more advanced queries, analytics capabilities are required for in-depth processing of the EA model. The enterprise architect uses analytics to combine various impacts, conformance levels, and states of the architecture for any particular view. Adding analytics information to views of the EA model is also effective in demonstrating the value of an EA model to different stakeholders.

5.2.5 Simulation

A *simulation* is a type of analysis that allows the enterprise architect to test and predict the outcome of information or events that are triggered in the model. The

benefit of simulation is that it allows prediction of bottle necks in the EA model, allows looking at best use of resources, and allows simulating costs and risks that are associated with change proposals.

5.2.6 Current versus future state analysis

When choosing a future state option, there are a number of capabilities that can assist decision making and transition planning. In particular, road maps and comparison tools are key capabilities in the armory of an enterprise architect:

- Road maps: Road maps are a temporal view that is applied to an underlying EA model whose elements often can have specific temporal properties. Specifically, road maps make visible the evolution of the EA model over time, which is important in current and future state analysis because it provides a view of the EA landscape at a designated future point in time.
- Comparison tools: Automating the comparison of a current state versus a future state or of a future state A versus a future state B allows the enterprise architect to efficiently perform key comparisons of, for example, gaps between two states or semantic changes between two EA model representations.

5.2.7 Transition planning

Comparison tools provide gap analysis capabilities, but a transition plan defines the steps that are needed to move from the current state to the future state. A transition plan shows the sequence and the resources that are required over time to get to that desired future state as illustrated in Figure 5-7.

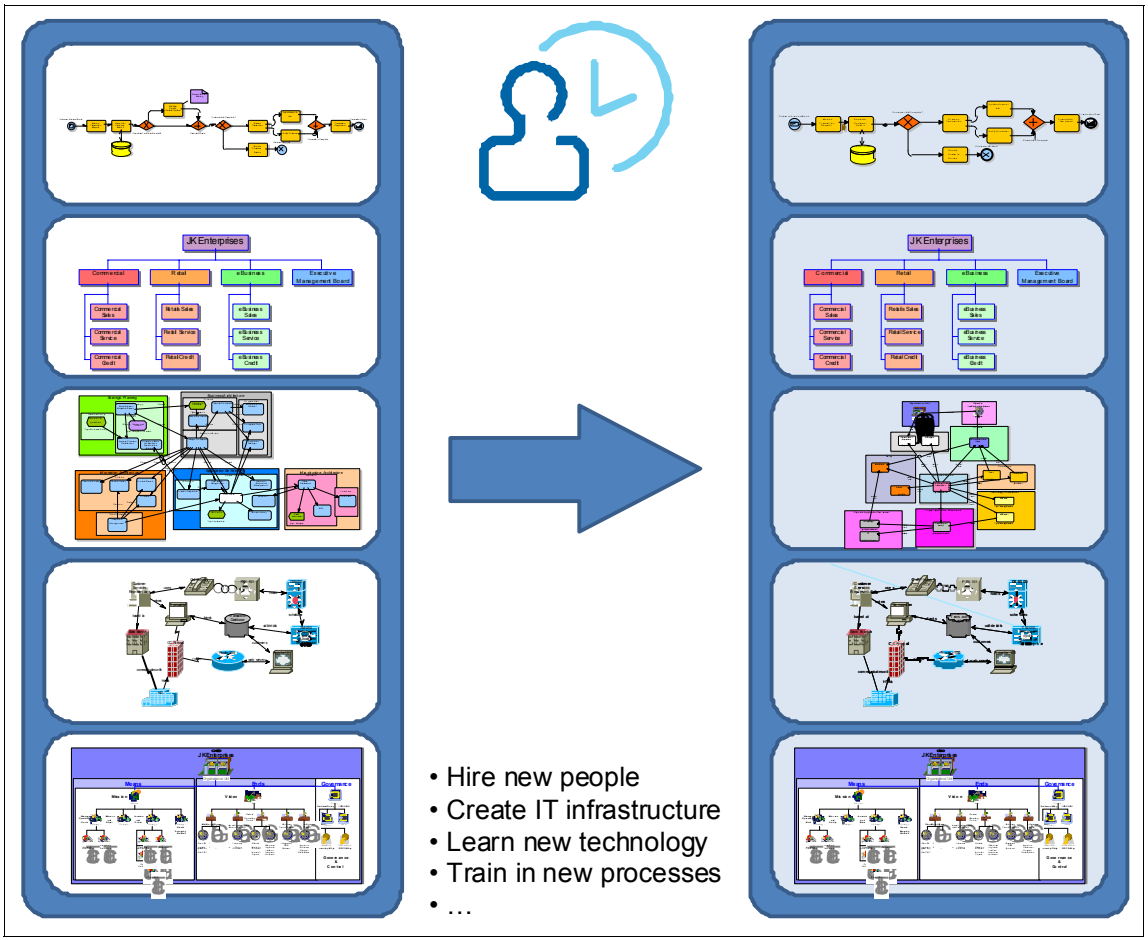

Figure 5-7 Transition planning

The transition plan forms part of the target architecture cost and value assessment. It is important not to compare just the current state versus the target state architecture in a purely architectural fashion but also to take into account the steps and costs that are associated with getting there.

A transition plan is often “executed” by the creation of successive candidate projects to perform the steps of the transition. Such projects are prioritized with the remainder of the project portfolio. (For information about integrated strategic planning, see 3.3, “Integrated strategic planning” on page 41.) Note that there can be multiple options in a transition plan about how to move from a current state to a target state; these options can be evaluated against each other.

5.3 EA maturity

Organizations operate at various levels of maturity. Initially, many EA initiatives start off with an enterprise inventory view of their environment. They look at the portfolio of EA assets (or a subset thereof) and make assessments about capabilities that are supported versus capabilities needed, often making tactical decisions to retire components in their portfolio based on current usage and cost as illustrated by the left side of Figure 5-8.

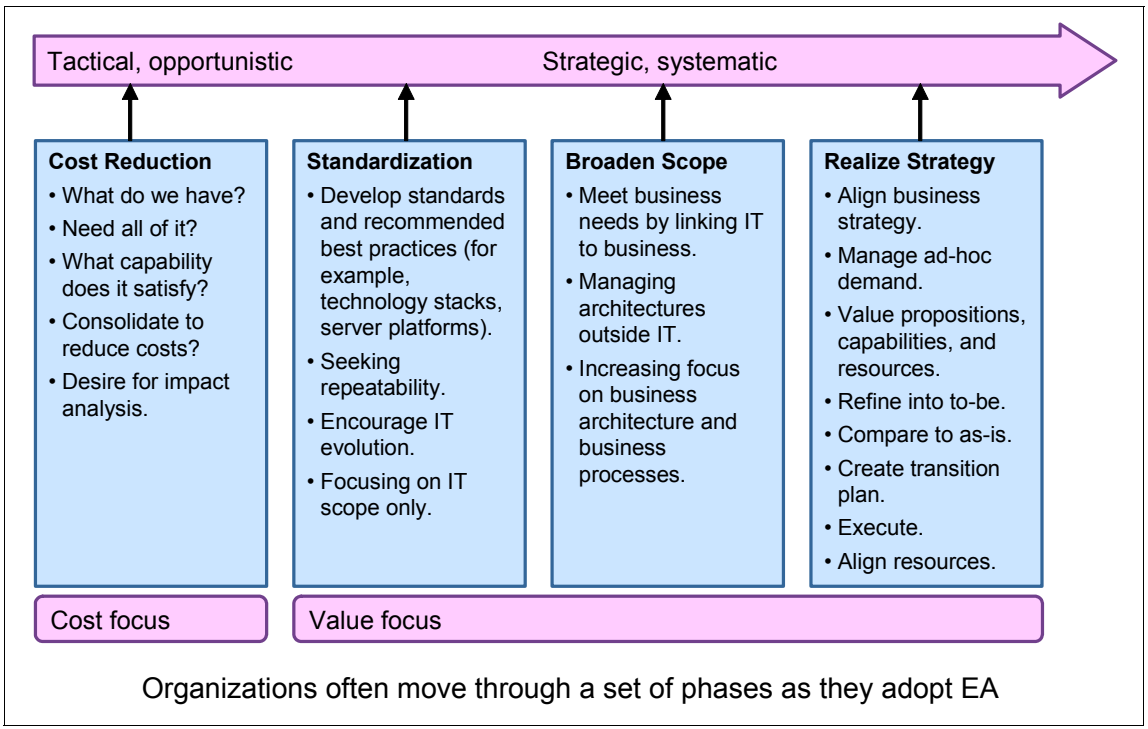

Figure 5-8 EA adoption

As organizations mature, standardization becomes important. The ability to have a common technology framework and application infrastructure as well as best

practices and guidelines for the delivery of software and solutions becomes essential. At this stage, enterprises seek to add value by evolving IT environments in a repeatable and scalable fashion. In the analogy of “from tribes to nations,” this evolution corresponds to the beginning stages of a trading culture where bartering is increasingly based on standardized monetary measures.

Moving beyond the standardization stage, enterprises are looking to ensure that IT infrastructure and solutions are directly representative of business needs and requirements. Enterprise-wide business process blueprints need to be understood to ensure that the information systems environment appropriately supports the end-to-end business. Furthermore, to avoid complexity and cost, enterprises at this stage need to ensure that IT is not built in operating unit silos but is evolved based on consolidated enterprise needs. The tribes of the enterprise begin to work together towards common goals.

Ultimately, those organizations that use EA to support the realization of strategy can effectively manage in-bound demand and requirements, can assess risk and technology alignment, and can produce different architectural options in support of quick and prudent decisions.

5.4 The value proposition for EA

Justifying the cost of EA is a common issue. Cost justification is the most difficult communication task facing many enterprise architects because of the following common misperceptions about EA:

- It takes too long (not understanding that enterprise planning is a continuous life cycle of its own)
- It costs too much (erroneously treating EA as a cost center rather than a business and IT enabler)
- It is an ivory tower that has no real relevance to the things that we do in the real world (not appreciating and properly using the synergies between EA and solution delivery disciplines such as BPM)

Requests for cost justification are historically based in an age where cost savings were associated to the fact that computers could replace people’s jobs and that automating repetitive tasks led to an improvement in quality and time.

The market has changed significantly. Computers are no longer differentiating assets in their own right; they are commoditized and well understood by most organizations. The differentiation lies in how they are used for business enablement. Doing things quicker, cheaper, and faster with computer technology alone no longer provides competitive advantage. In addition, cost justification in

terms of replacing resources is no longer the only driving value proposition for IT investment.

In contrast to computers, a well-defined architecture is in fact an asset and should be treated as such. Organizations invest in assets to drive value and to accomplish tasks that were not possible before. If something is used once, it is an expense; however, if it is used repeatedly, it becomes an asset. In this sense, a good architecture should be considered an investment and an asset that is maintained continuously and used repeatedly.

Thus, although EA will never realize a return on investment in and of itself (after all EA does not deliver anything tangible), the proper use of EA assets can generate significant value above and beyond what solution delivery activities in isolation can. This concept is consistent with analysts and industry leaders having stated several years ago that a return can be realized on EA but not from the EA program itself.

Figure 5-9 represents core value propositions for EA in general. These are goals towards which EA assets can be applied to generate real enterprise value.

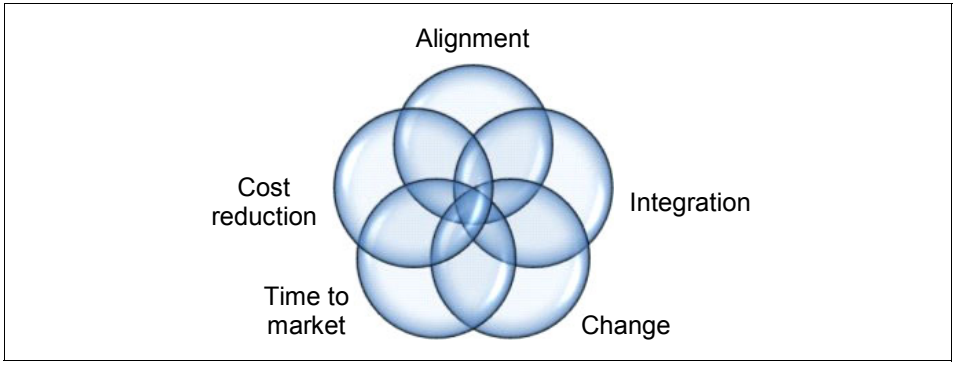

Figure 5-9 EA value propositions

EA can provide value in the forms of the following concepts:

- Alignment

  Do the systems in the organization meet the change in the market conditions and our strategy? Is the functionality and quality of systems directly attributable to the requirements that drive them? Market demand and EA need to be aligned and correlated to respond to market movements and challenges.

- Integration

  Information must be available to the right stakeholders in the organization in the right format at the right time to make appropriate decisions about potential plans. EA can look holistically at business solutions and IT assets and can

support “plug and play” of applications and technology infrastructure to provide for new initiatives as the enterprise evolves.

- Manage planned change

  The architecture description or blueprint provides the basis for managing change over time. After all, we would not attempt to modify our own house without first seeing the building plans, electrical wiring diagram, and how these parts fits into the remainder of the environment, such as water services, gas, and so on.

  There are three basic options for considering and managing change:

  – Let the architecture go obsolete, remove it, and build it again. This approach is slow and does not enable innovation.
  – Change the architecture, and determine what happens through trial and error. This approach is a high risk, because serious issues can occur before errors are detected.
  – Continuously maintain the EA model, and process changes in a structured fashion as they occur. This is usually the most effective way to approach EA and certainly the method that best enables the synergies between BPM and EA.

- Time to market

  This incentive is an important part of the value proposition for EA, although often overlooked.

  There are many examples of organizations that excel in reducing time to market and use that ability to great effect. These enterprises might not have the best technology, but they are the thought leaders in their field and quick time to market is part of their business strategy. To achieve time to market, the business and IT architecture must be well understood and the effects of change must be easily identifiable with a high degree of certainty, thus reducing risk when executing rapid change. Furthermore, reuse of architecture building blocks is important in guiding agile enterprises effectively.

- *Drive out costs*

  This particular value proposition is often the place organizations begin their EA journey (as illustrated in Figure 5-8 on page 78). Consider as an example the application architecture domain. We can rationalize the application portfolio by analyzing it to ensure that it meets the following criteria, which are natural aspects of EA analysis:

  – Supports the required business and IT capabilities
  – Supports no more than those required business and IT capabilities
  – Supports the organization with the most optimal solution in terms of cost
  – Selects the applications that have the best architectural fit

6

Stop copying; start linking

Now that we have presented business process management (BPM) and Enterprise Architecture (EA) in isolation, we explain in this chapter how to link and synergistically integrate the two.

In Part 1, “Better business outcomes” on page 1, we explain the need to collaborate and coordinate, not synchronize, across EA and BPM boundaries. You do not want to change all ongoing projects every time long-term plans are adjusted and you do not want to scrap enterprise plans and standards just because a project cannot completely meet the targets that have been set. The challenge is how to achieve such coordination in practice without breaking the principles of *actionable architecture*.

6.1 Stop copying

Visibility and traceability are key parameters for any successful integration of EA and BPM, especially because such environments typically involve the use of multiple modeling tools in support of the different roles and model types. One way of creating visibility and traceability is by having all modeling tools use a single global repository. However, in many cases, this approach is simply not practical either due to the tools involved or the infrastructure mix or because different roles need different user experiences, leading ultimately to different model management requirements.

When collaborating across modeling domains and tribal boundaries, the typical approach has historically been to exchange artifacts by copying, in many cases even using transformations when doing so. Such a copying approach introduces several issues:

- Point-to-point proprietary integration
- Loss of information through transformation or conceptual mismatch
- No visibility across domain boundaries
- Change management becomes complicated or impossible because it is not clear who owns the authoritative truth
- No support for artifact life cycle management

Emerging industry standards, such as Business Process Modeling Notation (BPMN) 2.0 and Service-oriented architecture Modeling Language (SoaML), incorporate quasi-normative guidelines that reduce the need for transformations and proprietary integration, yet standard formats are no help for the manageability issues. The only way to address these issues is to stop copying artifacts.

The root of the problem is that when copying an artifact using export and subsequent import, you then have two physically distinct and unconnected copies of the same artifact. In fact, the copying approach breaks at least three of the actionable architecture principles. Context is lost on the other side of a copy, an “over the fence” exchange is not collaborative, and the traceable origin of an artifact is lost on the copy.

Copying artifacts fundamentally creates potentially massive amounts of rework and institutionalizes the need for constant synchronization across environments and tools. Even worse, a copying approach blurs the lines of ownership and does not respect the different life cycles of various types of model artifacts throughout the enterprise landscape. If you want to use the trading goods that are produced

by another tribe, you do not need to take over complete responsibility and ownership for those goods.

Note that *copying* is subtly, but importantly, different from *cloning* an artifact to a related but distinct artifact. The following examples should help clarify the distinction:

- Copying involves exchanging a service model between a service modeling tool and a process modeling tool to use that service model for process orchestration.
- Cloning involves taking an EA process template and cloning it (as a starting point) to a different process model that is part of a particular solution.

With copying, if you changed the service model in any of the tools, you would need to synchronize that change to the other tool because both copies are in fact one and the same artifact. With cloning, even though the clone is initially bit-by-bit the same as the original (or possibly a transformation of it), the clone has its own distinct identity and life cycle independent of the original. Although derived from the original trading goods, the clone is a completely different work product with its own independent semantics.

After all, even though you modify a (cloned) process model for a particular solution, in most cases that does not mean that you want to change your enterprise standard. Having said that, in support of visibility, traceability, and future collaboration, it is still important to maintain a link from a clone to its original source. Although this is just an example, it illustrates that when crossing domain boundaries, there is no good reason to do exchange by copy. Either a simple link that provides visibility and traceability is enough, or a clone that has its own unique identity and that is linked back to the original is needed.

6.2 Start linking

The challenge of creating large-scale visibility and traceability was faced in the early days of the Internet and interestingly the World Wide Web pioneers chose a radically new approach compared to the historical use of shared or federated repositories. The web today is based on the notion of linking different sorts of pages through light weight, standardized HTTP references and on accepting the fact that such references might be broken from time to time. Broken links are simply the price paid for avoiding the expense of copying or the rigidity of a global repository.

In the EA and BPM integration space, whether a given situation can be handled by simple links or whether it requires cloning, a similarly standardized, tool-neutral way of linking artifacts across modeling domains is needed. Such links must have the following characteristics:

- Transparency
- Bidirectional visibility
- Version sensitivity
- Robustness against change

These characteristics are the standardized linking semantics that are being addressed by the Open Services for Lifecycle Collaboration (OSLC) industry initiative. For more information, see:

http://open-services.net/html/Home.html

Figure 6-1 illustrates this style of linking that will form the basis for future generations of tools and tool integrations.

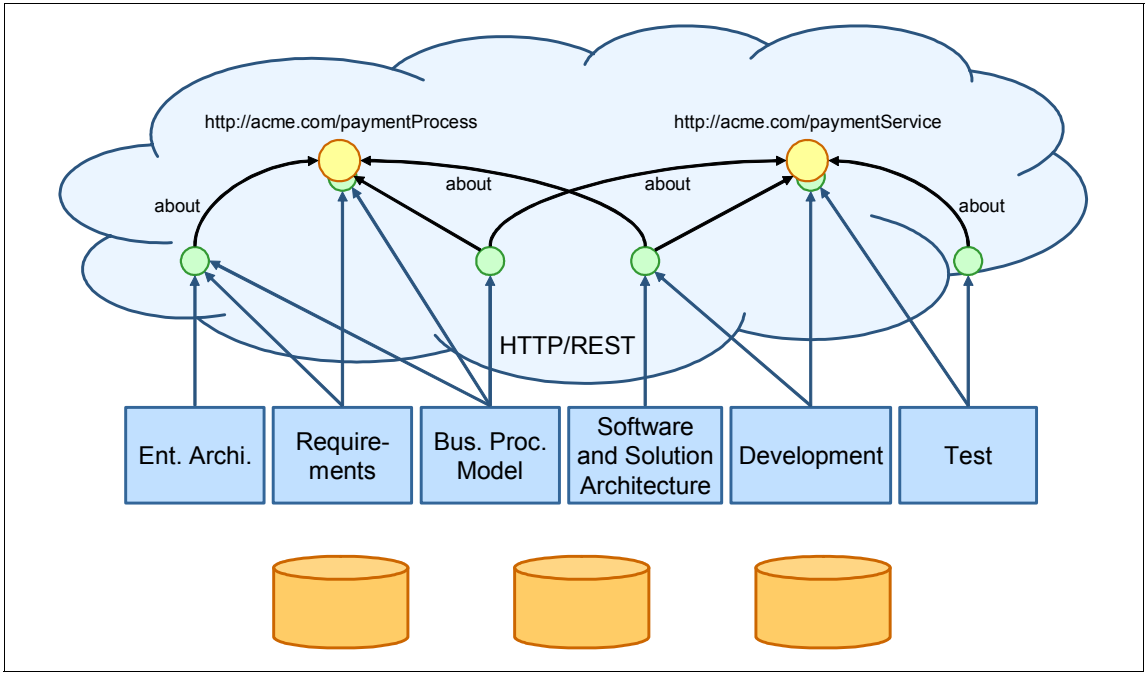

Figure 6-1 Internet-style resource linking

Linking provides for a more seamless experience than copying and offers better visibility and traceability across role and tool boundaries. Process models can be linked directly to the service models that they orchestrate, with the dependencies visible to both the business analyst and the service architect. Services can be

linked to the information artifacts on which they depend and can be visible to both the service architect and the data architect. EA transition targets can be linked to the solution models that they guide and govern, with the relationships visible to the enterprise architect and to anyone working on the solution model in question. In short, we need to start using transparent links between artifacts wherever we can and tools need to essentially become viewpoints onto a linked resource web.

Even in the case where a cloned copy is truly needed, such as when seeding a new BPM solution with an EA template, clone the original artifact in a traceable and linked fashion and do not exchange the artifact by copy. This approach provides an experience that has the following characteristics:

- People-centric, supporting collaboration across participants yet respecting domains of authority
- Transparent, providing cross domain visibility through many-to-many artifact relationships
- Managed, with tool assisted management of artifact links
- Coordinated, with lightweight coordination that focuses on synergies instead of attempting heavyweight complete synchronization

In contrast to copying, a linking approach *does* support the principles of actionable architecture and is the appropriate choice for integrating EA and BPM in a synergistic fashion, as illustrated in Figure 6-2.

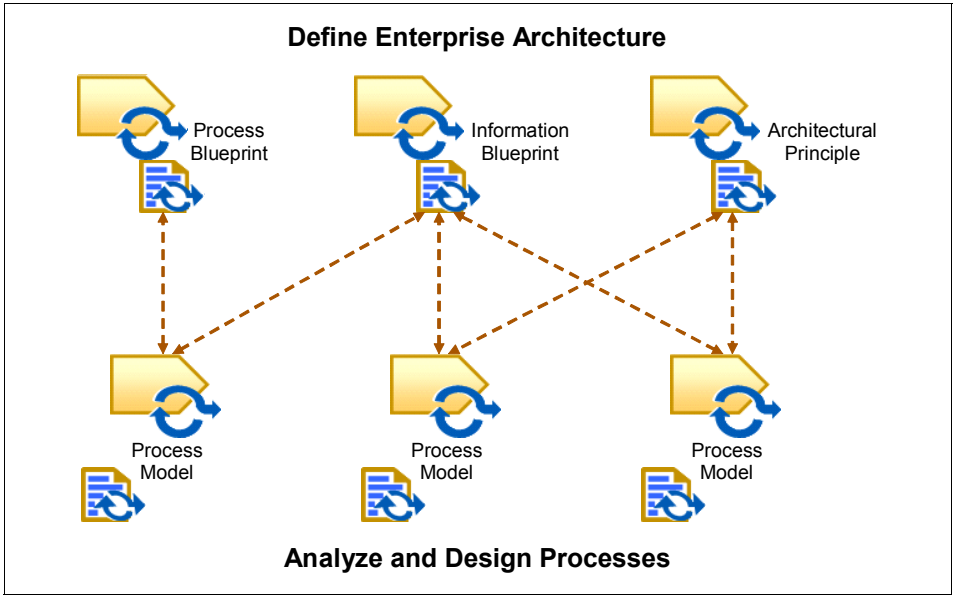

Figure 6-2 Unleash BPM and EA synergies using flexible linking

For more details (with visualizations) about how to do basic linking between BPM and EA artifacts in practice, see Part 3, “A worked example” on page 119. At this point simply note that linked EA artifacts are not limited to process blueprints. Many different types of EA artifacts can guide and govern the same BPM solution process model.

Technologies to support a linking approach are rapidly evolving. Already many asset management repositories support any-to-any relationships between assets in the repository and provide basic elements of social collaboration. Moving forward, such relationships need to be standardized and federated as semantically consistent links between repositories with the kinds of properties that are addressed by the Open Services for Lifecycle Collaboration initiative. Indeed, an amalgamation of basic linking with traditional elements of advanced search, model-driven development source control, and project management and tracking is a core element of the work ahead and a key component of any enterprise trading language that supports the transition from tribes to nations.

7

The role of standards

We have already mentioned standards, such as Business Process Modeling Notation (BPMN), Open Service for Lifecycle Collaboration (OSLC), and Service-oriented architecture Modeling Language (SoaML), in previous parts of the book. Standards are an important part of establishing a common trading language for the modern enterprise, internally and externally. The following types of standards are important in the context of this book:

- Semantic standards, such as the The Open Group SOA Ontology, define common concepts and terms in support of effective communication and understanding.
- Format standards, such as BPMN 2.0, SoaML, Service Component Architecture (SCA), Reusable Asset Specification (RAS) and OSLC, support collaboration and consumability.
- Framework standards, such as The Open Group Architecture Framework (TOGAF), provide context and structure.
- Industry model standards, such as the open standard TM Forum Business Process Framework (eTOM) and the IBM proprietary Banking Information Framework (IFW), act as reference models, benchmarks, and accelerators for content and executables.
- Process improvement standards, such as Capability Maturity Model Integration (CMMI) and Information Technology Infrastructure Library (ITIL®), act as benchmarks and accelerators for architecture, engineering, and management processes.

In reality, few enterprises need to consider all these different kinds of standards, at least not for the first few years of a transformation journey from “tribes” to “nations.” Having said that, however, it is important to understand the value of each type of standard to better discern which standards to use and when to use them. In particular, understanding the different format standards is critically important for the immature transformation initiative. Without such understanding, it is easy to produce assets that are not robust against change or that fail to be understood by anyone outside the initial team.

To exemplify the different categories of standards and why each has value in the context of business process management (BPM) and enterprise architecture (EA), we address the following standards that are of particular interest to this book:

- Semantic standards: The Open Group SOA Ontology Technical Standard
- Resource format standards: BPMN
- Linking format standards: OSLC
- Framework standards: TOGAF
- Industry model standards: IFW
- Process improvement standards: CMMI

7.1 Semantic standards: The Open Group SOA Ontology Technical Standard

The Open Group Service-Oriented Architecture Ontology Technical Standard is intended to develop and foster a common understanding between business and IT communities regarding service-oriented architecture (SOA) concepts and terminology. The ontology defines the concepts, terms, and semantics of SOA in a common language that allows for more precise and straightforward communications throughout the enterprise, reducing ambiguity and misunderstandings.

For more information about The Open Group SOA Ontology Technical Standard, see:

https://www2.opengroup.org/ogsys/jsp/publications/PublicationDetails.jsp?catalogno=c104

Semantic standards, such as the SOA Ontology, provide common terminology and concept mapping that business and technical people can employ to discuss problems and opportunities. Furthermore, such semantic standards bridge different architecture, engineering, business, and marketing domains. Although rarely complete from a coverage perspective, semantic standards create a

consistent foundation for inter- and intra-domain communication, a foundation that becomes the backbone of the lingua franca for the enterprise landscape.

Despite years of evolution in systems, people who work with SOA, BPM, and EA are often still divided by differing uses of common terms. Definitions of routinely used words (such as *process*, *service*, *component*, *system*, and *task*) and how these terms relate to each other, can have varied meanings depending on who or what product or tool is doing the defining. In particular, business and technology people might not assign the same definitions or understanding to a concept.

As we have already argued, making sure that you are “speaking the same language” is essential for any architect to be able to communicate effectively with IT, business, and marketing professionals within the enterprise and with vendors and suppliers outside the enterprise. Until recently, the industry has had little focus on semantic standards. Most standardization efforts have addressed resource format standards. That balance needs to change, especially because format standards have little value without common semantics for the kinds of things that the format standards apply to. After all, what good is a standard for process model notation if we do not agree on the concept of process itself?

7.2 Resource format standards: BPMN

BPMN 2.0 seems to be the next big thing in BPM, but should we really care from a business perspective? BPM is a business-oriented discipline after all, so does it really matter what the IT industry does to make processes executable? How does BPMN 2.0, with its focus on standardized exchange of processes, fit with the notion that we should really stop copying and start linking instead across disciplines and domains such as BPM and EA? And what has any of that got to do with agile change?

Table 7-1 provides some basic information about the BPMN 2.0 standard.

Table 7-1 What the BPMN 2.0 standard is and is not

BPMN 2.0 is ...	BPMN is not ...
► A formal industry standard ► A standardized way of expressing processes (common visual language) ► Applicable (with value) to a pure business domain ► A foundation for standardized exchange of process resources ► Executable at the highest level of detail	► A substitute for SOA standards ► A process editor (but it can support one) ► A programming model ► A platform ► A discipline ► An architectural approach

From this list, we can determine that there are two unique value propositions for BPMN 2.0 Only one of these is related to standardized exchange; the other value proposition is related to the need for a common, standardized language that allows us to talk about and define business processes. Such a common, standardized language is critically important for a tribal enterprise desiring to become a nation, and is not related to “copying” at all.

In short, BPMN 2.0 remains integral to the future of both BPM and EA, but we should adopt a perspective on how best to apply BPMN 2.0 that is more nuanced than much of what has so far been discussed publicly. A perspective that must include how to use BPMN 2.0 for consumability within and across both BPM and EA, as well as how to merge linking and BPMN 2.0 resource representations in an effective fashion.

7.3 Linking format standards: OSLC

Open Services for Lifecycle Collaboration is an open community of individuals from customers, business partners, systems integrators, competitors, open source communities, and academia, as shown in Figure 7-1 on page 93. The community focuses on interoperability interfaces between life cycle tools for software and systems development, using a technology-neutral approach that is based on Internet standards and protocols.

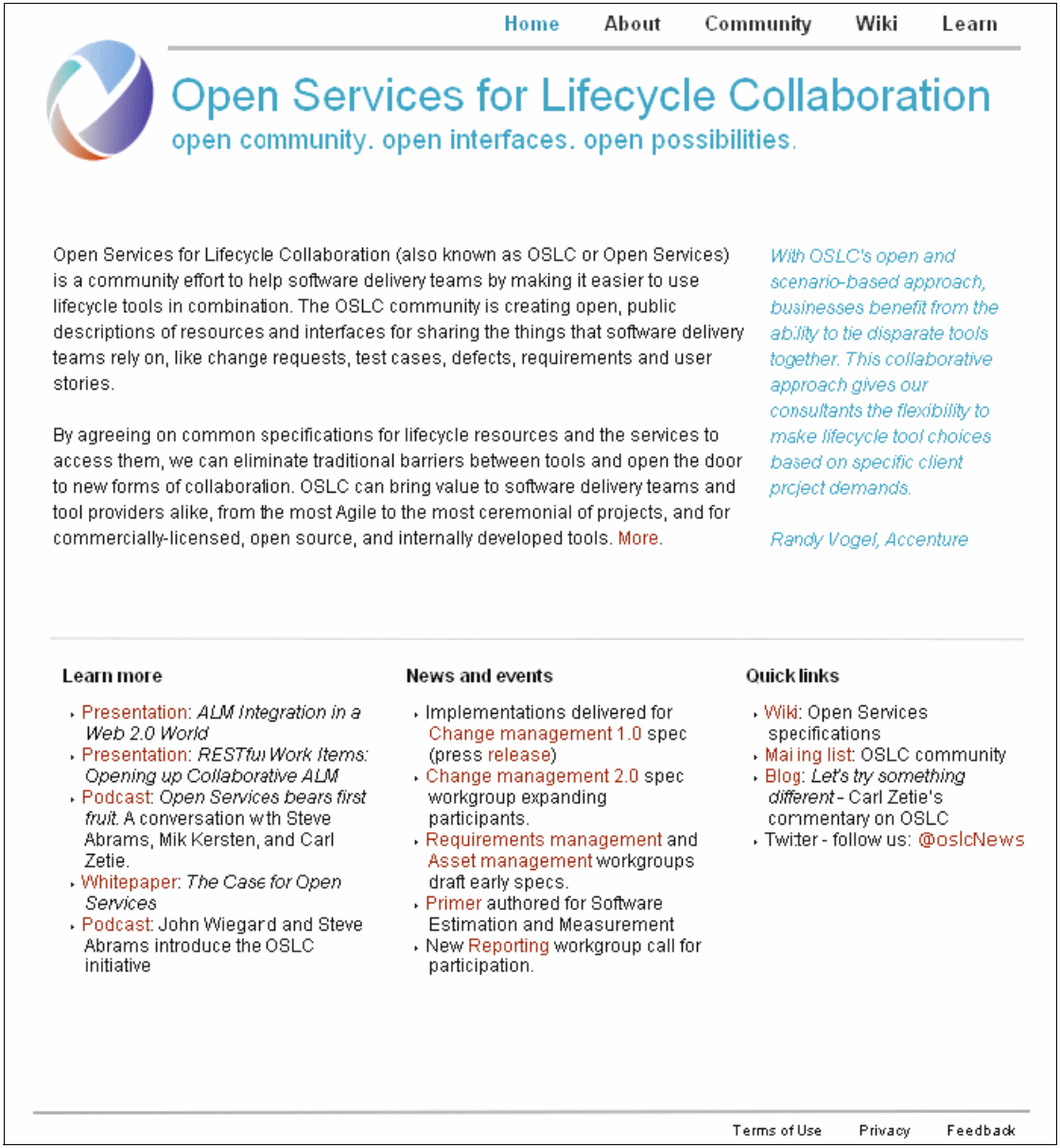

Figure 7-1 Front page of open-services.net

What is important in the context of this book is that contrary to many other format standards, the OSLC specifications do not focus on the format of a resource but on standardized semantics and formats for links between resources. OSLC specifications importantly include both Representational State Transfer (REST)

interfaces that must be supported for creating, managing, and linking resources and user interface components that must be provided for remote lookup, search, and so on. Different OSLC servers own and control each their own OSLC resources but provide just enough standardized interaction semantics to support an integrated network of linked resources. This environment is not a federated repository or a set of isolated repository islands but is a semantic resource web that is similar in nature to the World Wide Web of Internet pages.

Without an industry standard for links, it would be hard, if not impossible, to stop copying and start linking throughout the enterprise landscape. Consequently, the OSLC specifications are a critical enabler for the transition from tribes to nations,

For more information about OSLC, see:

http://open-services.net/html/Home.html

7.4 Framework standards: TOGAF

The Open Group Architecture Framework is a documented set of techniques and tools for developing and supporting EA. TOGAF describes a metamodel the views and viewpoints that are associated with the metamodel, and the types of phases that a typical EA practice performs. The phases of TOGAF are known as the *Architecture Development Method (ADM)*, as illustrated in Figure 7-2 on page 95.

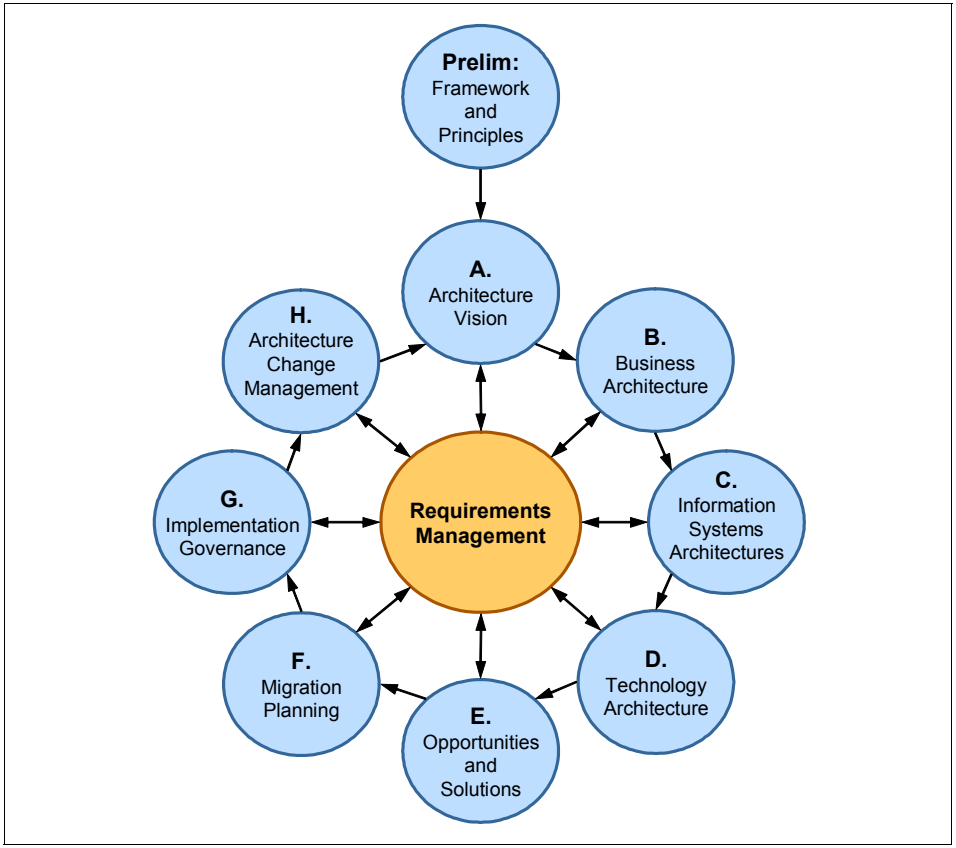

Figure 7-2 TOGAF ADM phase model

Each phase consumes and produces artifacts that assist in the development of the architecture. Underlying the phase model is an extensible abstract artifact metamodel that can be interpreted and augmented for a particular enterprise, serving as both a benchmark and an accelerator for architecture development. Table 7-2 lists some of the typical extensions to the TOGAF core metamodel.

Table 7-2 TOGAF 9 extensions

Metamodel Portion	Description
Core	Core metamodel concepts for TOGAF 9
Governance	Extension to support in-depth operational governance
Services	Extension to support definition of discrete business and application services
Process Modeling	Extension to support process modeling

Metamodel Portion	Description
Data Modeling	Extension to support data modeling
Infrastructure Consolidation	Extension to support consolidation of applications and technology across locations
Motivation	Extension to support linkage of drivers, goals, and objectives to organizations and services

In general, framework standards such as TOGAF provide a much needed classification and structure for work products, which is especially important for cross-domain collaboration where crisp context and linking are required.

TOGAF 9 is particularly relevant to this book because we refer to TOGAF 9 work products in the EA-specific parts of the book. Furthermore TOGAF 9 supports a governance process that is completely synergistic with the overall approach to governance for change that we have proposed. TOGAF is only one of the commonly available EA frameworks. Other frameworks, such as the IBM Enterprise Architecture Method, provide similar content and work products and one framework can be mapped onto the other.

For more information about TOGAF, see:

http://www.opengroup.org/togaf/

7.5 Industry model standards: IFW

The IBM Banking Information Framework (IFW) is a typical example of an industry asset that is a benchmark, a reference model, and an accelerator all at the same time. These aspects have differing importance to the distinct life cycles of the enterprise landscape as follows:

- As a benchmark, IFW provides input to and guidance for enterprise planning blueprints and standards.
- As a reference model, IFW provides structure and classification to the resources and asset in the portfolio management and optimization life cycle.
- As an accelerator, IFW provides seed content for projects and solutions.

Not all industry model standards will on their own address all three of these life cycle concepts, but all three are typically needed for an accelerated and sustainable transformation from tribes to nations. Consequently, an enterprise embarking on such a transition should consider up front which industry models and industry model standards to apply and use those industry models and

standards right from the beginning of the journey. After all, creating models and content is relatively easy compared to the challenges that are intrinsic in managing and governing what has been created over time.

For more information about IFW, see:

http://publib.boulder.ibm.com/infocenter/dmndhelp/v7r0mx/index.jsp?topic=/com.ibm.ws.icp.bkkpayfep1.doc/bkk/pay/paymdev/concept/ci/indstds/c_ifw.html

7.6 Process improvement standards: CMMI

Capability Maturity Model Integration (CMMI) is a process improvement approach that helps organizations improve performance. CMMI can be used to guide process improvement for a project, a division, or an entire organization. This type of improvement is not process improvement in the BPM sense of optimizing business processes. Instead, it is improvement of the requirements, engineering, and management processes on which an organization needs to focus for effective development and collaboration.

Although not directly applicable to the enterprise landscape, CMMI does provide a catalogue of engineering processes for which we need a common language and appropriate collaboration patterns. Furthermore, CMMI allows you to benchmark the maturity of existing engineering processes and to measure progress over time.

In general, process standards have the same characteristics as CMMI, and although not required, such standards do provide an additional tool in the toolbox for enterprises that are embarking on a long-term journey towards better business outcomes and improved business agility.

For more information about CMMI, see:

http://www.sei.cmu.edu/cmmi/

8

Governing change

Throughout this book, we explain the need to optimize the process of change. In this chapter, we address how to govern change effectively throughout the enterprise landscape.

8.1 Sources that drive change

There can be many different sources driving change, different tribes that have the need and right to initiate change, and different life cycles through which change needs to propagate. Consider the following few examples:

- As the result of a strategy change, enterprise planning outlines the need to standardize the sales organization and sales concepts for all geographies. This change in the enterprise architecture needs to be filtered through a portfolio management lens to determine the operational processes that are impacted by the change. Finally, multiple projects will be initiated to implement the most critical changes.
- From monitoring operational processes, a business process management (BPM) initiative recognizes that the sales force in North America is spending more time on paperwork than on customer contact. As a result of that realization, a project is initiated to orchestrate and automate the most time consuming administrative processes to ease the administrative burden on the sales force. This might or might not lead to a change in the EA blueprints for good sales practices.
- A project working on an ATM solution realizes that the enterprise blueprint that they have been using did not take into account the latency of ATM networks. The project needs to change their design of the solution, deviating from the enterprise blueprint, to achieve appropriate response times. Most likely, this change will not result in any change of the Enterprise Architecture (EA) blueprint because the blueprint by definition is channel agnostic and applicable to many different solutions throughout the enterprise. The ATM solution is simply an exception from the rule.

As shown in these examples, the detection and management of change throughout an enterprise is a dynamic process, and because the enterprise landscape is not hierarchical, EA does not always win. To provide structure to this dynamic change environment, governance procedures are needed to ensure that the right decisions are made at the right time for the right reasons, based on appropriate information.

8.2 Business agility and enterprise governance

Although striving for business agility is an imperative for most modern enterprises, ungoverned change is not always good. Without any kind of formal decision responsibility and without appropriate controls in place, change tends to be uncoordinated and chaotic, often leading to unintended side effects. In fact, achieving continuous business improvement through collaborative and integrated

planning and delivery processes throughout the enterprise (business and IT) is difficult to imagine without applying “just in time and just enough” governance in a robust and collaborative fashion.

The objective of governance is to establish chains of responsibility, authority, and communication with the purpose of empowering people to make the right decisions at the right point in time. With embedded measurements and policy and control mechanisms, this enables an agile enterprise to establish and apply enterprise-level guidance towards common objectives, rather than allowing suboptimization of decisions due to local goals and concerns. Furthermore, appropriate governance can prevent simple mistakes and can help ensure compliance with legislation and corporate regulations.

EA, through transition planning and architectural governance, governs change across the gap between enterprise planning and solution delivery. That is well understood as part of the classical EA discipline. EA and EA governance on its own, however, is ineffective. You need a more holistic approach to enterprise governance that builds on the strong synergies between EA, BPM, and service-oriented architecture (SOA) and that reaches from strategy to deployment and operations.

Traditionally, business governance and IT governance have been perceived as separate concerns, but for enterprises that are dependent on IT enablement of business capabilities, such separation is not adequate for governing agile change. BPM and SOA governance close the gap between business governance and IT governance as illustrated in Figure 8-1.

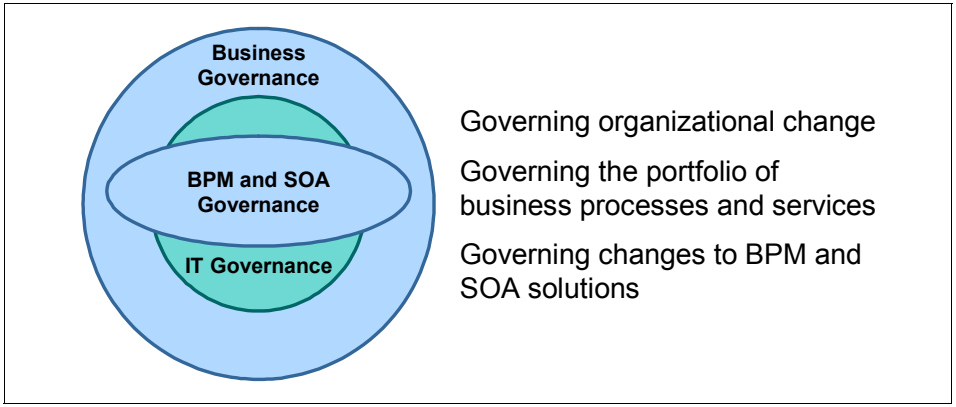

Figure 8-1 Closing the gap between business governance and IT governance

Making sure that appropriate approvals and controls are in place when arrangements or procedures are modified has always been integral to a robust business operating model. Conversely, governing change at the solution level for

combined business and IT solutions is often not recognized by business and IT leaders as critical or is even confused with resource-level governance. Resource governance is not a proper substitute for governing change. Both types of governance are needed, yet there is a distinct difference between the two:

- *Resource governance* is focused on governing the progressive evolution of a single resource.
- *Change governance* is focused on governing the chaotic structure of interrelated projects, development tasks, bug fixes, and operational adjustments throughout the enterprise.

Focus in the IT industry remains (for now) mainly on the classical notion of managing resources in a repository or registry, not managing and governing holistic solution change. This discrepancy between the business need for managed and governed end-to-end change processes and the tool- and repository-centric IT approach to development and operations is a significant stumbling block for business and IT convergence in support of agile change and continuous business improvement and is a challenge that must be overcome on the journey from tribes to nations.

8.3 The business need for end-to-end change processes

The distinction between resource governance and change governance might be considered artificial and unnecessarily complicated. For a long time, the IT industry has been focused mostly on resource management and governance, driven by the need for providing efficient repository infrastructures. Yet from a business perspective, the management and governance of change is the main issue of importance. How that change is achieved through a multitude of resource-level changes is almost irrelevant.

As a simple example from the business world, consider an order to a communications services provider. Does it matter to the customer how that order is realized through network settings, switches, cables, and software, or does it matter that the result is the provisioning of cable TV, phone, and Internet quickly? From a business perspective, the net effect of the order realized in terms of services provided is the only thing that matters, not the resource changes that were necessary to achieve the result.

In the business world, it is self-evident that uncontrolled change can lead to chaos. Unauthorized persons can make harmful changes, unreviewed incorrect changes might slip into the system, and negative situations cannot be recovered or rolled back. One example of how these risks increase in importance and impact in a business-led agile environment is the recent case where an Internet

store accidentally capped everything at a price of $49.95 and lost $1.6 million in a matter of hours before the error could be detected and corrected.

The more agile the solution, the more control placed in the hands of the business, the more critical change governance becomes. The pricing mishap might have been avoided if a governance procedure defined that all such changes must be reviewed by at least two people before being activated.

Classically, the IT industry has sharply distinguished between development and operations and has seen change in the context of either one or the other. Yet with the emergence of SOA as a dominant architectural style and with the additional dynamic business change aspects brought by BPM as a discipline, that line quickly blurs. Many business organizational changes are operational in nature and do not require development in the traditional sense. Also the behavior of many services can be adjusted by changing runtime policies. Add to that the concept of BPM, where business processes and activities have built in agility points that allow dynamic changes to take effect in near real time. In such an environment, agile changes occur continuously, and those changes certainly should be properly managed and governed as witnessed by the examples that we described previously.

What does all of this mean for a modern enterprise? It means that there are clear business benefits to monitoring end-to-end change processes and governing those processes across the converged business and IT space, all the way from inception of a change through deployment and follow-up. Supporting agile business-led change has significant business value, but only if such change happens intentionally and in a controlled fashion. How do we achieve that result effectively? By applying BPM to the business of change to define, optimize, and orchestrate the change process itself, tracking and managing changes all the way from strategic intent through solution delivery.

8.4 From resource governance to change governance

Let us consider more closely the notion of governing an end-to-end change process and how this differs from a more traditional resource-centric point of view.

Any artifact or resource in and of itself has a life cycle from creation through end of life. During its life cycle, a resource exists in many different revisions, with each revision being the result of authoring and applying a change. Resource governance has a single resource as its root object and is the process of governing decisions on that resource throughout its life cycle, independently of external context.

In contrast, change governance has as root objects those various contexts in which change is applied. Specifically, a *change context* is an anchor point for a series of changes against a current state. A change context has the following characteristics:

- Has a particular purpose (such as a large project, a small development task, a bug fix, a runtime policy adjustment, or other undertakings)
- Exists within a particular one of the three life cycles in the enterprise landscape (but can trigger cascading changes impacting other life cycles)
- Defines the current (portfolio or planning) state that is the foundation for change
- Records all resource changes (typically multiple) that are done to fulfill the purpose

As illustrated in Figure 8-2, a change context has its own life cycle that is independent from the resources that are affected. That life cycle (whether measured in minutes or years) ends as soon as the purpose of the change is either completed or is abandoned.

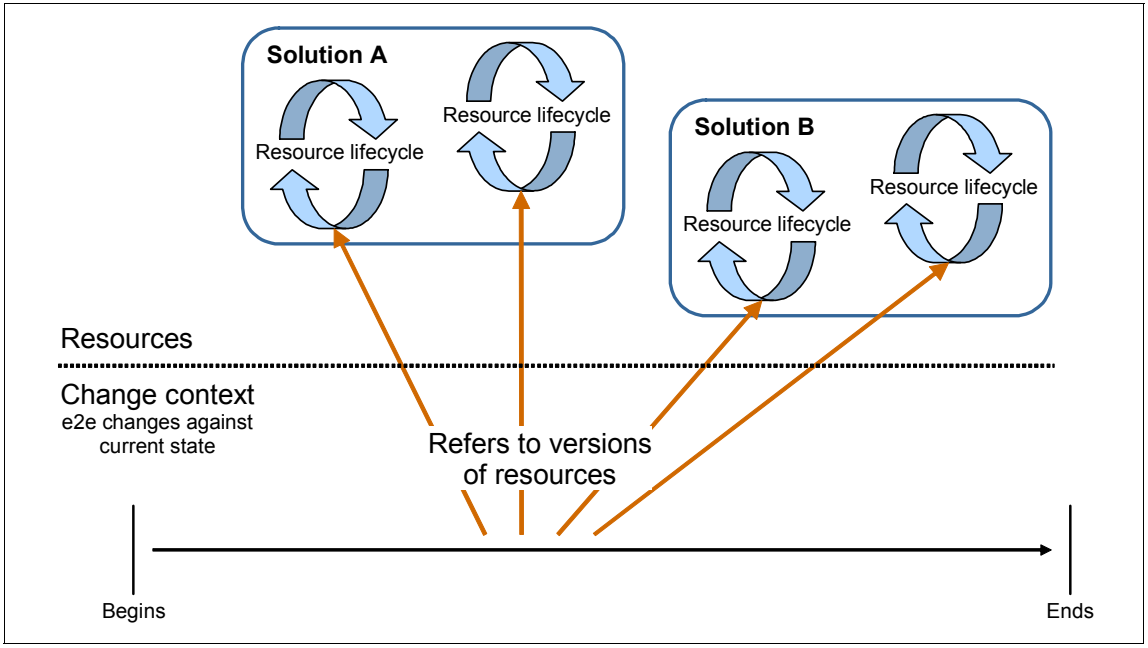

Figure 8-2 Tracking multiple related resource changes in a change context

The result of a change context life cycle, if not abandoned, is a new current state of the solution portfolio or possibly of the enterprise architecture. Contrast that with a resource life cycle where it does not really make sense to talk about a

result. When the resource life cycle has ended, the resource is no longer available and only historical traces remain.

It is worth noting that not everything in a completed change context ends up in the new current state. Often helper artifacts, such as intermediary work products, change context-specific requirements, and so on, are thrown away when the change context completes.

Although the resource life cycles and the change context life cycles are distinct and non-related, it can often be necessary to shield the resource changes done within a change context from anyone outside that change context because changes within the change context have not been committed to the solution portfolio yet. In practical applications, this means that change context revisions of resources should be visible only to people and resources within that same change context. There are different ways of achieving this result, ranging from segmenting of a linear version history to full-blown branched development. The particular mechanism that is used is not important as long as the desired lines of visibility are maintained according to a parallel evolution pattern.

8.5 Governing SOA and BPM change

Analysts and vendors have invested time and attention in SOA governance for years. In most cases, however, the marketplace has not recognized clearly that SOA governance and service governance are two different things. Although service governance is part of SOA governance, SOA governance includes more than that. Service governance is in reality service resource governance. SOA governance adds planning and portfolio aspects and must include change governance as a key component.

The term *BPM governance* is less commonly used. BPM governance is defined as governance of the end-to-end business processes in an enterprise. Similar to the distinction between SOA governance and service governance, we can like-wise talk about BPM governance and process governance. Process governance is process resource governance. BPM governance adds planning and portfolio aspects, and must include change governance as a key component.

Because of SOA and BPM synergies and dependencies, it is necessary to consider change governance holistically across BPM and SOA. Furthermore, change governance in a BPM and SOA environment must include things such as organizational changes, because no process executes properly in an organization that it does not fit.

For more information about SOA and BPM synergies and dependencies, see the IBM white paper *Achieving business agility with BPM and SOA together: Smart work in the smart enterprise*, which is available for download at:

`ftp://public.dhe.ibm.com/common/ssi/ecm/en/wsw14078usen/WSW14078USEN.PDF`

As explained previously, managing and governing end-to-end change processes is of critical importance to an agile enterprise. A good and scalable way to embed appropriate governance in an end-to-end change process is to inject the necessary governance decisions as activities or subprocesses, as illustrated in Figure 8-3.

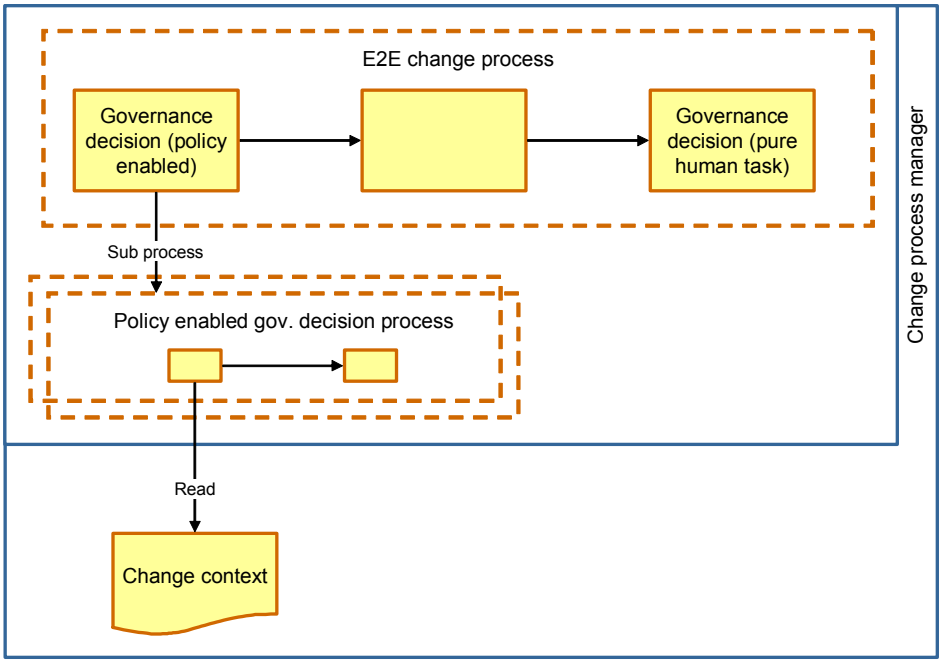

Figure 8-3 Governing end-to-end change processes

Different types of change of course need different end-to-end change processes with different levels of governance. Some governance decisions will be policy-enabled and partially automated and others will be purely human decisions. Changing a policy perhaps needs lightweight governance embedded in a simple change process, while re-engineering a critical process needs much higher degrees of governance, quality assurance and staged deployment. The level of variance can be quite high, yet by applying dynamic BPM capabilities to the process of change, such variance becomes manageable. In the context of BPM and EA synergies, note how change governance decision points in turn can and should also serve as EA governance collaboration and control points.

At the heart of continuous business improvement is, as we explained previously, the proper balance of organizational effectiveness and operational efficiency. Although resource-level governance to some degree can support operational excellence, managing and governing change explicitly is a key enabler for long-term organizational effectiveness. The classical approach of driving change only through structured development does not scale well in a large modern enterprise, nor does it facilitate the critical EA and BPM synergies being explained throughout this book. End-to-end change processes must be flexible and adaptable to the type of change in question. Business processes and solutions need to be dynamically adjustable after deployment to support agile and dynamic change. Parallel changes need to be coordinated and conflicts reconciled. Organizations, processes, and services need to evolve in lock-step to maintain business integrity. In summary, change governance is not a choice for agile market leaders: it is a necessity.

9

Effective enterprise collaboration

We have consistently argued that it is important to realize the value of doing business process management (BPM) and enterprise architecture (EA) in a synergistic fashion. Only when supported by appropriate collaboration and governance processes can BPM and EA roles work effectively towards the common goals of the enterprise.

In our journey through the enterprise landscape, we now arrive back in the 21st century and need to bring together all the pieces required for a nation to be formed from a set of disparate tribes. The key to bringing together EA, BPM, governance, portfolio management, and architecture is effective enterprise collaboration. Interaction in an enterprise obviously happens on a daily basis, but not all interaction constitutes collaboration and not all collaboration patterns are equally effective for a given task.

In this chapter, we elaborate on the enterprise landscape, focusing on the types of tasks that are intrinsic to that landscape and the collaboration patterns that enable effective interaction.

9.1 Refining the enterprise landscape

The tasks that are performed throughout the enterprise landscape can be categorized into activity types, such as conceptualize, analyze, design, construct, and deploy, which can be applied to different types of artifacts. The reason for enumerating these activity types explicitly is that if we do not understand each others work processes, then I might be talking about analyzing something, and you might be talking about building that same thing, with obvious opportunities for misunderstandings and non-effective collaboration.

The life cycles that are defined as part of the enterprise landscape (in Figure 1-5 on page 10) provide context and reason for the various types of activities. In addition, we need to explicitly identify the kinds of activities that make sense to perform within a life cycle, while at the same time formally defining the full set of activity types, as illustrated in Figure 9-1.

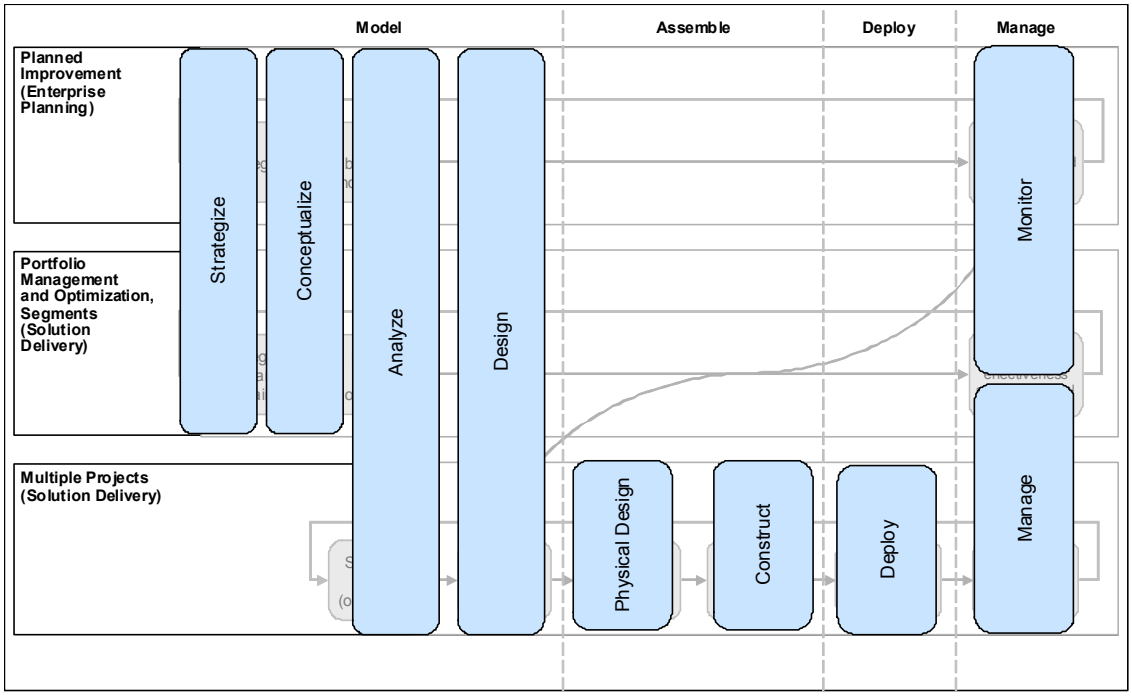

Figure 9-1 Activity types mapped to life cycles

Any activity within the enterprise landscape should be an instantiation of exactly one of the activity types (disregarding support activities such as testing) and exactly one of the life cycle types. If such a mapping is not possible, it is appropriate to question whether one really knows what the activity is for and

about. Without this rigor in applying the enterprise landscape, its full value in support of the journey towards an integrated enterprise cannot be realized.

Note that “level of abstraction” is not part of the classification of an activity. Level of abstraction might be a pre- or post-condition for a given activity but is not a substitute for the activity (type) itself. A given version of an artifact can pass or fail certain level of abstraction conditions, meaning that it can be used for certain activities and not for others. Yet the artifact itself does not have the level of abstraction as an intrinsic part or property of its classification. Indeed the same artifact (in different versions) can fail or pass different level of abstraction conditions at different points in its life cycle.

9.2 Defining enterprise collaboration patterns

Having defined both life cycles and activity types, we can now talk about different types of collaboration and where each should be applied within the enterprise landscape. In general, collaboration types can be grouped into three different collaboration patterns.

The first of these collaboration patterns, *synchronous sharing*, is also the simplest, as illustrated in Figure 9-2.

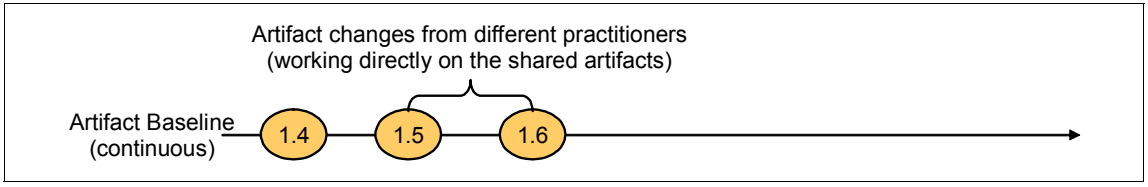

Figure 9-2 Synchronous sharing: Direct collaboration pattern

In the synchronous sharing collaboration pattern, everyone works directly on the same artifacts and all committed changes are visible to everyone immediately. There is no change control mechanism beyond the synchronous sharing of the same model and possibly some kind of notification mechanism that alerts practitioners to changes. Thus, this collaboration pattern is relevant mostly for small groups working within a single domain.

The second collaboration pattern, *parallel evolution*, is perhaps the most well known, has been applied within software development for decades, and is well described in industry literature. See Figure 9-3.

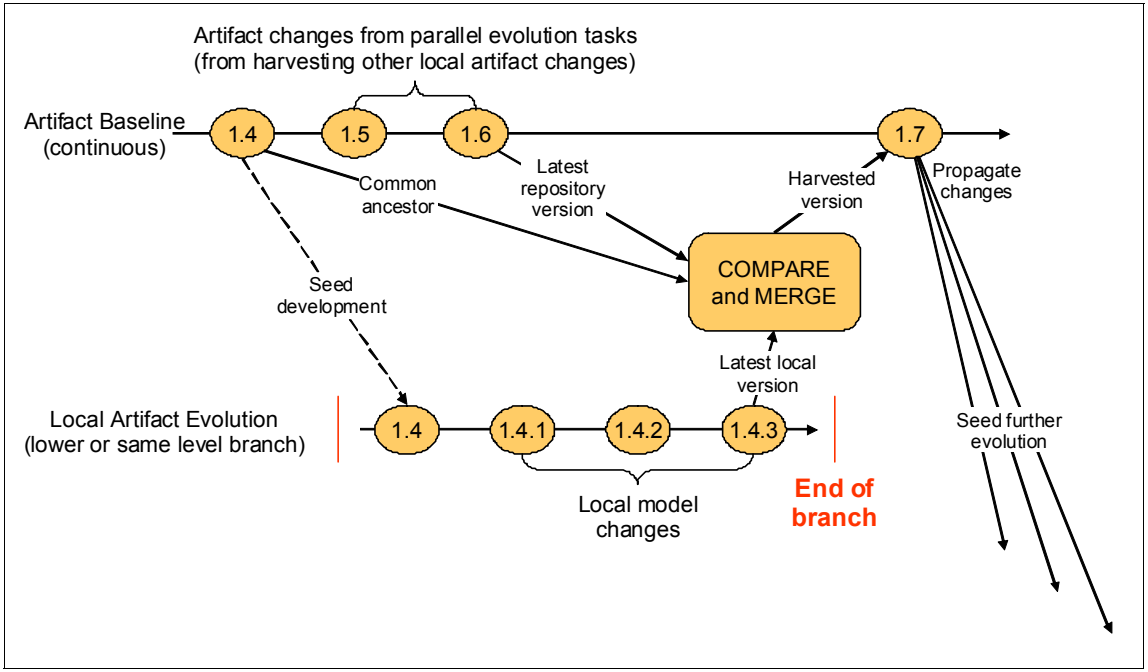

Figure 9-3 Parallel evolution pattern

In the parallel evolution pattern, local work is isolated from other (parallel) changes and is not visible to practitioners who are outside the local context until the work is merged with the main portfolio of artifacts. When initiated, local work is seeded with existing artifacts that need to be changed. When completed, changes are compared to the latest (shared) repository version and merged back into the portfolio context. An enterprise policy decision typically determines how many levels of parallelism to support and which mechanisms to apply for seeding and merging.

The third collaboration pattern, *target and feedback*, is as important as the other two but is rarely talked about in any formal sense. This pattern is appropriate for any kind of architectural governance. As an example, Figure 9-4 shows the collaboration across enterprise planning and solution delivery life cycles.

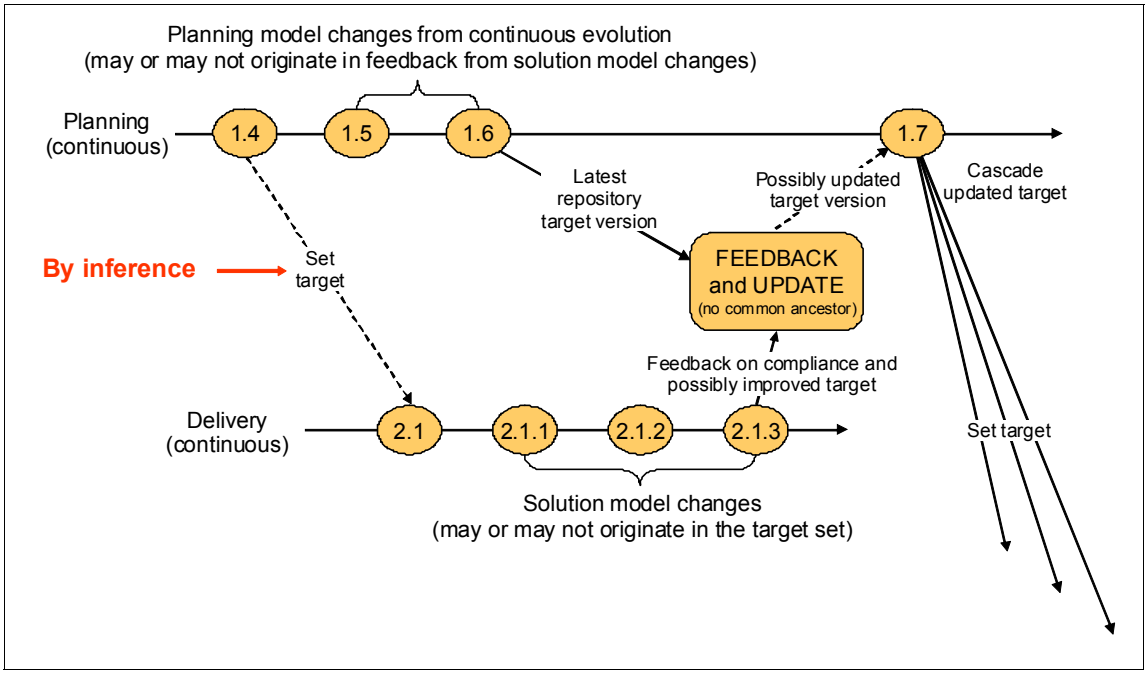

Figure 9-4 Target and feedback pattern

In the target and feedback collaboration pattern, work in one context sets targets for work in a different context.

A defined target (standard, pattern, and so on) is intended to be honored by solution delivery artifacts. Targets (new or changed) are often activated through raising change requests downstream or through some kind of publishing mechanism. It is a policy decision as to when each local delivery effort must conform to the higher level target models.

Feedback is an important part of the target and feedback pattern. After the target has been applied to one or more solutions, it is crucial that feedback is provided from the solution delivery life cycle in the following manner:

- How well was the solution able to comply with the targets?
- Are there suggestions on how the target might be improved for future use?

The first type of feedback allows the enterprise planning tribe to monitor progress and compliance. The second type of feedback allows the enterprise planning tribe to selectively (if they agree with the suggestion) adjust their architectural targets based on real experience with using them. Note that it is the enterprise planning tribe that decides whether to apply suggested changes. If the enterprise planning tribe disagrees, they will throw away the suggestion; this is one of the subtle but important differences between the target and feedback pattern and the parallel evolution pattern. If the enterprise planning tribe decides to accept the suggested changes, the updated targets (standards, patterns, and so on) can in turn (if important enough) be applied to other ongoing solution delivery efforts. It is a policy decision when to cascade to how many ongoing solution delivery efforts.

Model transformations are virtually never applied across the life cycle boundaries that are involved in the target and feedback pattern. The targets are used as references, not as solution seeds. Changes across the planning and delivery life cycle boundaries are coordinated but are not synchronized. It is legitimate that a solution does not 100% fulfill an architectural target. This simply constitutes an exception and is handled as described in 3.3, “Integrated strategic planning” on page 41. When to coordinate changes and at which point in the individual life cycles is an important design point for architecture governance processes and procedures.

At a minimum, targets should be set at the beginning of a solution delivery project and feedback should be provided at the conclusion of a solution delivery project. More frequent coordination might be desirable, depending on the nature of the targets and solutions that are involved. Also, some enterprises scale architectural governance by applying enterprise planning targets not just to projects but also to the portfolio of existing assets. Coordinating with the portfolio management life cycle in this manner is an excellent way of ensuring synergistic collaboration between, for example, enterprise architects and process owners.

To better understand the target and feedback pattern, a real-world analogy is one of city plans, building codes, and skyscrapers:

- The city plan is engineered in an enterprise planning life cycle, laying out the desired future state and standards of the city.
- Building codes (targets) are established to regulate the way individual buildings are built according to zoning and purpose.
- Skyscrapers are constructed in multiple solution delivery cycles, each of which applies the building codes. Occasionally, a builder might need approval for building code exceptions.

A change in the city plan can impact the building codes that apply to a particular skyscraper, which can result in changes in skyscraper construction. In addition,

city policy defines timelines, enforced level of compliance, and other governance parameters that are related to building codes. An example of feedback that can change the building codes is new knowledge gained as a result of failures in constructed buildings.

Note that some building codes are mandatory (for example, based on legislation), and other building codes are advisory in nature (for example, based on aesthetics). This point illustrates that not all targets are absolute. Thus, an important aspect of understanding how to apply an architectural target is understanding the degree of enforcement that is related to it.

9.3 Collaboration through linking and cloning

In Chapter 6, “Stop copying; start linking” on page 83, we explained the advantages of linking versus copying. Now, we need to understand how a linking approach can support our three defined collaboration patterns:

- Direct collaboration: No linking or cloning is needed; the current version is always used.
- Parallel evolution: When a parallel context is branched off from the main stream of modeling artifacts, a clone is created for any artifact that is changed within that parallel context. It is a *clone* and not a copy, because it has its own identity (in this case a different version) and is linked to the original (in support of a later three-way compare and merge).
- Target and feedback: Generally, targets are linked to the solution delivery artifacts to which they apply in order to support traceability and coordination of changes. In some cases, the target might be cloned to seed a new solution delivery artifact. In such cases, the new artifact is not a new version of the target but is a completely different artifact with its own independent life cycle.

None of these collaboration patterns require copying. In fact, copying breaks the collaboration patterns due to loss of traceability and transparency. This observation is consistent with the fact that copying breaks three of the principles of actionable architecture in that the context is lost, there is little collaboration between the tribe working with the original and the tribe working with the copy, and the copy is disconnected from the original.

9.4 Best practices for applying collaboration patterns

Having defined the vocabulary for life cycles, activities, and collaboration patterns throughout the enterprise landscape, we can now provide preferred practices for

where and when to apply which collaboration patterns. In general, collaboration can occur across the following types of boundaries:

- Life cycle boundary
- Resource domain boundary (for example, across processes and services)
- Activity type boundary (for example, across analysis and specification)

Depending on the particular boundary that is crossed, consider using the collaboration patterns as listed in Table 9-1.

Table 9-1 Collaboration patterns

Situation	Collaboration pattern
Collaboration across enterprise planning and solution delivery	Target and feedback
Collaboration across portfolio optimization and project	Parallel evolution
Collaboration within enterprise planning	Synchronous sharing
Collaboration within a single resource domain and single activity type	Synchronous sharing
Collaboration within a single resource domain and across activity types	Synchronous sharing or target and feedback
Collaboration across resource domains	Target and feedback

Given that simultaneous collaboration across multiple boundaries is an anti-pattern to be avoided if possible, this list of situations is exhaustive. Note that the guidance that we provide is independent of whether collaboration occurs inter-enterprise or intra-enterprise.

The case with collaboration within a single resource domain and across activity types is the only situation that has a “depends” guideline. The reason for this is that, depending on whether the actual situation concerns an elaboration of the same logical construct or concerns one construct that is a requirement for another (for example technology independent specification and technology-dependent realization), consider using different collaboration patterns. Typically the exact methodology that is applied triggers one or the other across a given boundary. Thus, choose carefully the collaboration pattern that fits the methodology.

Actual collaboration within or across life cycles and activities requires that one or more tribes are involved. Consequently, to apply these guidelines, we need to understand how the tribes of the enterprise map to the enterprise landscape. Figure 9-5 shows an example for a fictitious enterprise environment.

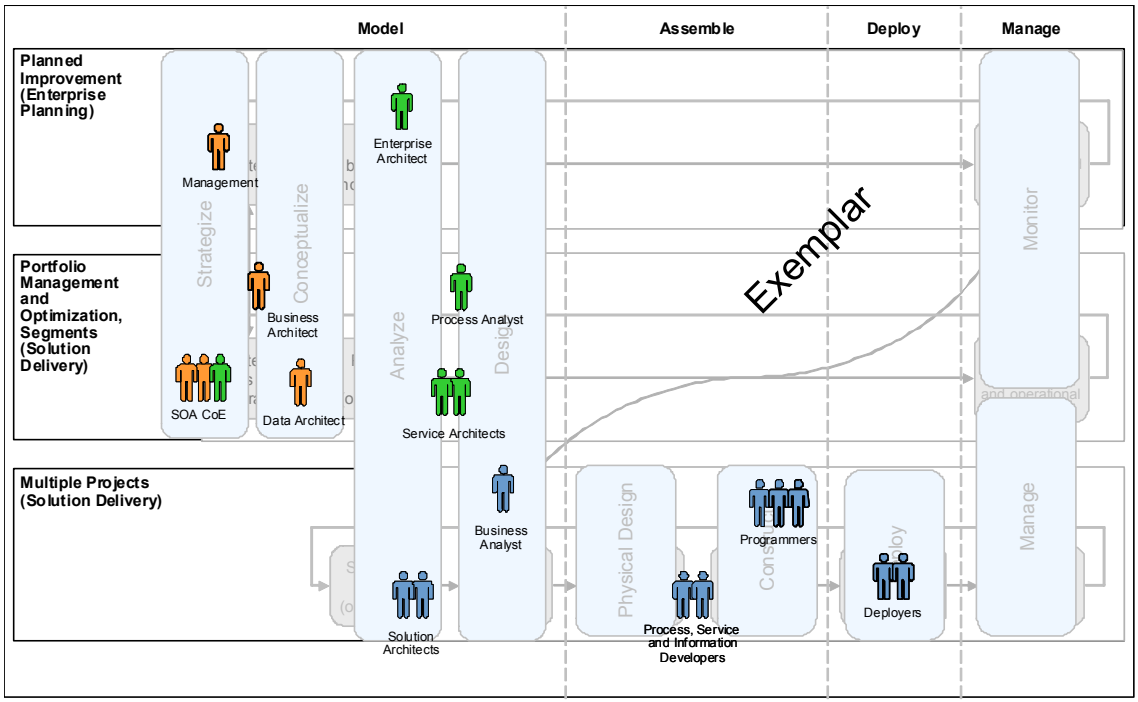

Figure 9-5 Mapping the tribes of the enterprise

Figure 9-5 is only an example. No generic mapping exists. Each enterprise must analyze and map its own particular roles and tribes onto the enterprise landscape.

Part 3

A worked example

In the first two parts of this book, we explained concepts and methods that allow enterprises to effectively and synergistically collaborate across business process management (BPM) and Enterprise Architecture (EA) boundaries. Furthermore, we presented that such collaboration is a necessity for organizations that want to move towards better business outcomes.

In this part of the book, we provide an example of how to link and optimize the planning life cycle using EA capabilities and the solution delivery life cycles using BPM capabilities. Our example is based on a fictitious company called *JKHL Enterprises*, which provides financial and banking services to customers globally.

JKHL Enterprises provides banking services to customers. The bank provides various services through online, branch, and telephone offerings. These services differ based on the geographies within which the company operates. Where possible, the bank wants to standardize both its process and IT infrastructure and re-use as much of this infrastructure as possible to reduce cost and improve quality.

JKHL Enterprises has an enterprise architecture capability that provides strategy and guidance on enterprise-wide architecture initiatives. The bank also actively manages the portfolio of business processes, monitoring operational performance against well-defined key performance indicators and applying BPM

to those processes that need to be improved. The BPM and EA teams work hand in hand to ensure better business outcomes for the enterprise as a whole.

This part includes the following chapters:

- Chapter 10, “EA applied” on page 121
- Chapter 11, “BPM applied” on page 147
- Chapter 12, “Linking EA and BPM artifacts” on page 163
- Chapter 13, “Four select collaboration scenarios” on page 173

If you are interested only in information about how to link, go directly to Chapters 12 and 13. You do not need to first read Chapters 10 and 11.

Although our worked example does not map out a complete enterprise architecture for JKHL Enterprise or a complete BPM portfolio or solution, it does use a big enough subset of EA and BPM work products to demonstrate how the EA and BPM disciplines are linked in practice and how changes are managed across their collaborative boundaries. We use current IBM tools to provide the screen captures and graphics in the example, yet the set of techniques and work products that are applied can be instantiated on any mainstream BPM and EA tools that support link-based collaboration patterns.

10

EA applied

This chapter applies enterprise architecture as a discipline to the JKHL Enterprises example. The elaborated example is not complete, but provides a slice through typical EA work products. Although we use current IBM tools to produce screen captures for this chapter, what is shown could have been produced with other mainstream EA tools.

Note that all work products in this chapter are enterprise planning work products, meaning that they are to be thought of as either representing current state or representing some future target state. The only way to execute on the desired changes is to apply the EA targets to ongoing or future solution delivery activities. If the EA targets are not achieved in the near future, no operational breakages or immediate inefficiencies will occur. However, it might result in less profitability over time or even potentially a disruptive business failure if JKHL Enterprises fails to adapt to critical market movements. An example of the latter is the US auto industry that was optimizing (successfully) for an environment where SUVs were the obvious cash cow, only failed to react in time as the auto market shifted to focus on smaller and more fuel efficient cars.

10.1 Business architecture

The first EA domain within which the JKHL Enterprises example is elaborated is business architecture.

10.1.1 Business motivation model

JKHL Enterprises decided at a strategy meeting that the company needs to increase cross selling of its product portfolio to existing customers. To increase market share, the company needs to increase the average spend of its customers. The *business motivation model* (sometimes called an *Enterprise Direction Diagram*) provides a description of the strategy and the goals of the enterprise. Figure 10-1 on page 123 illustrates the current strategies, tactics, direction, and objectives of JKHL Enterprises.

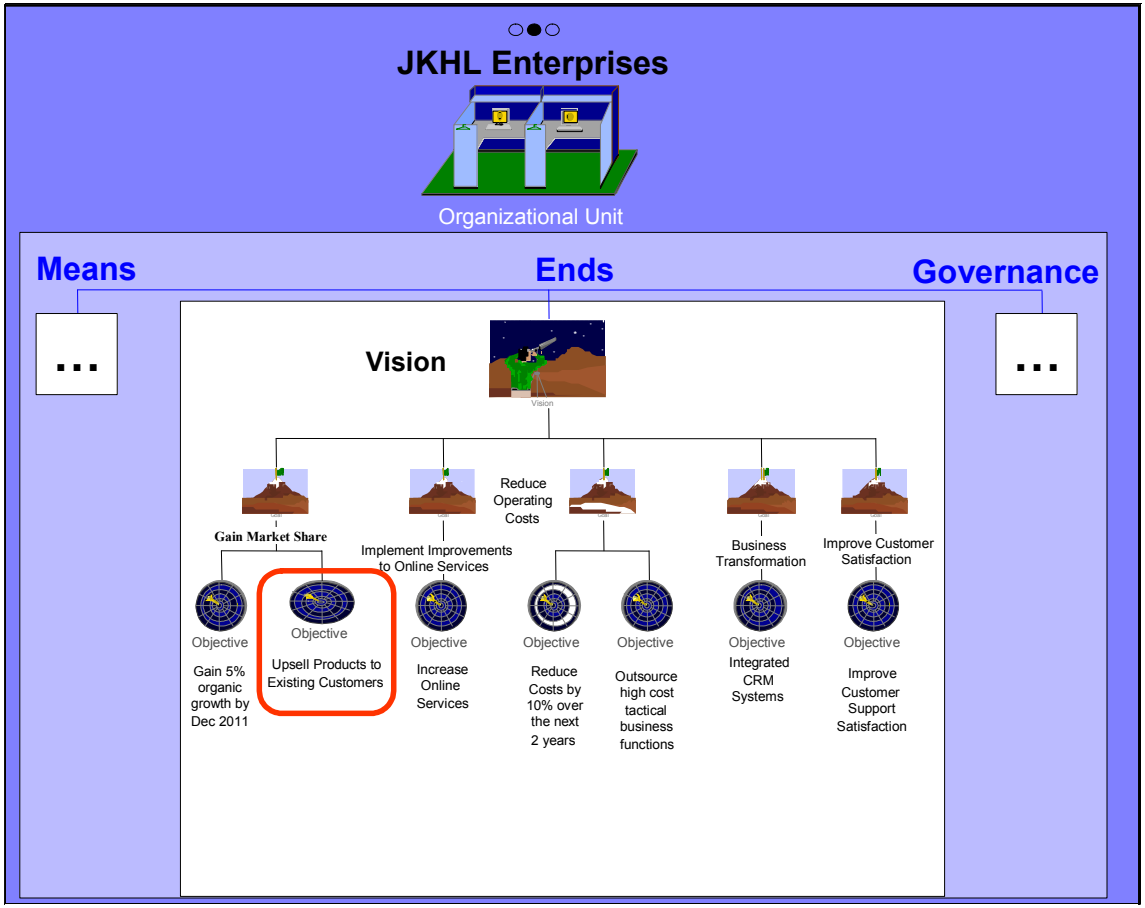

Figure 10-1 Business motivation model

One goal of the organization is to gain market share. In addition, a new objective has been added to the model, Upsell Products to Existing Customers, which is related to the goal of gaining market share.

10.1.2 Organizational chart

The organizational structure of JKHL Enterprises can be represented in an organizational chart, as shown in Figure 10-2. The organizational chart represents the organization as a whole and can be decomposed into more focused organizational charts.

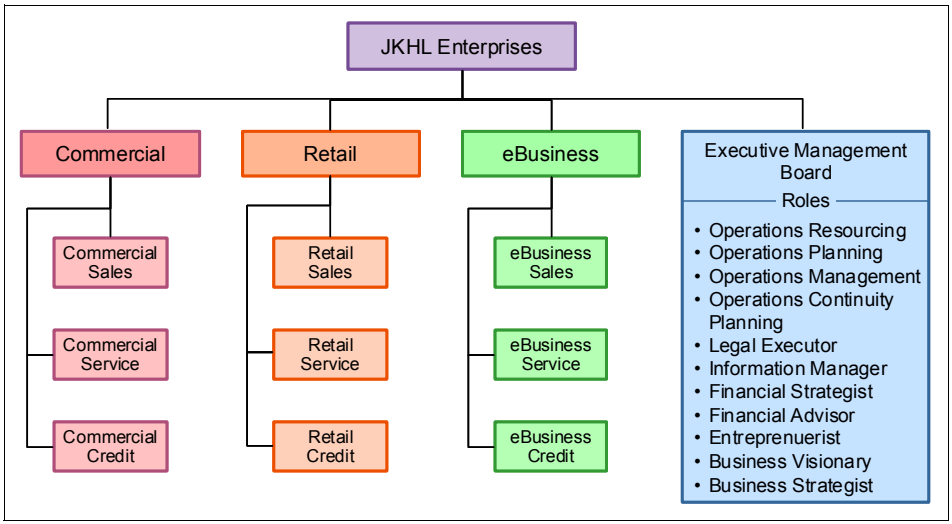

Figure 10-2 JKHL Enterprises organizational chart

The organizational structure also contains the actors who are associated with the organizational units and any skills or competencies that are required to perform a particular role. Skills in particular might be impacted by the new up-sell objective.

10.1.3 Functional hierarchy

The functional hierarchy shows the major business functions that exist inside the organization, as illustrated in Figure 10-3. The business functions describe the types of operations that JKHL Enterprises carries out to support its banking and finance operations.

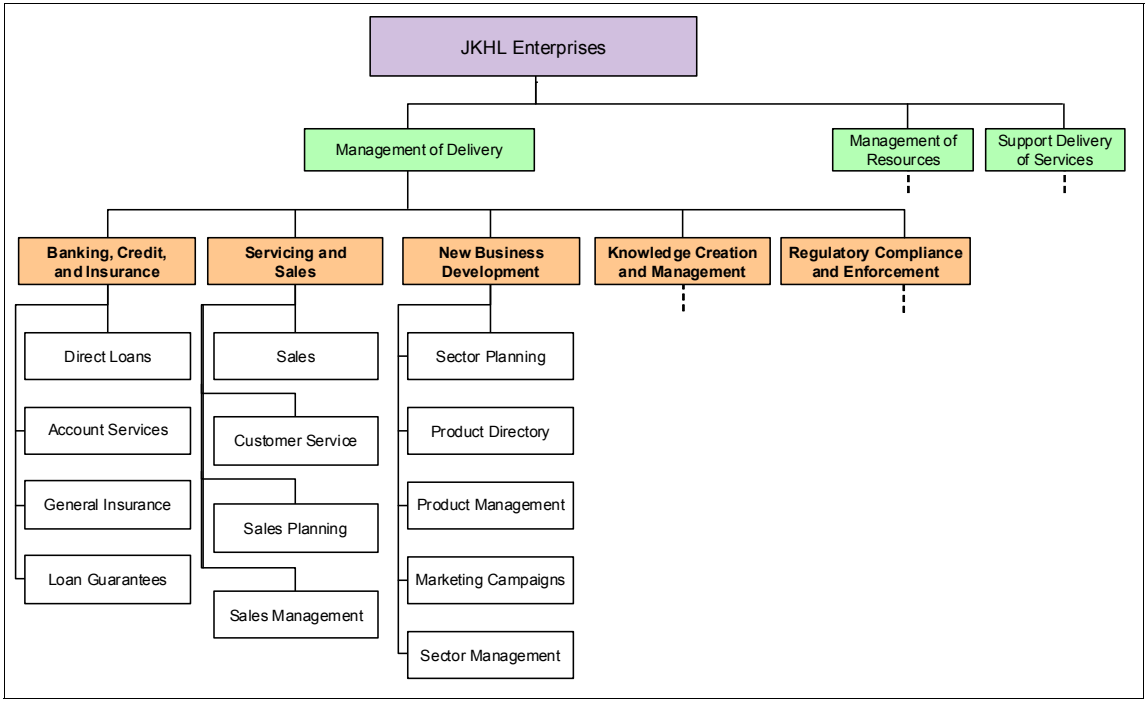

Figure 10-3 JKHL Enterprises functional hierarchy

We can identify and extract the subset of business functions that potentially can be affected by the up-sell objective, such as the subset illustrated in Figure 10-4.

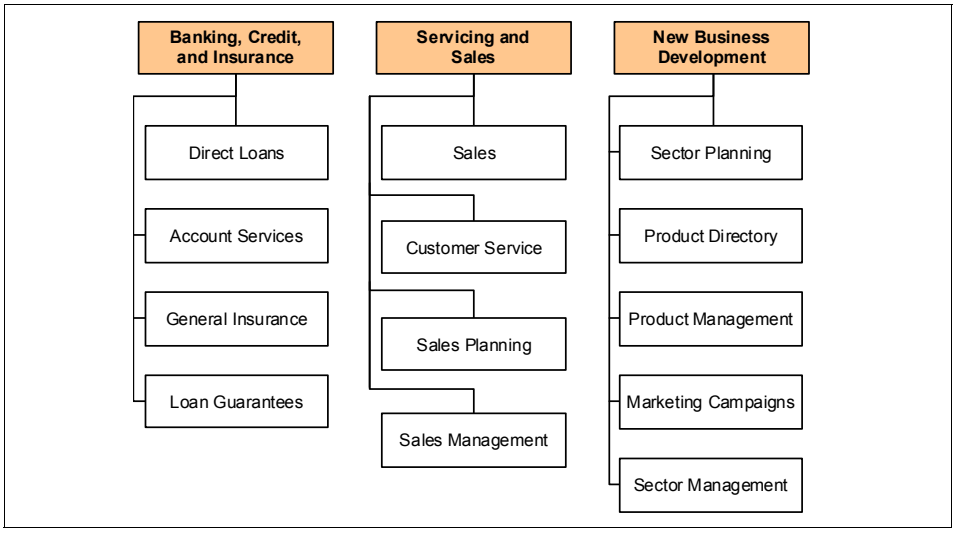

Figure 10-4 JKHL Enterprises functional hierarchy subset

10.1.4 Business services

JKHL Enterprises provides a set of business services that provide specific capabilities for the business and its partner network, as illustrated in Figure 10-5. The business services are explicitly defined with an interface to the outside world and are governed by JKHL Enterprises.

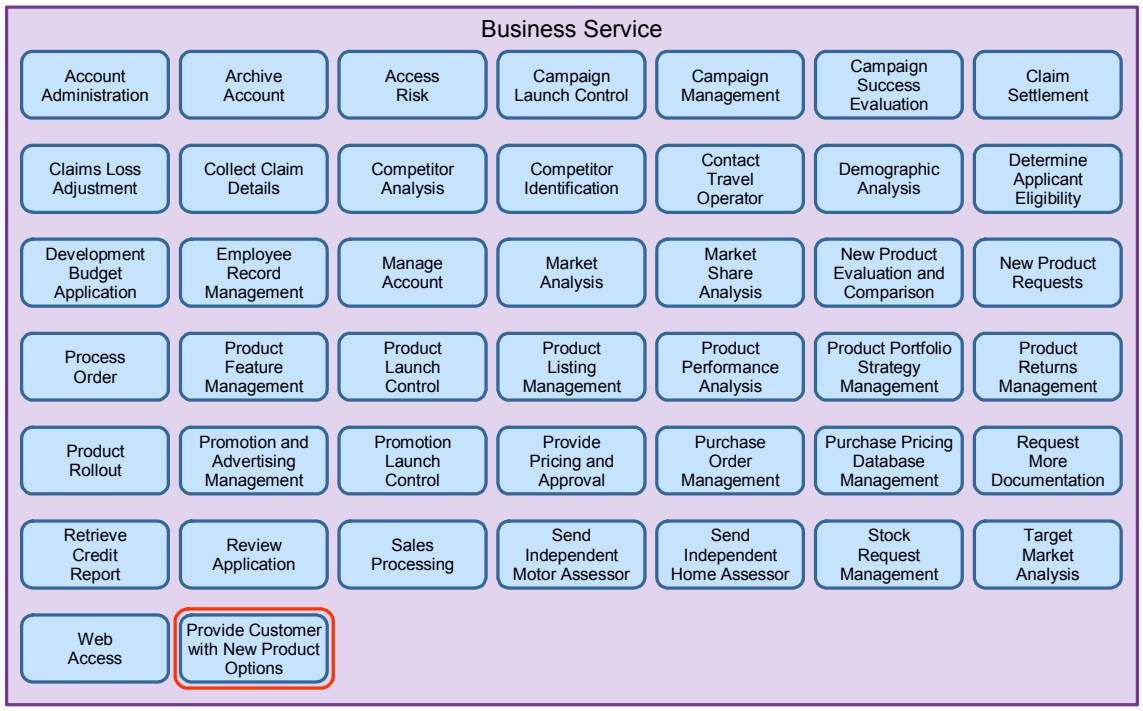

Figure 10-5 JKHL Enterprises business services

Figure 10-5 shows that a new business service, Provide Customer with New Product Options, has been added to the future state EA model. This will be a self-contained service that provides a necessary capability to support the new business objective.

10.1.5 Business service to actor mapping

A business service has interactions with actors. The *actors* are the consumers of the business service. In the JKHL Enterprises scenario, the Customer Services Representative and Sales Manager actors interact with the Provide Customer with New Product Options business service, as illustrated in Figure 10-6. These relationships are used to identify the organizational impact of the desired changes and to plan accordingly in advance.

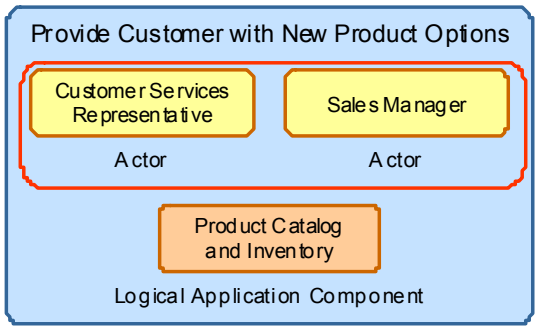

Figure 10-6 Business service and its actors

10.1.6 Business process hierarchy

A business process hierarchy in an EA context provides a blueprint view of the types of process the organization should conceptually support. Figure 10-7 shows the JKHL Enterprises business process hierarchy in catalog form. The business process type named Process Banking Transaction needs to be instantiated by actual process blueprints.

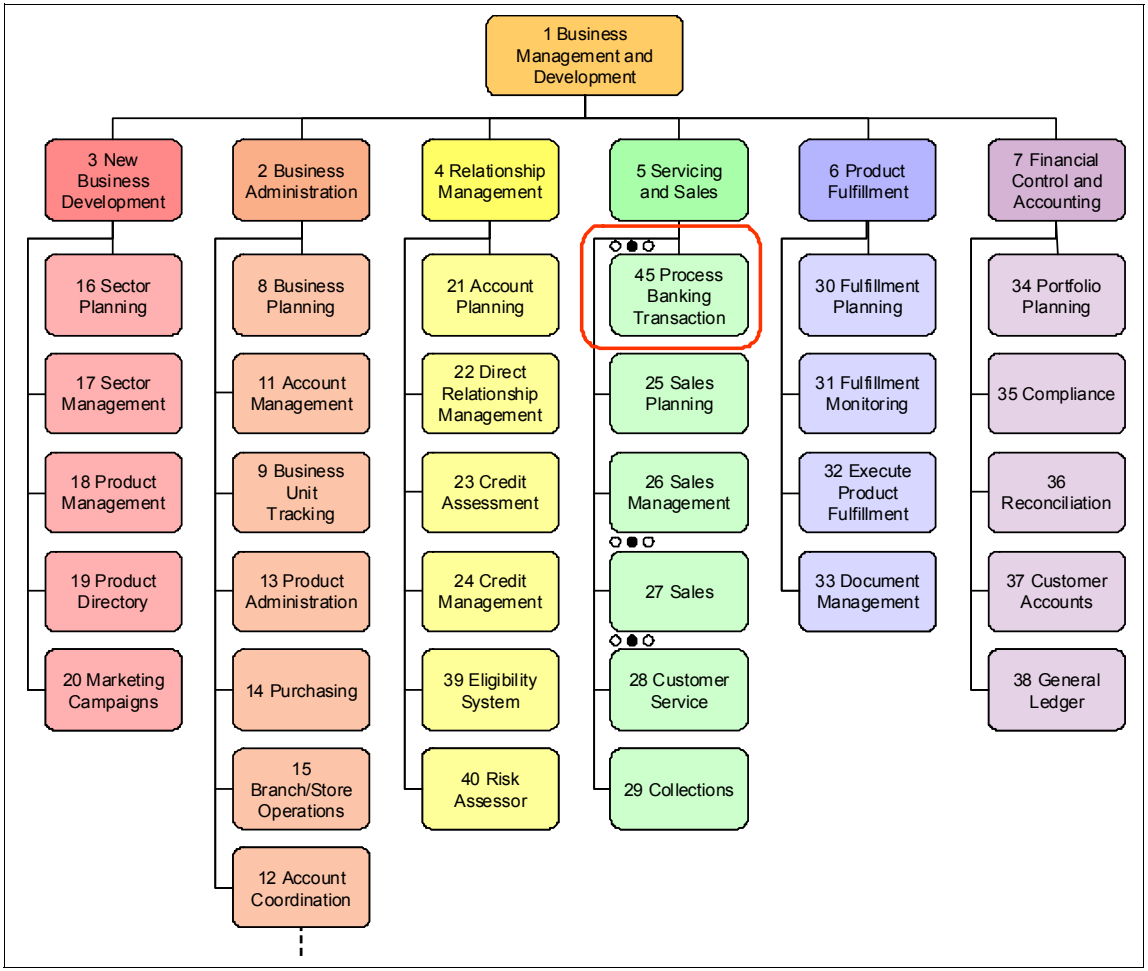

Figure 10-7 JKHL Enterprises business process hierarchy

10.1.7 Business processes

Figure 10-8 illustrates the EA process blueprint that provides guidance for processes that are related to banking transactions.

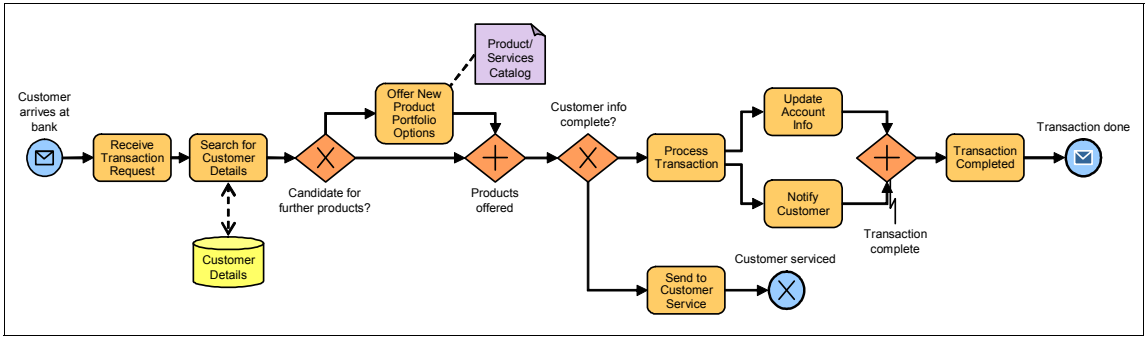

Figure 10-8 Enhanced banking transaction process blueprint

Remember that this is *not* a process model in the business process management (BPM) sense, but instead it is a target or pattern that will be applied to any operational process that has to do with banking transactions (of which there are typically many). One of the key steps in applying the process blueprint is to first identify the operational processes (in the process portfolio) that are in scope for the blueprint. For more information, see Chapter 13, “Four select collaboration scenarios” on page 173.

The model in Figure 10-8 characterizes how an organization might generically put into practice the process of managing a customer transaction. It provides a set of guiding principles for how any customer transaction process should be implemented, not a design for a particular implementation. A particular customer transaction process can be realized manually, electronically, or in a combination of both, depending on the implementation circumstances; such implementation choices are not part of enterprise planning.

The “target” process blueprint is enhanced to support the objective of providing customers with product up-sell options when they need to complete a banking transaction. The operational channels upon which such an enhanced “target” must be applied (through architectural governance) can include online banking, branches, and telephone banking. There can also be regional differences in legislation or IT capabilities, which means that there can be many different operational processes, all partaking in the portfolio optimization life cycle, but none of them a direct concern of EA.

Modeling the enhanced process within EA helps to understand what needs to change in other parts of the enterprise architecture in response to the change in the process blueprint. Figure 10-9 highlights that the enhanced process blueprint requires an input from product/services catalog data. To complete the example, we would also connect the enhanced process blueprint to the new business service, Provide Customer with New Product Options, thereby documenting the change dependency between the two.

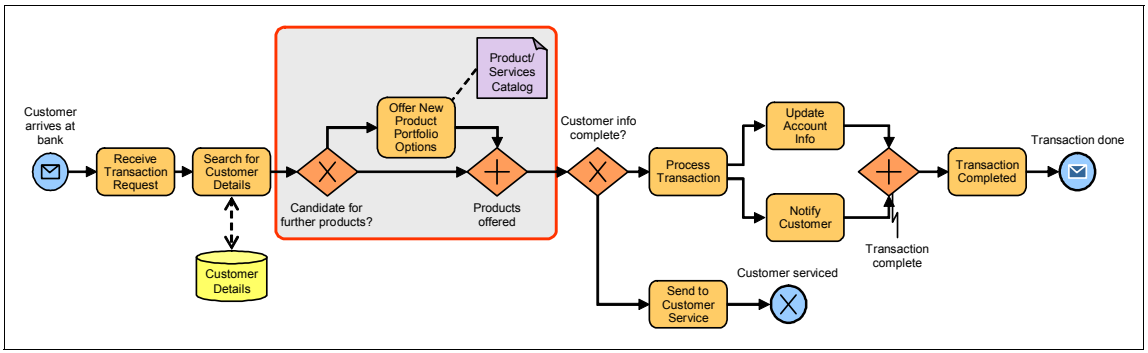

Figure 10-9 Enhanced banking transaction process blueprint

Another part of the EA analysis is the consideration of alternatives. Figure 10-10 shows an alternative that provides a chance to change the existing product portfolio for a customer in addition to adding new products. Alternatives can be compared both with respect to how well they support the new business objective and with respect to how much enterprise change each alternative will require.

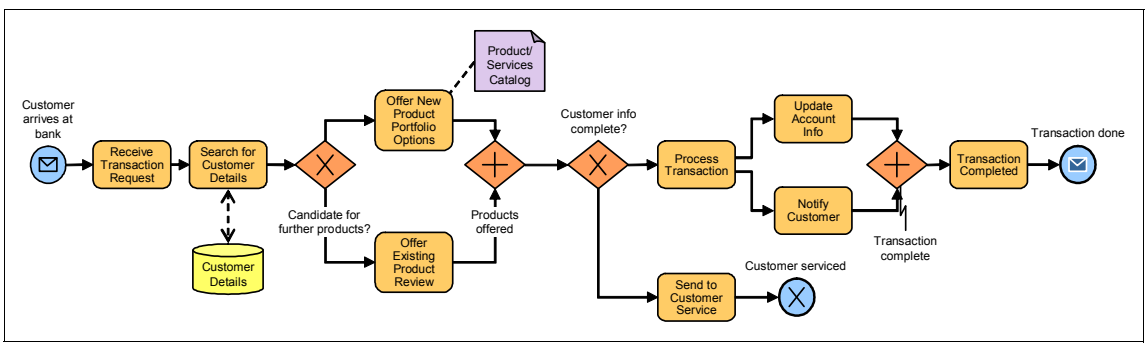

Figure 10-10 Enhanced banking transaction process blueprint with product modification

10.2 Data architecture

Having elaborated the business architecture for the JKHL Enterprises example, we turn next to the data architecture domain.

10.2.1 Class diagrams or entity relationship diagrams

Different modelers of data require different views or viewpoints and different modeling and visualization styles, such as UML Class diagrams or Entity Relationship diagrams. In the JKHL Enterprises example, the data model in Figure 10-11 shows the Customer, Contact History, Contact Record, and Financial Product data (in UML Class diagram form), all of which are required as input to the enhanced process blueprint shown in Figure 10-9 on page 131.

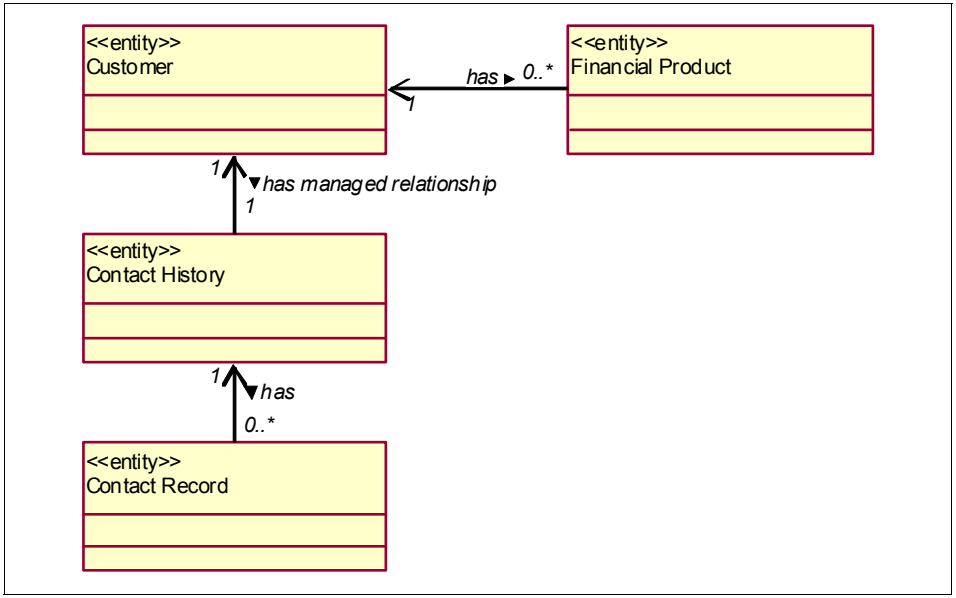

Figure 10-11 UML Class view of data

Figure 10-12 shows the same data model in entity relationship diagram form.

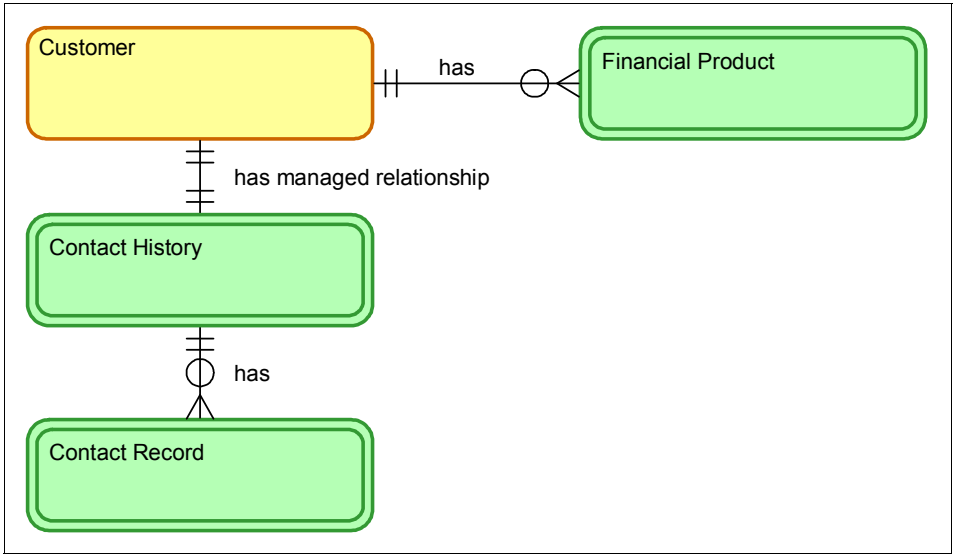

Figure 10-12 ERD view of data

Some tools (such as the IBM EA tool) can show either view based on the same underlying model. Other tools use two different models for the two different representations.

10.2.2 Linking data into the rest of the enterprise architecture

An important aspect within the enterprise architecture is to link the data artifacts to the rest of the EA model to show data impacts when performing architectural analysis. Typical dependencies are data element to business service, data element to process or activity, data element to role, data element to technology, data element to application, and data element to data object providing that data.

Figure 10-13 exemplifies this by showing that the Financial Product data element is used by the Product/Services Catalog data object (which in turn was needed for the enhanced process blueprint).

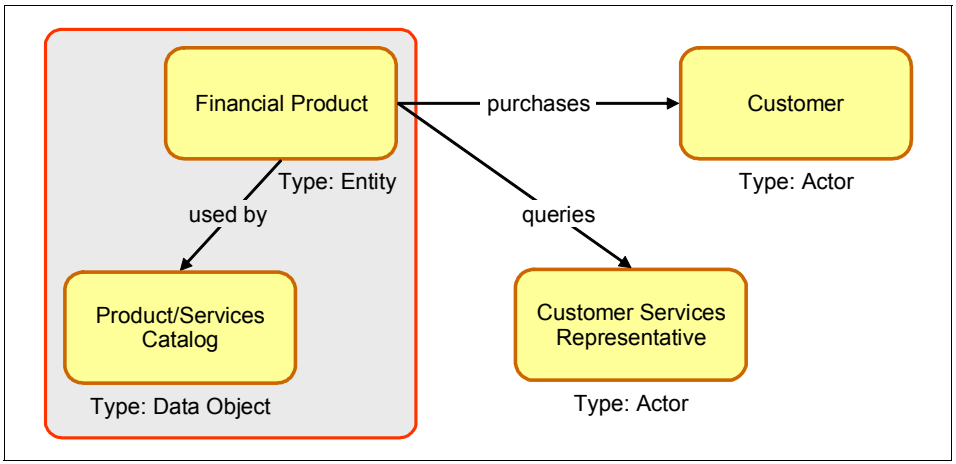

Figure 10-13 Data linkage

10.3 Application architecture

Following the elaboration of the data architecture, next we consider the application architecture domain.

10.3.1 Logical application components

Within the application portfolio, we can lay out blueprints for both physical application components and logical application components:

- A *logical application component* is an encapsulation of application capability. The application capability is independent of its implementation characteristics.
- A *physical application component* is the realization of a logical application component, typically an existing application.

Figure 10-14 shows that a Product Catalog and Inventory system is required and that it needs to read information from a product details repository/database. This new capability is required to support JKHL Enterprise's ability to offer the products from the enterprise product portfolio to existing or new customers.

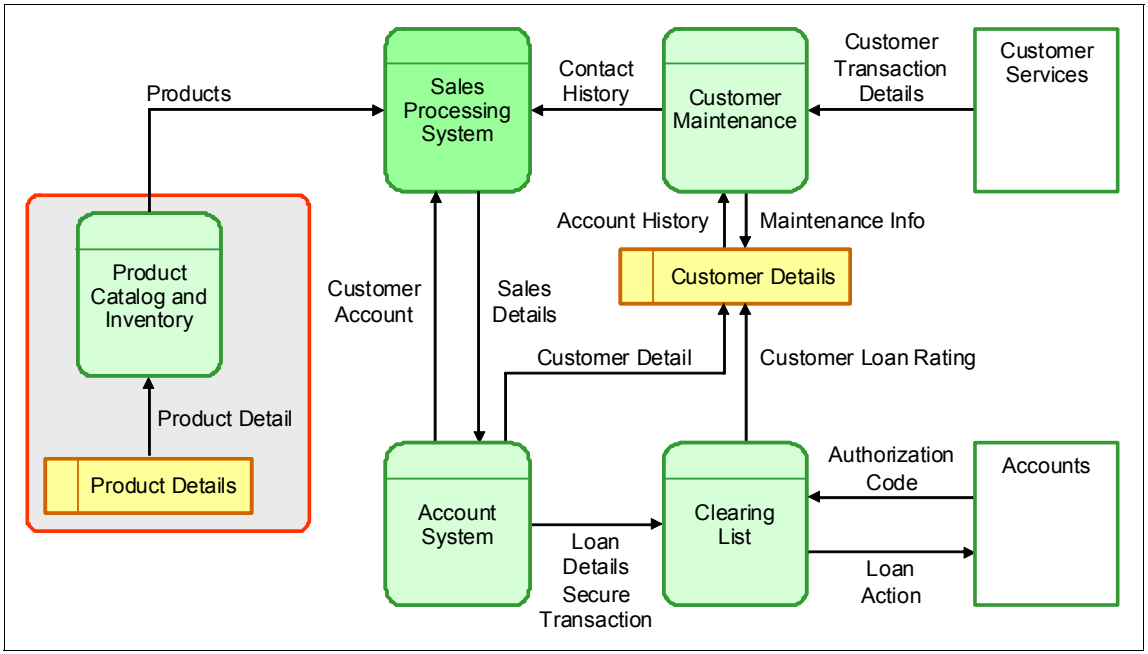

Figure 10-14 JKHL Enterprises logical application component view for sales

10.3.2 Harvesting the application portfolio

Before investing in new applications, JKHL Enterprises can make an assessment of the current applications. There are a number of mechanisms for harvesting the portfolio of applications. The inventory of applications can exist in spreadsheets that are maintained by hand or in databases that are maintained by tools. Many organizations use a Configuration and Change Management Database (CCMDB) to catalog operational assets. Alternatively, it is possible to harvest existing applications by looking at the ERP implementations, such as SAP, to determine the application components that are available and in use.

Often associated with physical application components in the current state enterprise architecture are temporal properties, such as "In service date" and "Retirement Date." Owners, costs, and other physical information is usually also stored with a physical application component. Furthermore, many vendors supply application component road maps, and organizations can inject these road maps into their EA model to determine the capabilities that are available at

a given future date and how these capabilities fit with other aspects of the expected future state at that date.

Figure 10-15 shows the plan for two new physical applications that provide the capability to manage catalogs of products and service offerings.

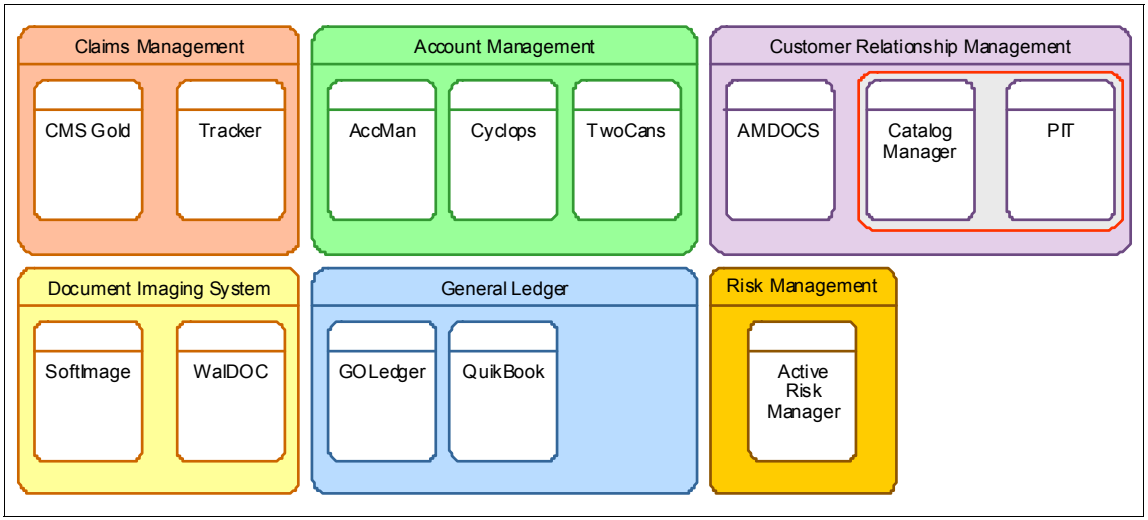

Figure 10-15 JKHL Enterprises physical application portfolio

Figure 10-16 shows the relationship between the logical application component and the physical realizations. The logical Product Catalog and Inventory application is realized through two physical real-world applications:

- Product Inventory Tool (PIT)
- Catalog Manager

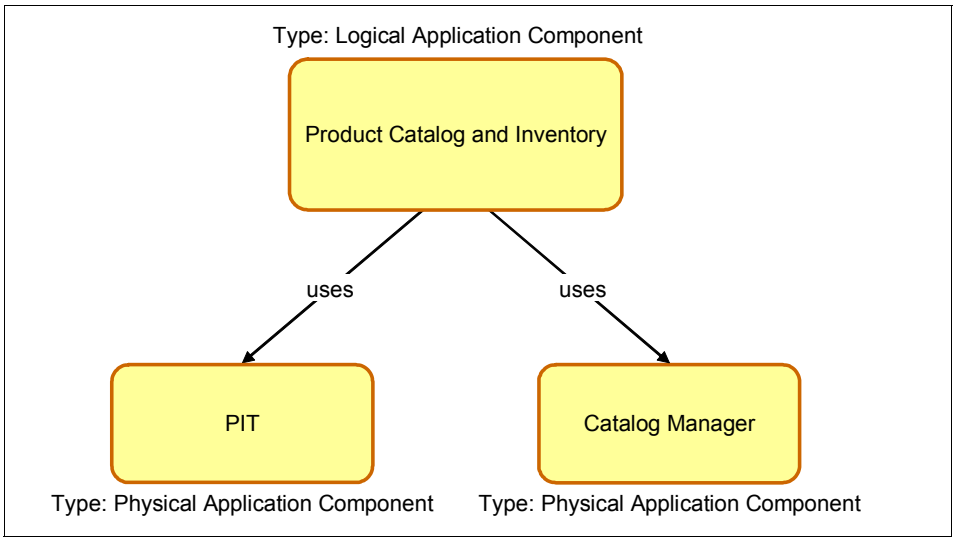

Figure 10-16 Physical instantiations of the logical application component

It is important to remember that none of the EA application component diagrams represent actual delivery of any applications or application changes. They are simply statements of desired or required changes to realize some defined future state of the enterprise.

10.3.3 Mapping applications to business services

The logical application components can be mapped to business services to show how a business service is supported by IT capabilities. Figure 10-17 shows that the business service Provide Customer with New Product Options is enabled by the Product Catalog and Inventory logical application component.

Figure 10-17 Business service to logical application component mapping

10.3.4 Technology components

Technology components describe the types of technology that are used in the organization. Both logical technology components and physical technology components can be used. For example, a telephone is a logical technology component that provides a specific technology capability. A physical component instantiating this might be a mobile phone with General Packet Radio Service (GPRS) characteristics. We can use a network concept diagram to lay out technology patterns and how we expect the technology to interact within our future state enterprise architecture.

Figure 10-18 shows how the Customer Services Representative interacts with technology components within the banking infrastructure. The technology components need to be linked to other EA model elements.

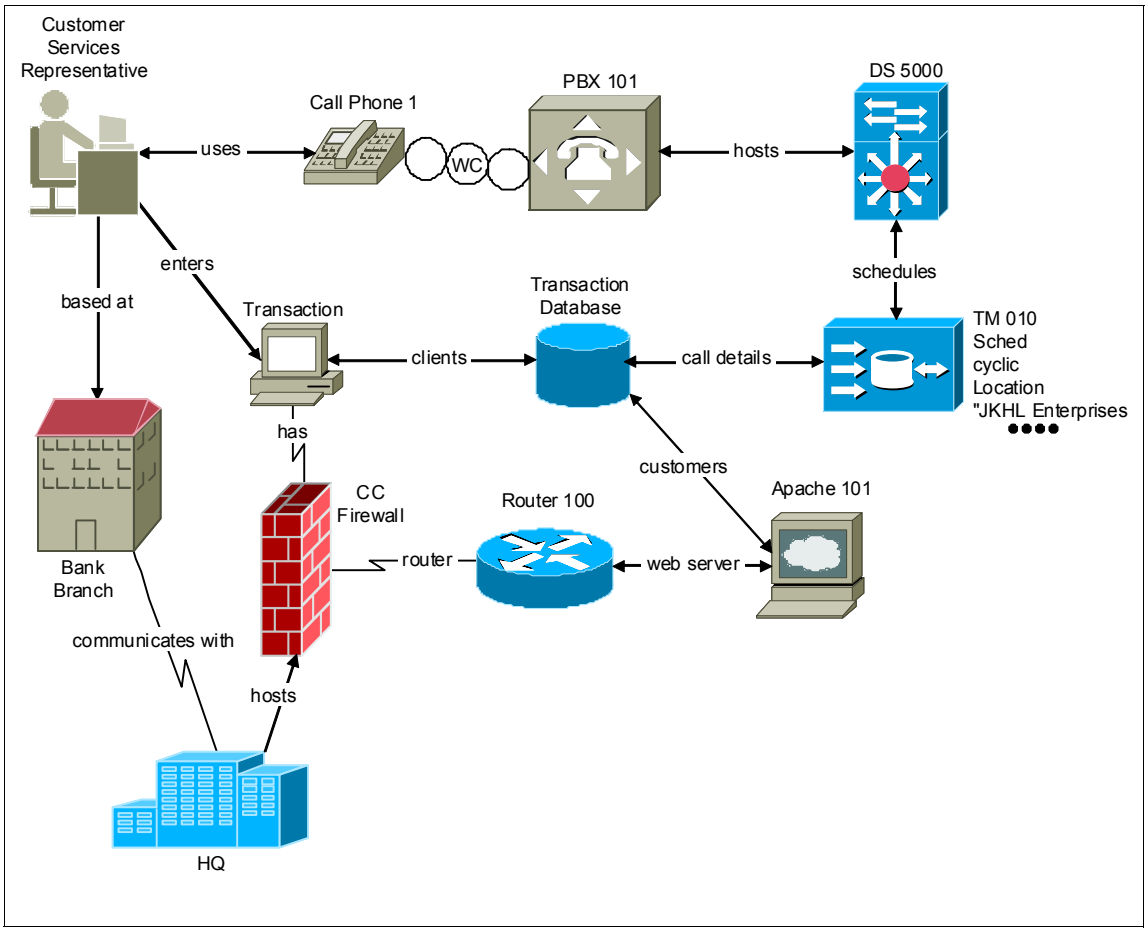

Figure 10-18 Network concept diagram

10.4 Impact analysis

Impact analysis allows JKHL Enterprises to see the various relationships between the elements of the EA model and to detect the impact that a change will have in terms of scope and complexity.

Figure 10-19 shows the effect that the new business objective has as we slice across the architecture. For example, we can see the process that it impacts, because of the relationship between the process and the objective that it supports. We can also see which business services are realized by that process. Note that Figure 10-19 shows only one view across the enterprise architecture with a limited set of relationships.

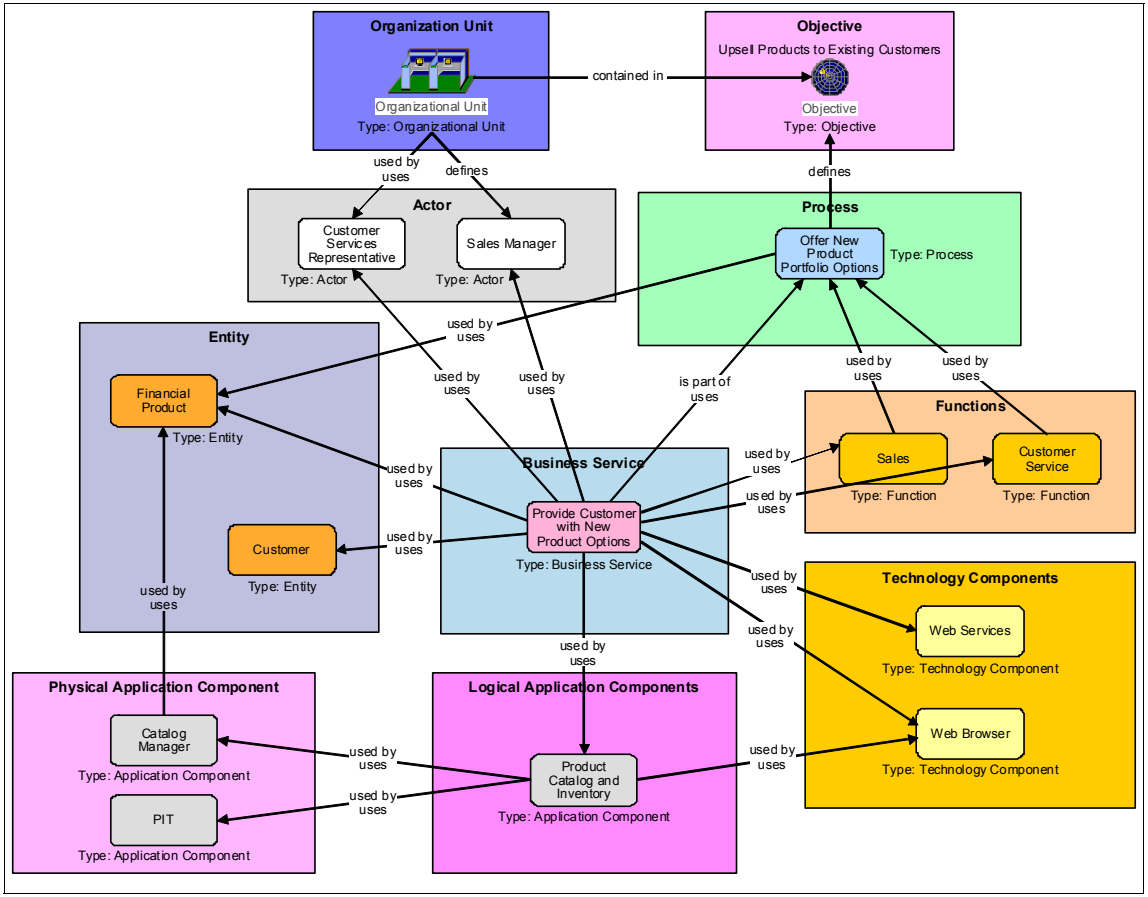

Figure 10-19 JKHL Enterprises impact analysis

We have not explained yet how links to solution delivery artifacts, such as BPM artifacts modeling operational processes, can aid cross-domain impact analysis. We explain this facet of impact analysis for the JKHL Enterprises example in Chapter 13, “Four select collaboration scenarios” on page 173.

Analytics

Impact analysis can be aided by analytics. For example, JKHL Enterprise can examine the business process blueprints to see which processes are customer facing and manual. By doing this, they can focus attention on the roles that perform such processes and increase competency levels to ensure that they have appropriate customer facing skills. See Figure 10-20.

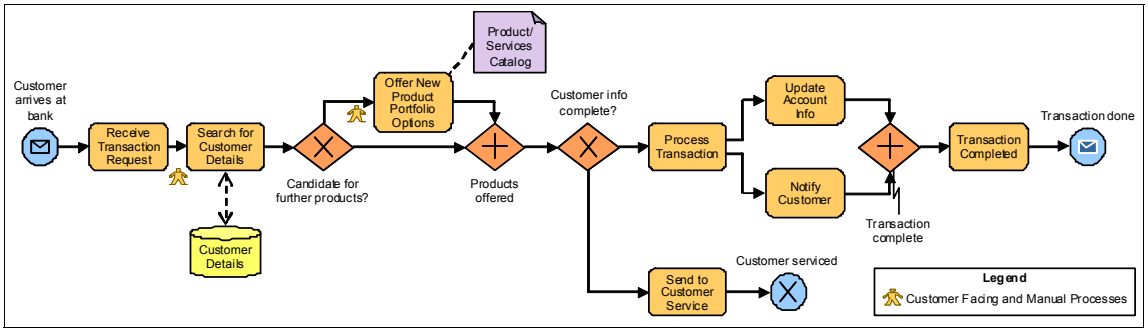

Figure 10-20 JKHL Enterprises analytics example

Furthermore, JKHL Enterprises can use a role to competency matrix to specify the exact skills that are required for customer facing roles that are impacted by a planned change. Table 10-1 shows that the opportunity identifier is a new role in human-assisted transaction processes, a role that needs appropriate skills to support the up-sell goal.

Table 10-1 Role to competency matrix

Role	Competency							
	Calmness	Communication skills	Methodical worker	Numeracy	Organizational	Organizational skills	Telephony	Time management
....								
Complaints Call Handler	X		X			X	X	
Complaints Clerk	X		X				X	
Complaints Manager	X		X			X		
....								
Opportunity Identifier	X	X						X
Personnel Management		X			X			X
....								

10.5 Transition planning

EA target states reflect the available future state options within the EA model. However, not all of these will be implemented, and each set of options and their associated transition plans need to be assessed. JKHL Enterprises can use a series of techniques to differentiate the target states. We explain these techniques in this section.

10.5.1 Model differencing

JKHL Enterprises can overlay model differences between target architectures by looking at a combined view of the two target states. For example, they can view model changes between the two alternative process blueprints that we described previously. In one target state, the model indicates to use a particular set of activities (which offers only new products to a customer), and in the other target state, the model indicates to do the process in a slightly different way (which offers a review of the existing products). Various views can be produced showing the model differences.

The overlay of differences in Figure 10-21 creates a view that shows models from both architecture states overlaid on top of each other, so that differences can be seen visually in one view.

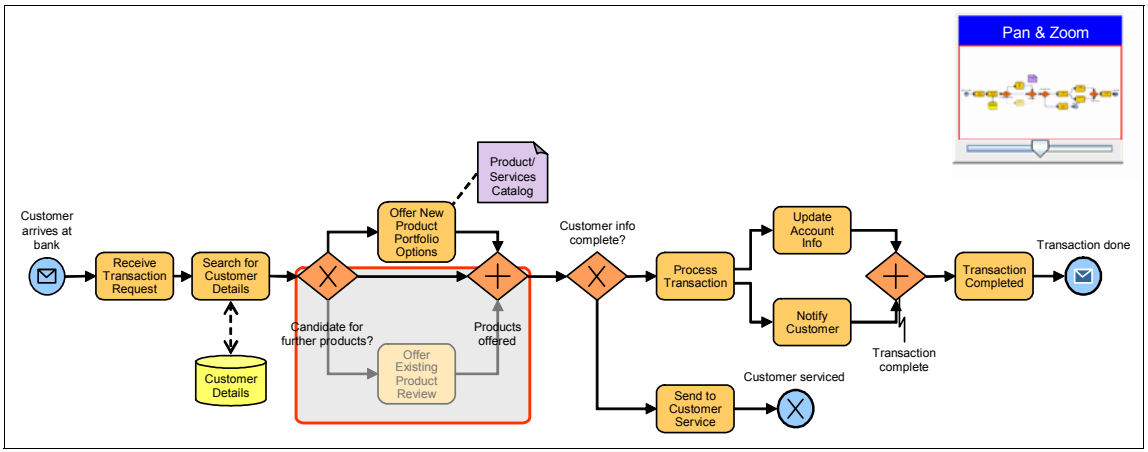

Figure 10-21 Overlay of differences

Side-by-side differences, shown in Figure 10-22, allow model differences to be viewed where the layout of the model views differs in a way that cannot be understood when they are overlaid.

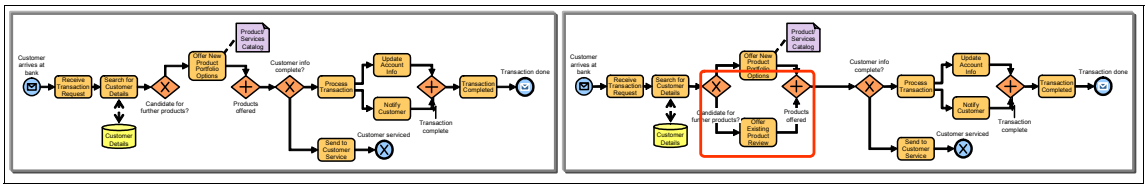

Figure 10-22 Side-by-side differences

Differences can often also be viewed as a textual tree showing what has changed, similarly to using a word-processing capability to see document changes in a text document.

10.5.2 Current state versus target state assessments

Current versus target state assessments is a big topic, and one that we will touch only briefly in this elaborated example.

Figure 10-23 illustrates that JKHL Enterprise can use intelligent dashboards to provide much of the information that is required for decision making about current versus target state architectures and transition plans. These dashboards can be based on cost, risk, resource, and other information. They can be applied throughout the different EA domains. Making a decision about which target architecture to choose is an important choice that needs to be made based on the best available information.

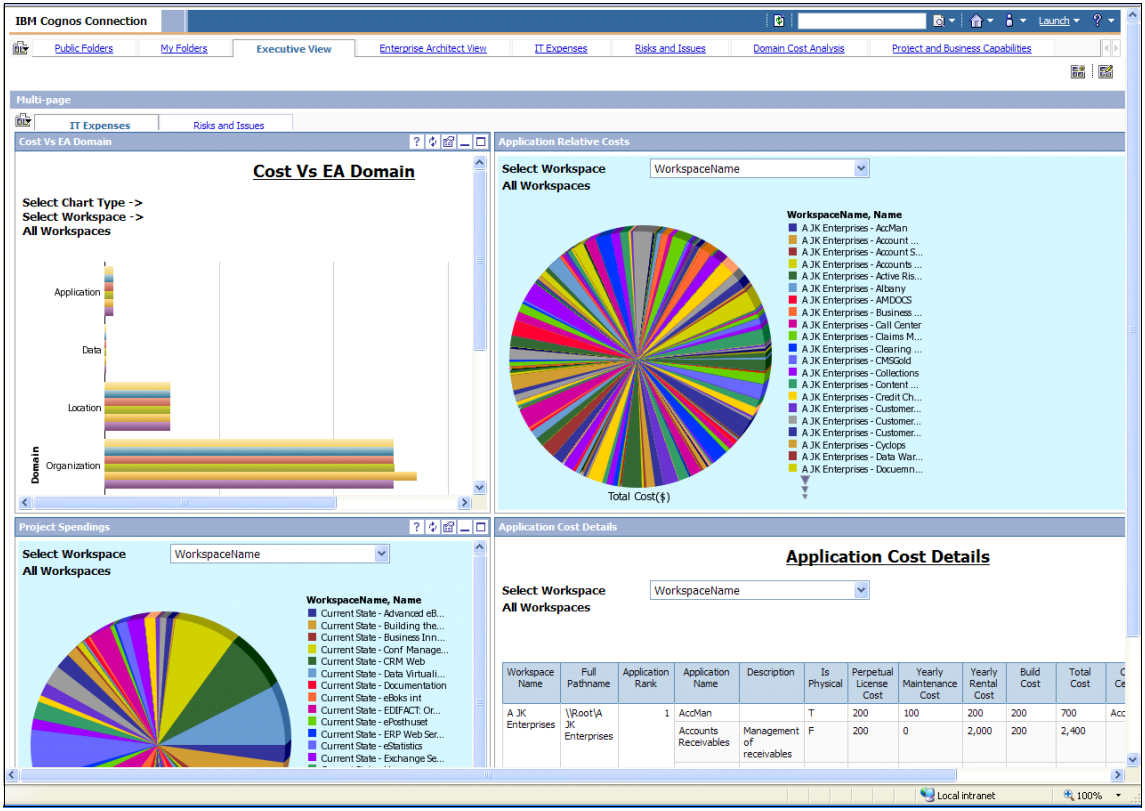

Figure 10-23 “As Is” versus “To Be” Dashboard

10.5.3 Road maps

After a future target state is chosen, JKHL Enterprises needs to make plans regarding the steps that are required to get to that future state. Road maps provide a view of the EA model over time and can provide a snapshot for any date of particular interest. Road maps can be laid out in many different ways. For JKHL Enterprises, Figure 10-24 shows the road map from a Sales function perspective.

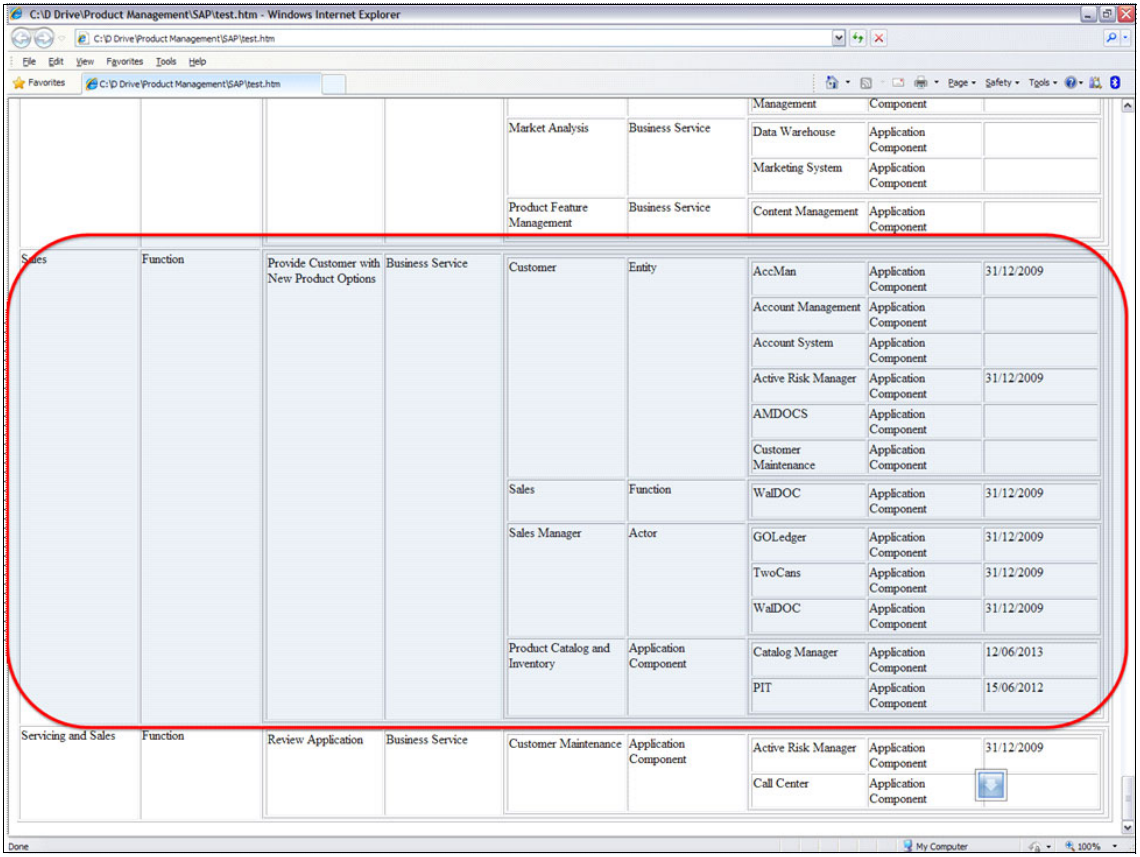

Figure 10-24 Nested table road map

An often preferred rendering of a road map is a Gantt chart style view, as shown in Figure 10-25. Although not as detailed as a textual description, the Gantt chart does provide a visual overview and shows the dependencies between various components that need to change.

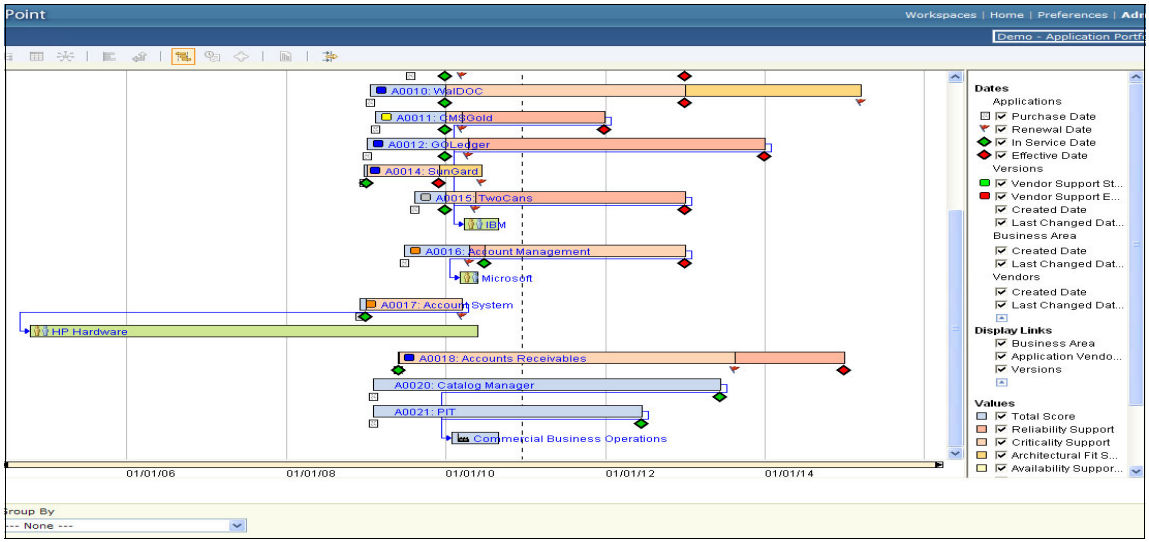

Figure 10-25 Road map as Gantt chart

11

BPM applied

This chapter applies business process management (BPM) as a discipline to the JKHL Enterprises example. The elaborated example is not complete but does illustrate a particular transaction-related process that is potentially impacted by the new business objective explained in Chapter 10, “EA applied” on page 121. Because the work products that we use in this chapter are BPM work products, they all have solution delivery semantics and are related to improving the operational process that is the scope of the BPM example. Although we use current IBM tools to produce the screen captures in this chapter, what is shown could have been produced with other mainstream BPM suites.

Successful BPM initiatives are business driven through iterative solution design and process improvement. Chapter 4, “BPM methods and tools” on page 53, introduced the IBM Software Services for WebSphere (ISSW) Solution Implementation Standard (referred to as *ISIS*) for BPM as a typical BPM method, and we could have simply rendered our BPM example in terms of the ISIS for BPM phase model. To emphasize the business nature of a BPM project, we have instead chosen to illustrate the BPM work products in the JKHL Enterprises example as they get created and used throughout the four typical steps experienced by business participants as illustrated in Figure 11-1 on page 148.

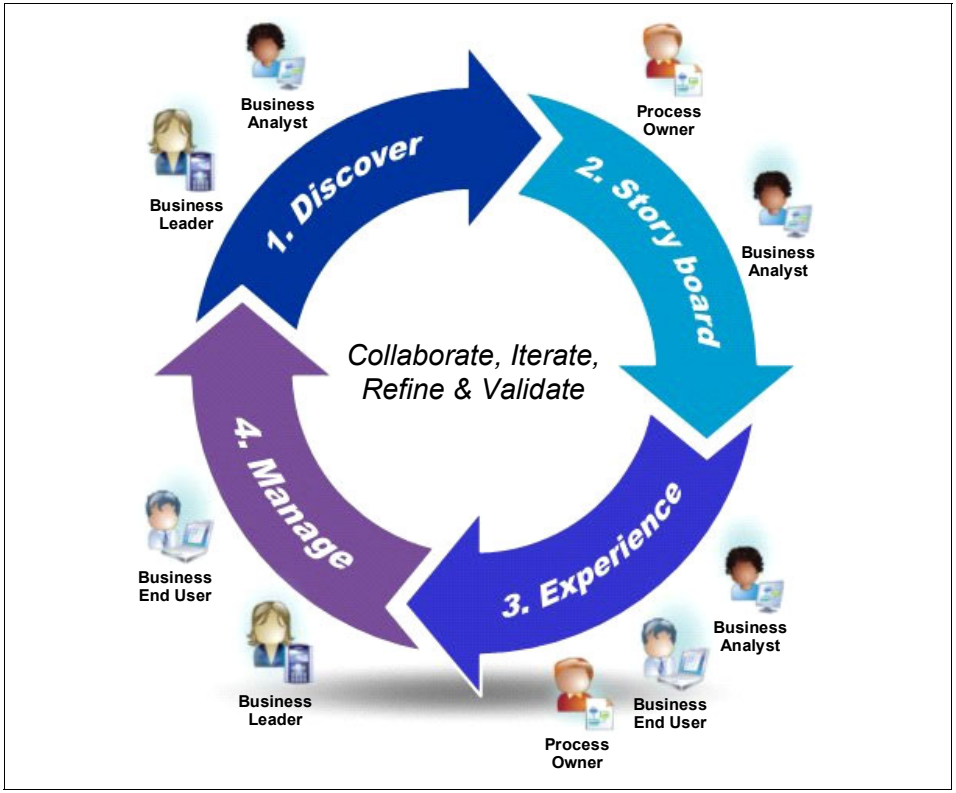

Figure 11-1 Evolution of a BPM solution as seen from a business perspective

The relationship to the phases of ISIS for BPM is not difficult to map out. For example, the discover step maps to the ISIS for BPM inception phase.

For more information about these steps, see *BPM Solution Implementation Guide*, REDP-4543, which is available at:

`http://www.redbooks.ibm.com/abstracts/redp4543.html?Open`

Most well-run BPM projects have some level of built-in experimentation, either in the form of model simulation or in the form of repeated deployment, monitoring, and improvement based on monitoring results. We do not illustrate multiple iterations in our JKHL Enterprises example, those are simply implied.

11.1 Step 1: Discover

In this step, business intent is discovered, whether such intent is driven by an enterprise architecture (EA) target or by some other driver. Business intent is mapped to business capabilities and operational processes through the activities listed in Table 11-1.

For more information, see *BPM Solution Implementation Guide*, REDP-4543.

Table 11-1 Mapping business intent to business capabilities

Detailed Activities	Role	Deliverable
Identify business challenges Work with business leaders to determine which business challenges need to be addressed. Prioritize and assess the challenges and document them.	Business leader and business analyst	Document
Strategize on solution Create strategies that are related to business challenges to determine their relationships to downstream goals and capabilities based on priorities.	Business leader	Strategy Map
Define business/solution goals Identify specific, measurable goals to ensure that the solution is meeting the business needs.	Business leader	Strategy Map with Goals
Define business measures Based on the identified strategy and goals, define business measurements, such as key performance indicators (KPIs), business service level agreements (SLAs), and metrics, that can be tracked and monitored periodically to ensure that the solution is meeting the specific business goals that are identified.	Business leader	Strategy map with Measures
Define business functions Map out business functions, identify areas for process definition, and prioritize business functions based on business challenges.	Business leader and business analyst	Capability Map

Detailed Activities	Role	Deliverable
Create high-level processes for high priority business capabilities	Business leader and business analyst	High Level Prioritized Process Maps
Obtain executive sign-offs and approvals Ensure that executive level sign-off is achieved to proceed to the next set of phases.	Business executive	Business Sign Off

Note that strategy and goals within BPM address either the process portfolio of the enterprise or a particular operational process. This is an important difference between the (enterprise) strategy and goals that are input to EA and the (solution) strategy and goals that are part of the output from BPM. The two types of objectives definitely cannot be substituted.

Within the JKHL Enterprises example, there is an operational business process that handles online banking transactions in Germany. That process does not look exactly like the EA target defined in Chapter 10, “EA applied” on page 121. In fact, it cannot look the same due to special German legislation and a localized SAP system with different capabilities than the enterprise standard.

Nevertheless, the online banking process must be updated to reflect the new up-sell business objective, the business intent that is being applied to all customer facing transactional processes. One major change required on the current operational solution is to implement a connection to the SAP system to extract relevant customer data for up-sell analysis. Figure 11-2 illustrates the injection of this subprocess in the end-to-end transactional process.

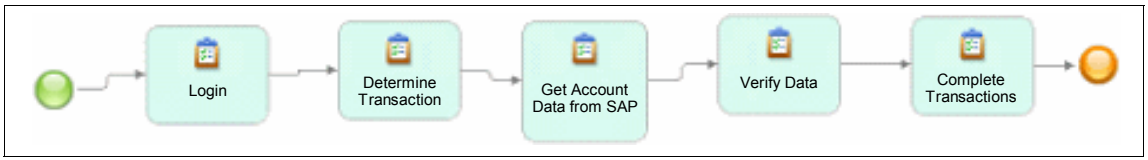

Figure 11-2 Model the subprocess calling the SAP System

It is important that the new or changed online banking process is linked immediately to both the new business goal and the standard process target, which are both part of the EA model. The former is important because JKHL Enterprises needs to remember the business drivers for the change and needs to make sure that the new business objective remains in focus for future adjustments of the online solution process. The latter is important because every time JKHL Enterprises adjusts the online solution process, they need to get as close to the enterprise standard target as possible. After the links are established, they need to be maintained over time.

See Chapter 12, “Linking EA and BPM artifacts” on page 163, for details about how to establish traceable links. See Chapter 13, “Four select collaboration scenarios” on page 173, for details about collaboration around future process changes.

11.2 Step 2: Storyboard

The storyboard step takes artifacts created in the discover step by one business analyst (or a small team) and shares them with a larger audience for further refinement and modifications. This step is especially important if BPM change flows from EA targets, because ultimately the BPM artifacts can be used for many lines of business (LOBs), and there will almost inevitably be some “not invented here” reactions. All stakeholders should get a chance to contribute to the BPM design during the storyboard phase to ensure quality and buy-in. Thus, scalable publication and commenting mechanisms are important in this step. See Figure 11-3 on page 152 for an example storyboard.

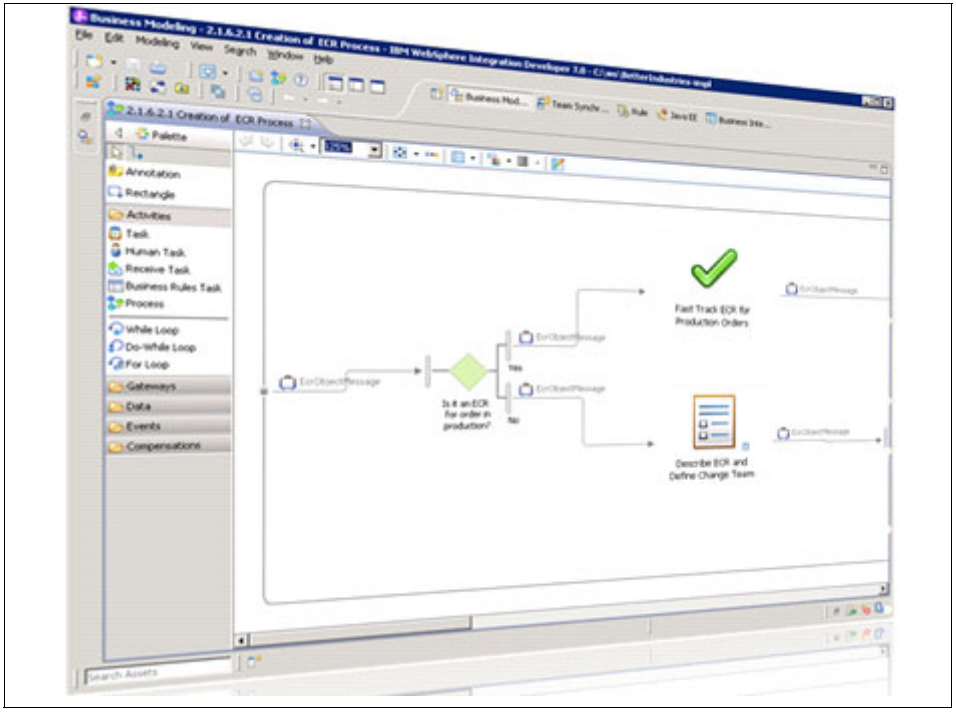

Figure 11-3 Story boarding the process

The storyboard step attempts to capture user impact by defining both as-is processes and to-be processes. Furthermore, operational business measures and KPIs should be defined (if not done during the discover step) and applied to the process model. Some of the measures and KPIs can be derived from EA

targets, and others might not be. Finally, mock up forms can be used to validate and visualize human interactions with the BPM artifacts. Figure 11-4 illustrates other examples of storyboarding.

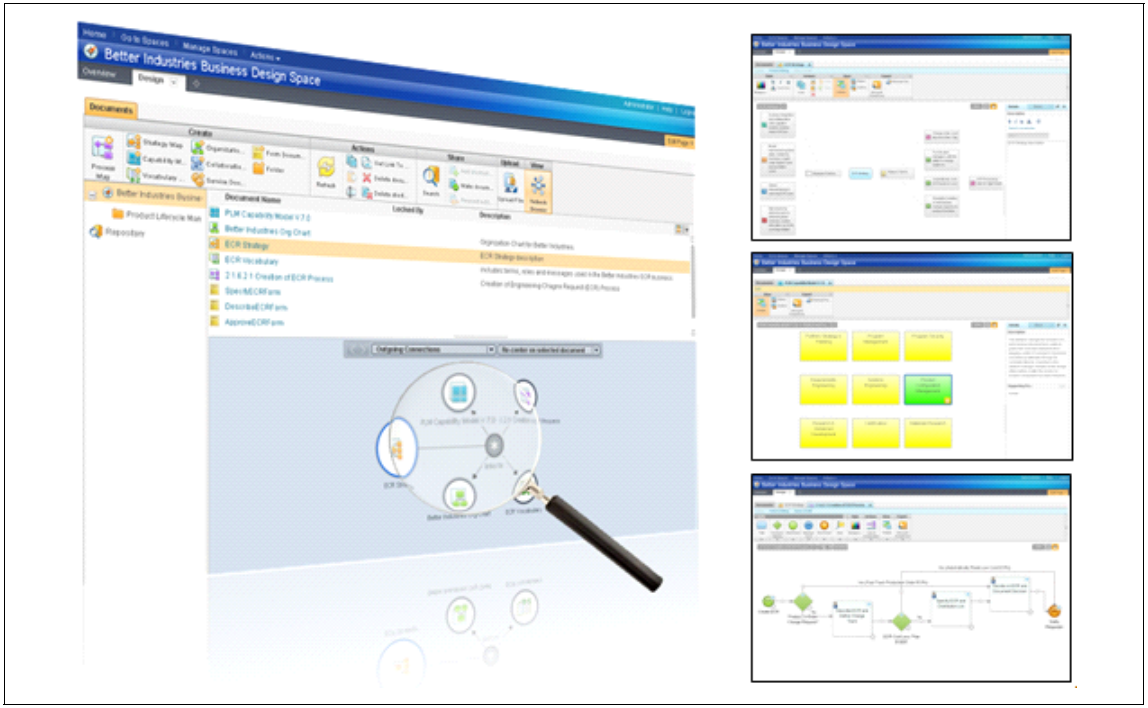

Figure 11-4 Other storyboard examples

Table 11-2 lists activities for the Storyboard step. For more information, see *BPM Solution Implementation Guide*, REDP-4543.

Table 11-2 Storyboarding activities

Detailed Activities	Role	Deliverable
Capture/refine current state process Search for and import existing process model artifacts (BPM tools, Visio, PowerPoint, and so on). Search for reusable artifacts, such as business services and forms. If no reusable artifacts exist, begin to define the current state process from a blank slate. Keep the scope of the process in terms of the solution goals.	Business analyst working with SME	Current State Process Diagram

Detailed Activities	Role	Deliverable
Examine alternate ROI to determine best approach Use case analysis to determine which usage scenarios/use cases best fit the goals that were defined during discovery and focus on defining those paths.	Business analyst working with SME	Case Analysis Reports
Capture roles Capture all relevant human roles that perform steps in the process. Capture cost and duration information and associate them to the human steps in the process.	Business analyst working with SME	Future operational process with roles
Define future operational process Define, simulate, and refine future operational business process models that achieve the closest results to the ROI alternative chosen from case analysis. Generate dynamic analysis reports to quantify/validate gains derived from future state process and support business case for implementation. Use design principals that include only portions of the model that are candidates for the end to end solution. Other modeling elements can be included but used only for documentation purposes.	Business analyst working with SME	Future operational process and Business Impact Report
Identify process steps as candidates for business rules Identify steps in the process that are candidates for implementing business rules logic. Look for steps or multiple decisions that could be combined to create rules. Create simple rules. Rules can also be created to determine the appropriate staffing definition.	Business analyst	Future operational process with business rules steps

Detailed Activities	Role	Deliverable
Define task inputs and outputs and mock up forms for human interactions Create business items that include business data and associate them as inputs and outputs to the various steps in the process. Generate simple form mock ups using forms designer based on the inputs and outputs for the tasks.	Business analyst	Future operational process with business items and mocked up forms
Validate and visualize human interactions Perform storyboarding using simulation to validate with process owners the flow and content of the human steps within the process. Obtain sign off and approval to move to the experience phase.	Business analyst working with SME and process owner	Validated storyboards

11.3 Step 3: Experience

The experience step is where the BPM design is implemented and tested. This step includes adding operational characteristics and elaborating and refining business measures and KPIs. Additionally, the team can interactively test and validate elaborated executable processes in a sandbox before deploying to a shared enterprise environment. Figure 11-5 illustrates this step.

Figure 11-5 Interactively experience and visualize process

Table 11-3 lists activities for the experience step. For more information, see *BPM Solution Implementation Guide*, REDP-4543.

Table 11-3 Experience step activities

Detailed Activities	Role	Deliverable
Add operational characteristics to future operational process Refine and fill in high-level process steps, process logic, error handling, and data flow to support process execution. Process data reflects the fields and content that is needed to support the process from storyboarding.	Business analyst and IT architect	Process Models, Metric and KPI definitions, Role Definitions, and Form Mockups
Define constructs for execution on future operational process Refine all process control flow (that is, gateways) to reflect decision logic based on process data. Define Business Object Model. Look for reuse opportunities. Map business roles for human tasks to the organizational directory. Add technical attributes to the process model to prepare for runtime deployment. Publish models to repository.	Business analyst and IT architect	Process Models, Metric and KPI definitions, Role Definitions, Form Mockups
Elaboration of performance measures, KPIs, and business SLAs Introduce additional measures of process performance against the expanded operational process. This typically includes adding measures for activities, process branches, and other aggregated measures introduced during process refinement. Add task escalations in accordance to business SLAs.	Business analyst	New metric and KPI definitions
Refine forms Working with UI development, build out the form mockups as a fully functional user experience. Separate forms from the process application for separate development using a web-ready package for IT. Publish forms to repository.	Business analyst, IT architect, and UI developer	Business user ready forms. Two options: ► All packaged in a separate web-ready package ► Imported back into the model project to replace the mockups

Detailed Activities	Role	Deliverable
Interactively validate elaborated process in IT sandbox After adding operational characteristics for the first time or for subsequent iterations, the process model can be deployed (directly by LOB) to a sandbox environment for user interaction and validation. IT prepares sandbox test environment and registers test services for final experience validation using sandbox environment. A mockup can also be created of an appropriate business space for interacting with the process, which can provide guidance for IT.	Business analyst and IT architect	Optional: Exported Business Space mockup

If change is driven by EA targets, as could be the case with JKHL Enterprises, it is important that the project continuously validates that the implementation is compliant with those EA targets to the extent possible. Practically, this is achieved using lookup of the EA artifacts that are already linked to the process. If EA targets cannot be met in practice, this might be an exception. See 3.3, “Integrated strategic planning” on page 41, for details about exception handling.

It is in the experience step where BPM business process models are converted into actual executable process artifacts, typically based on Business Process Execution Language (BPEL) (as in Figure 11-6 on page 158) or directly executable Business Process Modeling Notation (BPMN). See Chapter 7, “The role of standards” on page 89, for information about the role of format standards.

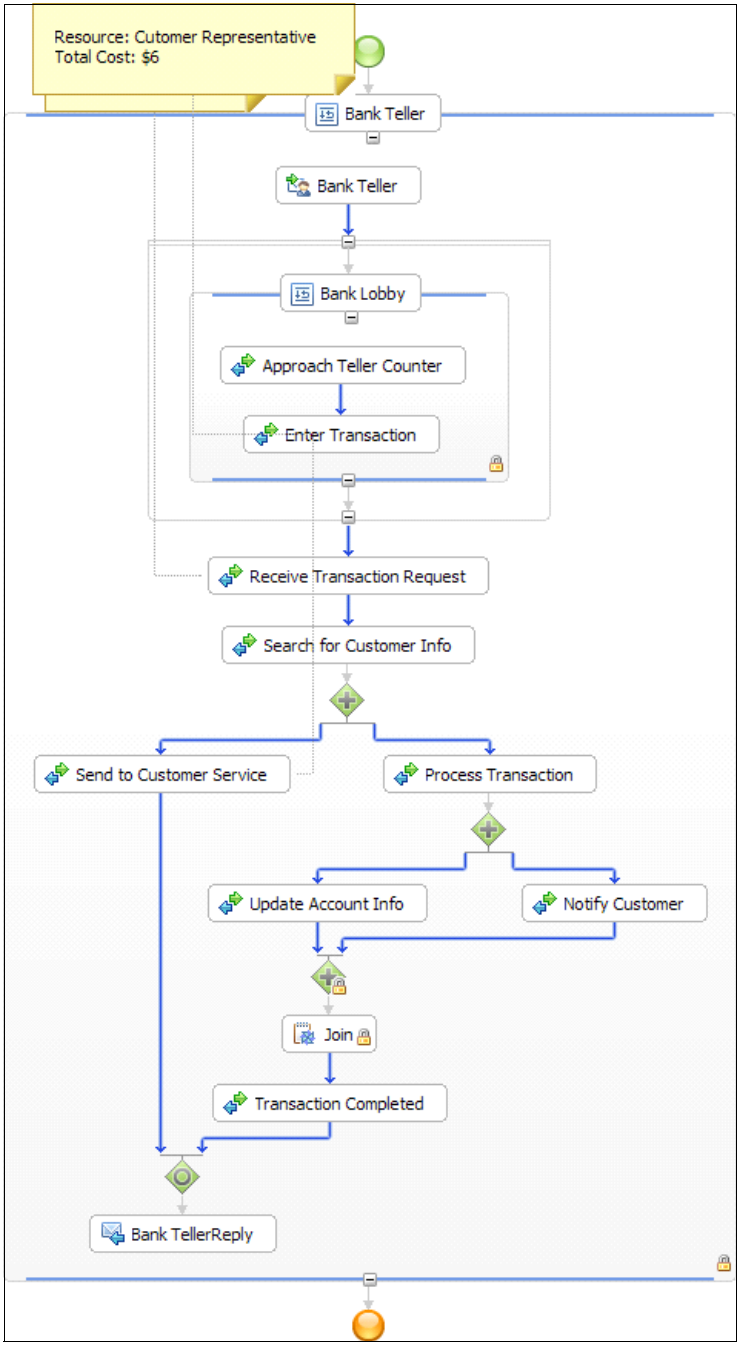

Figure 11-6 BPEL implementation of a business process

At this point, automated activities need to be bound to callable services, which should be done (as much as possible) in accordance with desired relationships between process targets and service targets in the EA model.

11.4 Step 4: Manage

The manage step is where running BPM artifacts are measured for real-time performance and where data is validated to show how (or not) the defined functional and non-functional requirements are being met. This step is the key feedback loop illustrated by the red arrow between operations and portfolio monitoring in Figure 1-5 on page 10 and is a critical part of the interaction between the project and portfolio optimization life cycles in the enterprise landscape. Figure 11-7 illustrates this step.

Figure 11-7 Monitor, predict, and act

Importantly, real-time performance monitoring also empowers business end users to customize their experience (their business space) and manage KPIs and alerts based on changing business conditions. Contrary to what was the

case with (EA) enterprise planning artifacts, breakages or unexpected behavior in (BPM) operational processes can and will have immediate and negative business effect.

Figure 11-8 further illustrates dashboards that help manage real-time process performance.

Figure 11-8 Manage real-time process performance

Table 11-4 lists activities for the experience step. For more information, see *BPM Solution Implementation Guide*, REDP-4543.

Table 11-4 Experience step activities

Detailed Activities	Role	Deliverable
(Optional) Empower business users to customize the user experience: For collaborative business environments, configure role-based access in Business Space to enable business users to create, modify, improve upon, or personalize their BPM experience as business needs evolve. Customer-specific templates can replace templates that are ready for immediate use in the Business Space to simplify the creation of new spaces by users. This step is optional and not appropriate for business environments where the user environment is locked down and strictly regulated.	Solution administrator and business users	Configured in Business Space

Detailed Activities	Role	Deliverable
Optimize work assignments: An ongoing process of looking across the allocation of human tasks among organizational team members to shuffle work-around and respond to changing business conditions. Insight into work allocation can be achieved through a combination of team-based task views and monitor visualizations that can optimization decisions. Efforts to optimize work can be performed by a business user playing a supervisory role or as part of an empowered peer organizational structure.	Business users and business leaders	
Govern change: Store and manage artifacts in a common repository to preserve traceability across tools and changes being made. Identify key stakeholders and institute a review process to govern change.	Business users, business leaders, and IT developers (setup)	
Manage real-time business performance: Monitoring of the process provides insight into types of business transactions, identifies bottlenecks within the process, and allows drill-down from high-level business views to individual processes of interest. A typical performance management dashboard will have a set of KPIs that measure process performance against business targets, durations for key activities (for example, human steps) in the process, and dimensional analysis that allows for analysis by different business attributes of the process (such as channels, customer type, and so on). Dashboards will also typically incorporate some drill-down enabling users to locate business transactions of interest. Drill-down can start from high-level views or data analysis, to visualizing a process flow, to locating individual human tasks in the process and taking action to reallocate work.	Business users and business leaders	
Manage KPIs and alerts based on changing business conditions: As the business environment evolves, KPI performance targets and critical situations requiring user attention will change. Users can use KPI and alert management to create new performance targets as needed from a web interface without IT involvement and can customize their process visualization accordingly.	Business users and business leaders	

Detailed Activities	Role	Deliverable
Take corrective action against process instances: Administrators can locate individual process instances or failed process transactions, correct the in-flight transaction, and continue the process through to completion. Dynamic changes to a specific process instance include modifying business data for the process instance, skipping steps, or redoing steps within the instance. Any processes that failed due to transient IT conditions (for example, network failure) or bad data can be corrected and resubmitted for processing, with the net effect that no transaction is lost.	Solution administrator	

12

Linking EA and BPM artifacts

Throughout this book, we have presented that business process management (BPM) and Enterprise Architecture (EA) are synergistic and that BPM and EA artifacts should be linked and changes coordinated across the domain boundaries. In this chapter, we show how to achieve this type of linking in practice.

As explained in Chapter 7, “The role of standards” on page 89, we consider OSLC the future standard for semantically meaningful links. Having said that, the OSLC specifications are still evolving and few modeling products have implemented them at this time. Consequently, we have chosen to illustrate the practicalities of linking BPM and EA artifacts through simple URL-based links, rather than more semantically rich OSLC links.

It is important to understand that links between BPM and EA artifacts can be initiated in either direction, as we will illustrate from the different scenarios described in Chapter 13, “Four select collaboration scenarios” on page 173. Ideally, any established link must be bidirectionally visible, independently of which end of the link was the originator. OSLC links fulfill that requirement, but simple URL-based links do not. Therefore, when using simple URL-based links, you need to either establish two links (one in each direction) or take care to establish the single link in the most useful direction (typically from BPM to EA).

Furthermore, it is important to understand that although our examples in this chapter are all process-to-process links, the true nature of coordination between BPM and EA is many-to-many linking as shown in Figure 6-2 on page 87. Many different EA targets can all apply to the same BPM artifact, and many different BPM artifacts can be guided and governed by the same EA target.

12.1 Establishing a link

To establish a link, you need to fulfill the following requirements:

- Access to the artifact that is the origin of the link (usually in a local tool).
- Ability for the target of the link to be accessed using HTTP. How this is accomplished and whether the target is natively HTTP accessible or needs to be published first depends on the exact tools and repositories involved.
- A stable URL at which the target of the link can be accessed. How such a stable URL is acquired depends on the exact tools and repositories involved.

The requirement that the target URL be stable is critical; the link needs to continue to function even when new versions of the target are created.

Figure 12-1 on page 165 shows what establishing a link from an EA artifact to a BPM artifact might look like in an EA tool. We use “localhost” in the URL because in our demo environment, the target web server is hosted on the local machine.

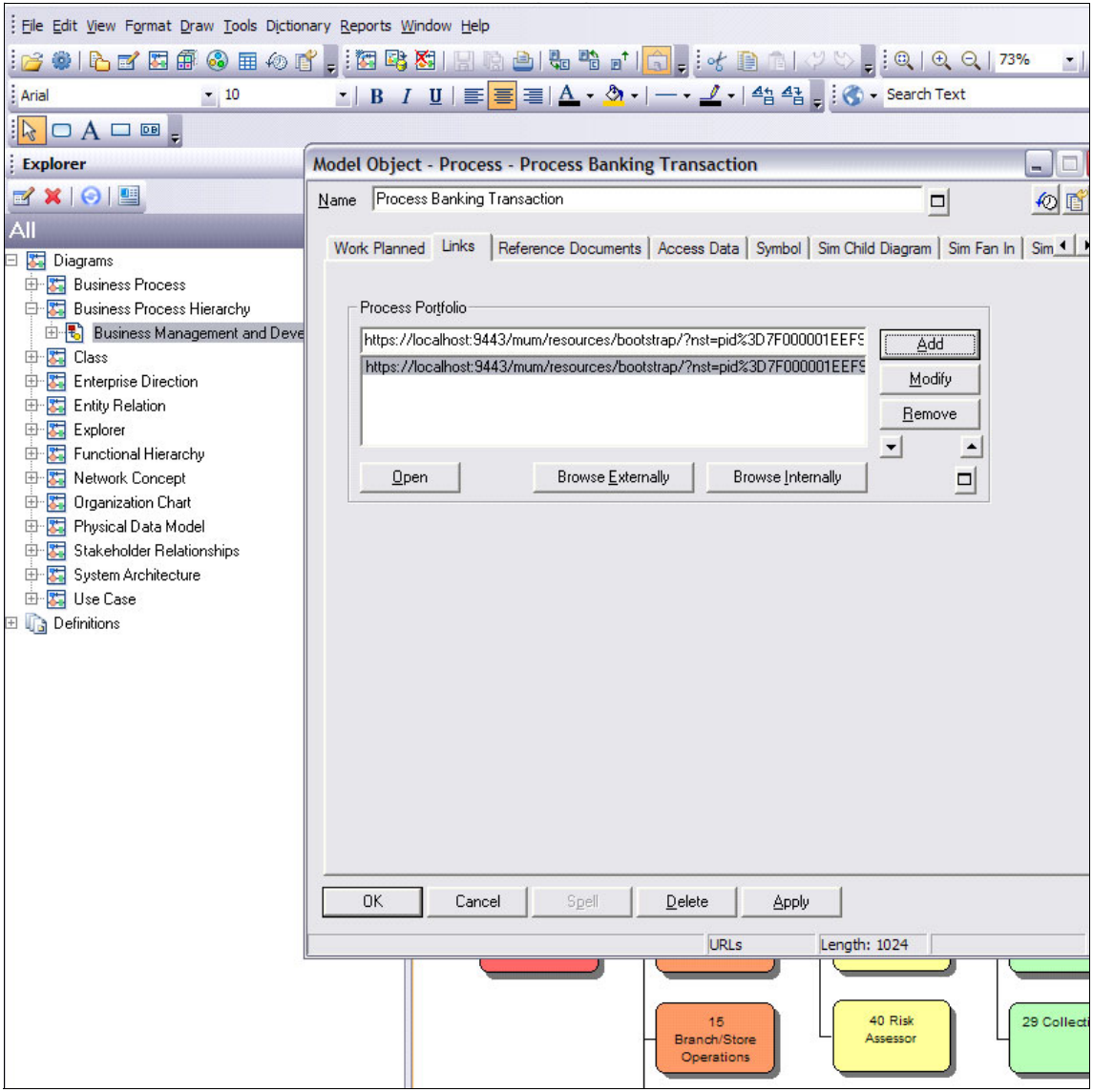

Figure 12-1 Creating a URL link in an EA tool

Figure 12-2 and Figure 12-3 on page 167 show a slightly different example for a BPM tool.

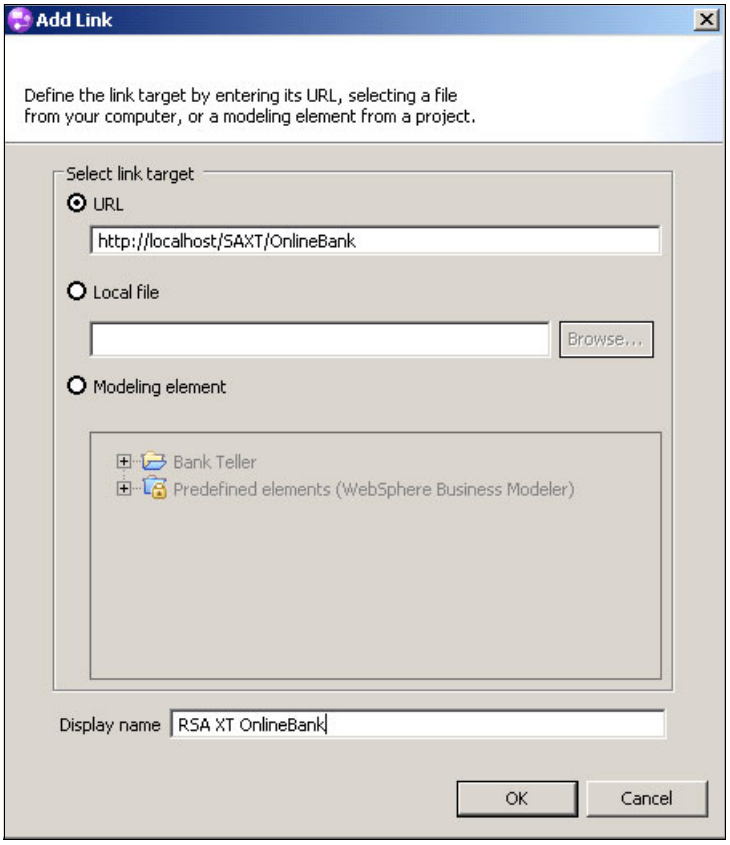

Figure 12-2 Add Link dialog box in a BPM tool

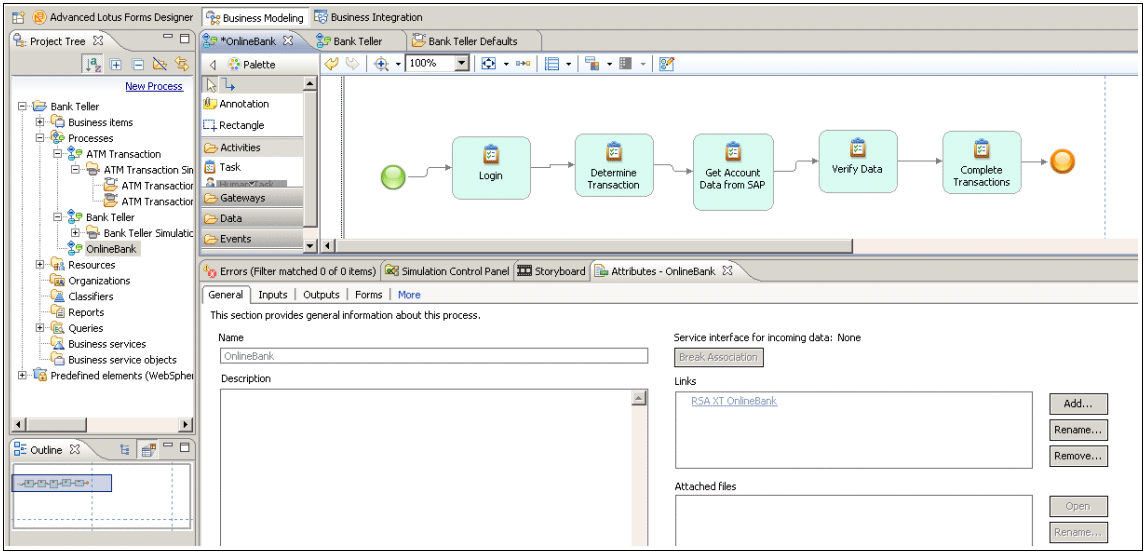

Figure 12-3 View of Added Links in a BPM tool

12.2 Following a link

Having established some links, we can look for a linked artifact. Figure 12-4 shows an example from an EA tool where the linked artifact is marked by a small red box.

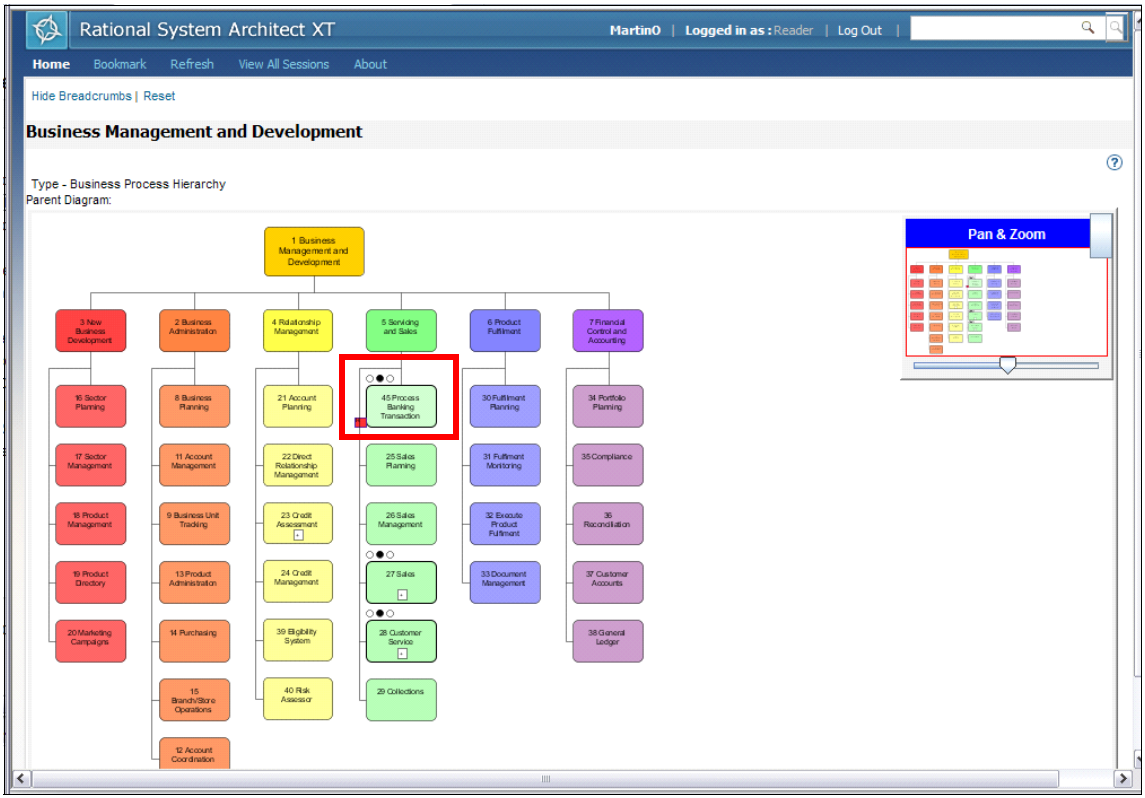

Figure 12-4 Highlighted linked resource

The linked BPM artifact is accessible either by clicking the symbol shape or by navigating from a property pane, as shown in Figure 12-5.

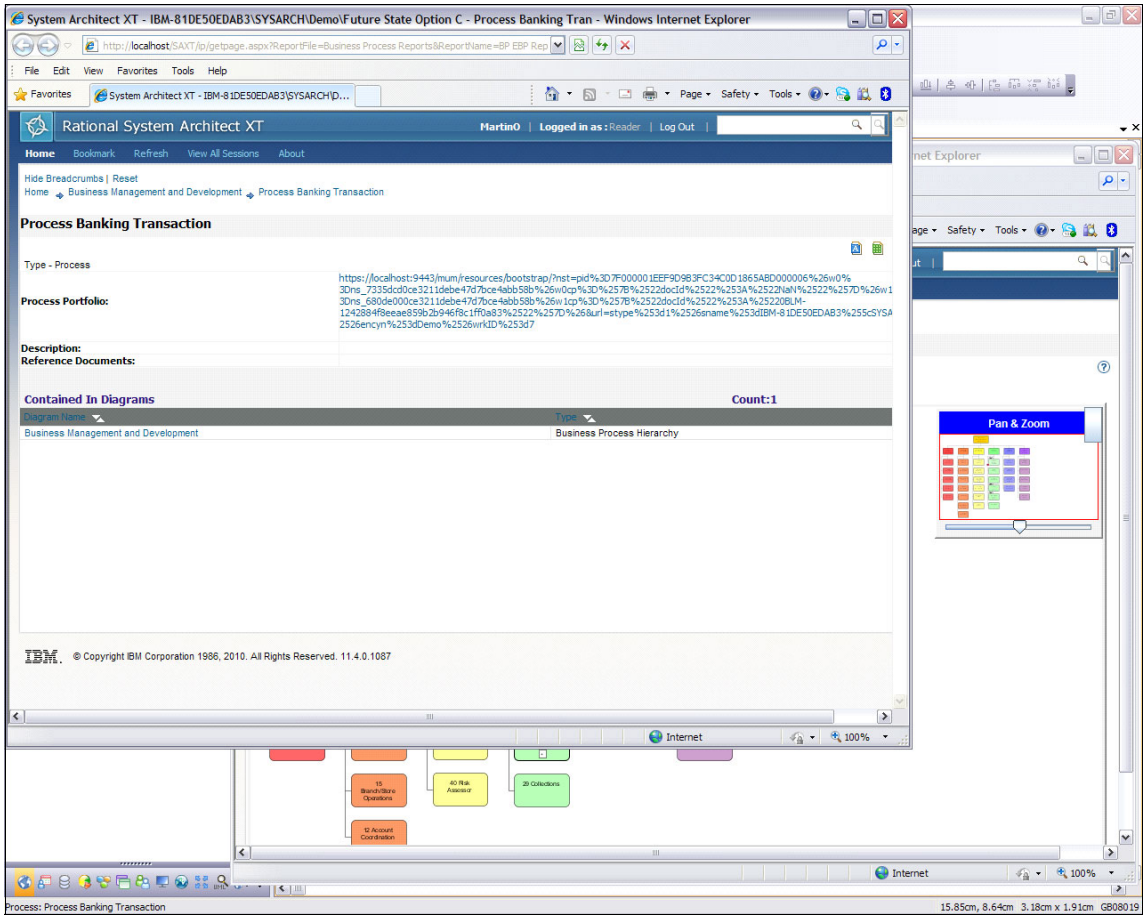

Figure 12-5 Property pane with navigation URL

Figure 12-6 and Figure 12-7 on page 171 show a slightly different example for a BPM tool that provides navigation with an attribute pane.

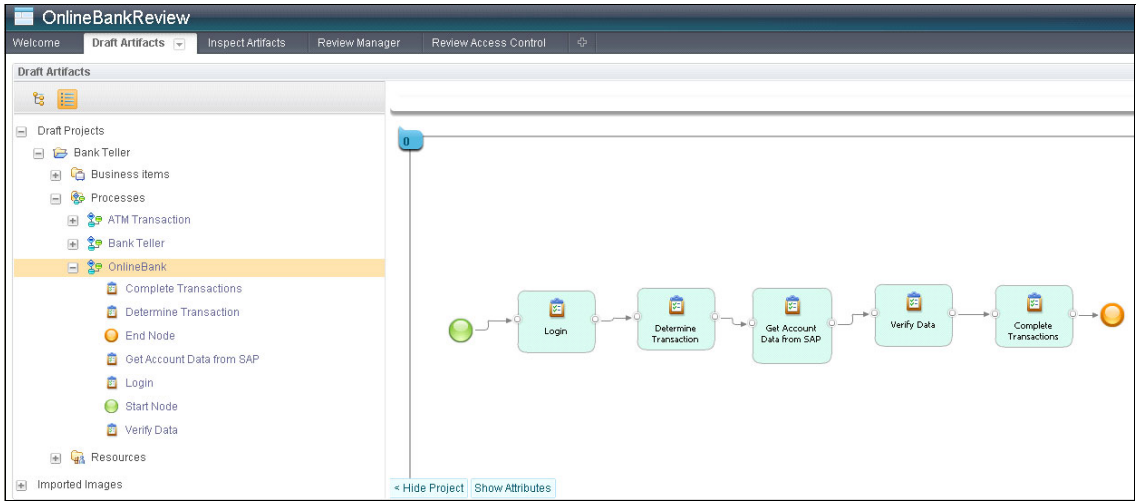

Figure 12-6 Newly published process with link attributes

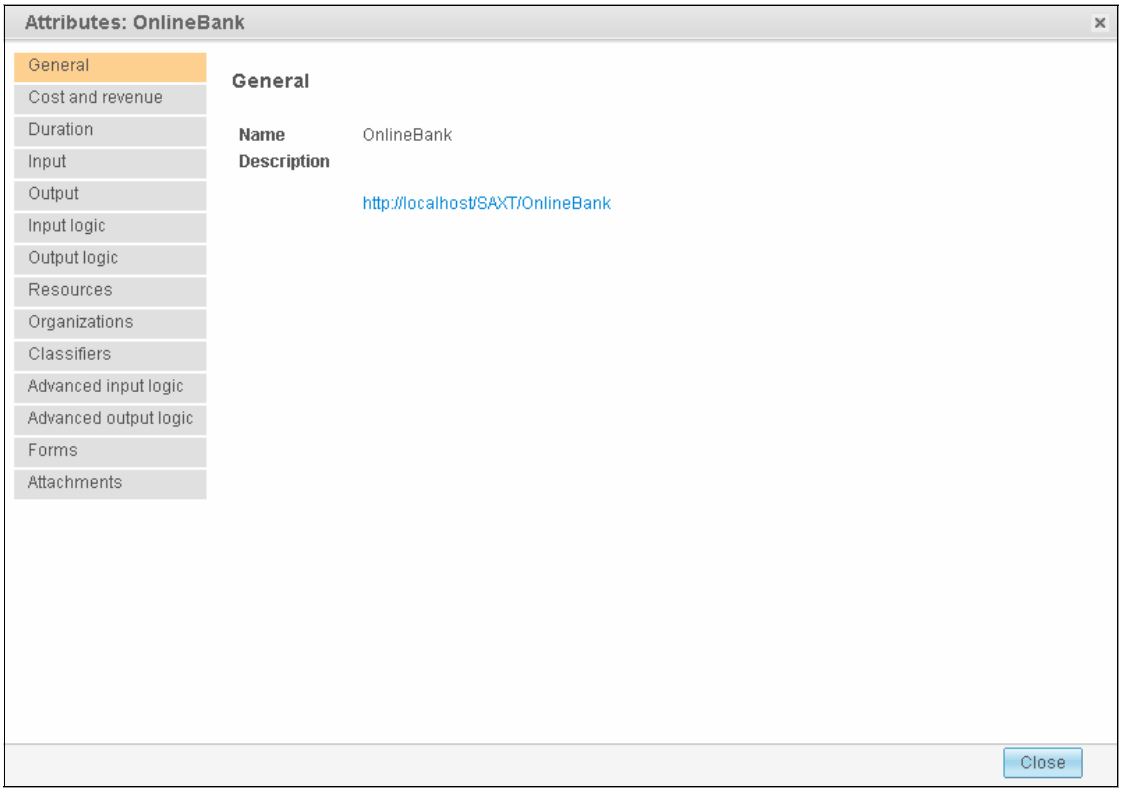

Figure 12-7 Viewing navigation link attributes

In both examples, when the link is activated, one of two things happens. Either the target artifact opens in a new browser window, or the target artifact shows in an embedded browser window in the tool where the link was activated.

13

Four select collaboration scenarios

We have already explained in general terms how business process management (BPM) practitioners and enterprise architecture practitioners need to collaborate. There are different scenarios where such collaboration can play out in practice. In this chapter, we have selected three such scenarios that all use linking to enable collaboration:

- EA governance
- BPM insight
- BPM exception

Each of the scenarios has different variants, some of which are important enough to call out explicitly in our description. These scenarios are not an exhaustive list yet are representative of the typical situations found in mature organizations that understand the synergistic nature of BPM and EA. Although we continue to use JKHL Enterprises as our example and context, the scenario patterns that we define in this chapter are general and can be applied to any enterprise.

13.1 EA governance

In this scenario, an incremental change to the EA blueprints impacts the portfolio of BPM processes, and EA governance needs to be applied to make the changed targets visible and to decide how to comply with them (if possible). The EA governance scenario includes the following steps:

- 1a: Adjust process portfolio goals and constraints.
- 1b: Identify process portfolio impact and initiate change projects.
- 1c: Monitor architectural compliance of changes to the process portfolio.

Figure 13-1 illustrates where the related collaboration points are placed on the enterprise landscape for a brown field environment with existing BPM artifacts. For special concerns in green field environments with few or no existing BPM artifacts, see 13.1.1, “Cloning of EA artifacts” on page 178.

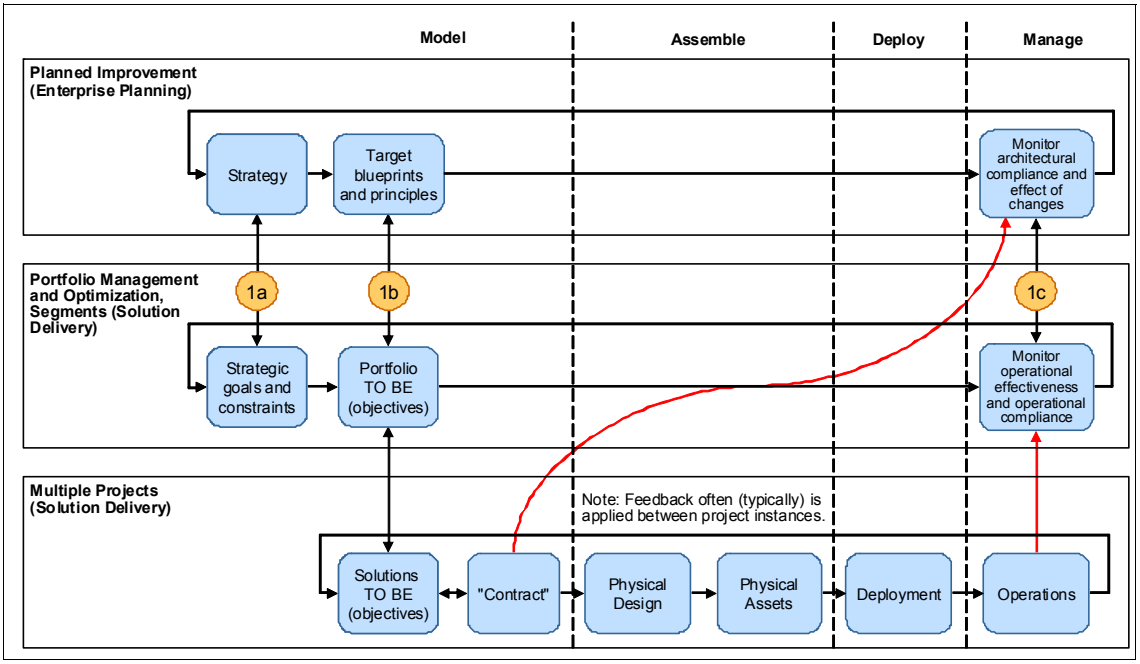

Figure 13-1 The EA governance scenario

Step 1b, identifying the scope of impact on the portfolio, is absolutely critical. We must identify, in collaboration with the process owners and portfolio managers, which operational processes that are within scope of the changed or new EA targets before we can act appropriately.

If the change is to an existing EA artifact that is already linked to relevant BPM artifacts, then identifying the scope of impact is easy. Use the EA impact analysis capability and follow the links to the BPM artifacts that are impacted. In our JKHL Enterprises example, we can look up the process hierarchy, which is shown in Figure 13-2.

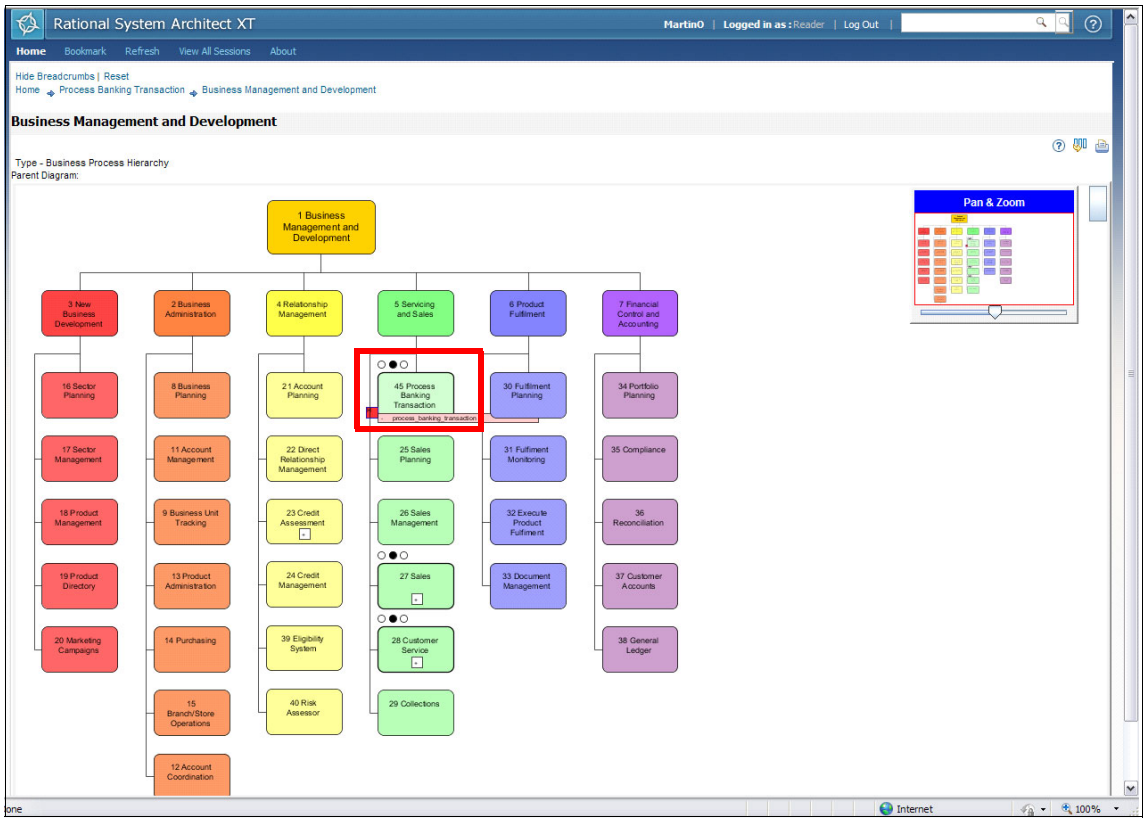

Figure 13-2 JKHL Enterprises EA process hierarchy

We can identify processes that are *potentially* impacted, namely those linked to the changed EA model element (in this case, the element labeled with a red box). Using the associated link, we can navigate to the BPM model (Figure 13-3) to validate whether in fact the process needs to change.

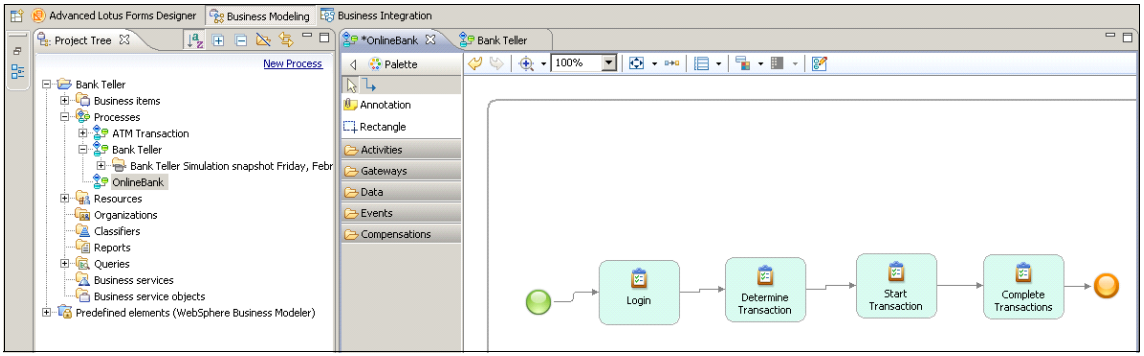

Figure 13-3 Original BPM model

Any actual changes to the BPM model must be done within the BPM modeling tools, usually in the context of a new (full life cycle) change project. If links do not exist, the EA practitioner and the BPM process portfolio manager can collaborate to identify the relevant set of operational processes manually, and subsequently establish the relevant links for future use.

Note that this does not mean that all such operational processes are necessarily modeled in any form of detail. All it means is that we need placeholder artifacts in the BPM portfolio that can link to the EA target for visibility and later guidance of initiated solution delivery projects.

In some cases, we might also identify collaboratively that there is no current operational process that adequately supports the EA target, so one must be added to the operational portfolio. In the JKHL Enterprises example, we realized, as described in Chapter 11, “BPM applied” on page 147, that we must add a new subprocess to the current online banking process. This subprocess extracts account data from an external SAP system, as shown in Figure 13-4 on page 177.

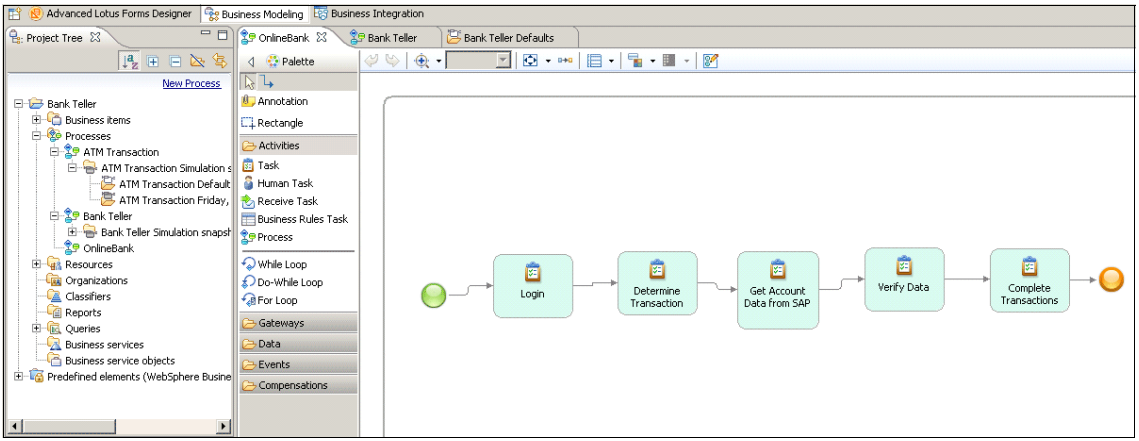

Figure 13-4 New subprocess extracting account data from an external SAP system

Any new BPM artifact must be linked to the originating EA target. See Chapter 12, “Linking EA and BPM artifacts” on page 163, for details about how to establish links.

We have already mentioned that many changes in the solution delivery domain are appropriately executed in project mode. Established organizations will use tools to track changes and related change projects across tools and artifact domains. Although the scope of this book does not cover change management in depth, we do want to suggest that it can be advantageous to document desired changes as change requests within the EA domain and link them as applicable to change projects being executed within solution delivery. Figure 13-5 on page 178 shows an example.

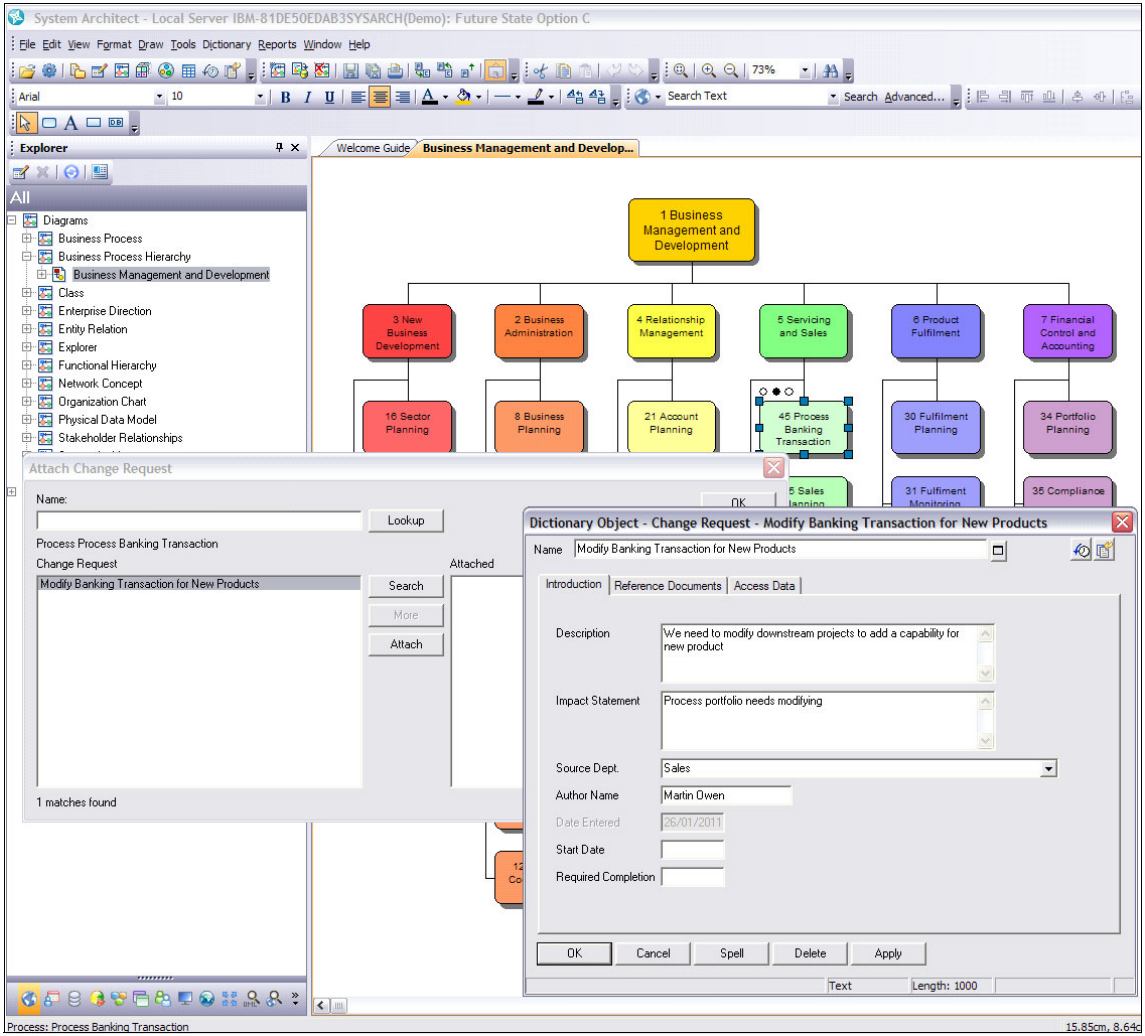

Figure 13-5 EA tool with Change Request

When the changes are logged in the EA model, they are tracked and form part of the foundation for EA transition planning, road maps, and so on.

13.1.1 Cloning of EA artifacts

If the BPM discipline in an organization is mostly green field, no existing BPM artifacts are at hand, and the EA discipline at the same time is well developed, the EA governance processes described previously pose particular challenges.

An effective and consistent way of accelerating the design of new BPM processes is needed.

In earlier parts of this book, we explained the concept of cloning. Cloning is used when you want to use one thing as the starting point for another completely different thing, such as using a clone of an EA process blueprint as the starting point for a new BPM process model.

Such cloning capabilities, based on standardized resource format standards such as Business Process Modeling Notation (BPMN) 2.0, are advantageous to have as part of a BPM and EA collaboration arsenal. We have to caution once again that the resulting BPM artifact is different from the EA original. It has its own life cycle and different semantics than the EA process blueprint. (See Chapter 6, “Stop copying; start linking” on page 83, for details.) One reason to be cautious is that by reflex many people think of and ask for export/import when they talk about BPM and EA “integration”. There are several issues with this line of thinking:

- The proper relationship between BPM and EA is synergistic collaboration and coordination, not export/import “integration.”
- Export/import produces a non-linked copy. A clone should have a different identity, its own life cycle, and be linked to the original source for future visibility and change management.
- Cloning is the exception and should only be used once per artifact in a green field situation. The normal situation is existing artifacts with established cross domain links.

Cloning, when properly applied, is a valuable accelerator. When it is misused beyond first time green field scenarios, cloning (or even worse copying) leads to manageability issues.

13.2 BPM insight

In this scenario, a BPM activity provides insight that may affect the enterprise architecture. This can happen in two ways:

- Upon completion, a project wants to share experiences with using a set of EA targets and wants to provide suggestions for improvements.
- Through monitoring of operational process efficiency, a systemic performance issue is identified. The issue could be solved by applying appropriate standards and patterns to all issue processes.

Because these two situations are sufficiently different and lead to somewhat different collaborations, we address them separately.

13.2.1 Project experience

When a project completes, it is important to not only consolidate the newly delivered assets into the asset portfolio, but also to harvest experience gained from using applicable EA targets. Such experience can either be in the form of how well the targets worked in the project and how close the project came to meeting the targets, or it can be more fundamental in terms of explicitly suggested additions or changes to the EA model. In this section, we focus on the latter, the case where project experience leads to suggesting changes to the EA model. This scenario includes the following steps:

- 2a: Report on project experiences.
- 2b: Discuss with the process portfolio managers whether the project experiences represent important insight and should lead to suggested EA model changes (project experiences might not be representative or might be contrary to process portfolio goals).
- 2c: Collaborate with the EA practitioners to assess the suggested changes, both in terms of architectural compliance reporting and in terms of adjustments to EA blueprints and principles.

Figure 13-6 illustrates where the related collaboration points are placed on the enterprise landscape.

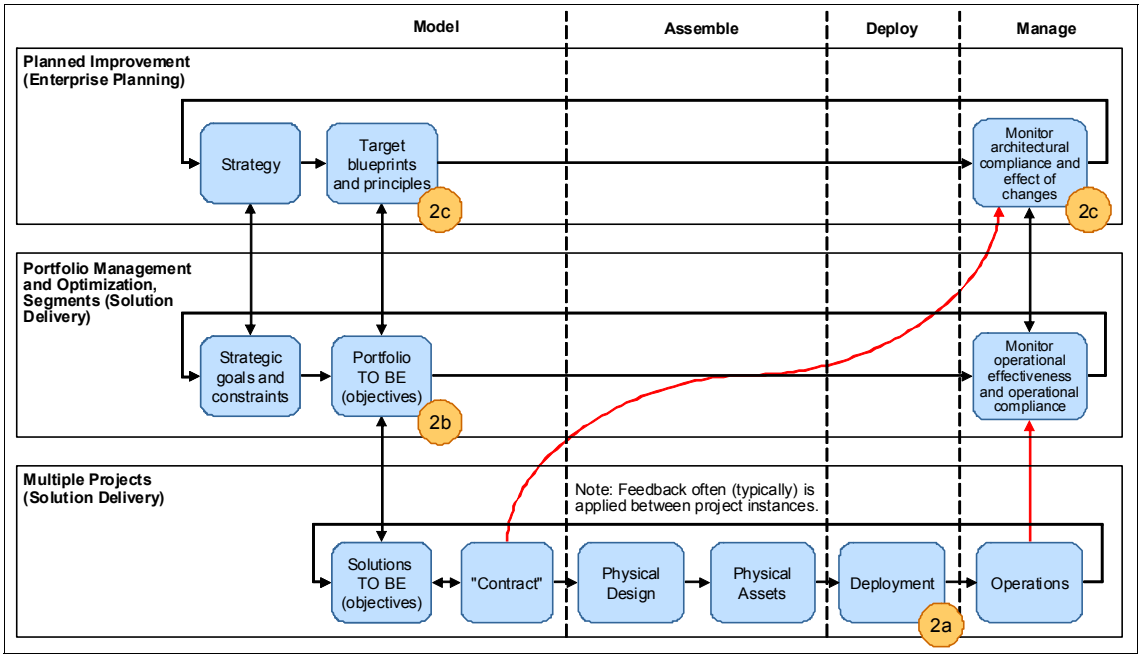

Figure 13-6 Acting on project experience

Practically, step 2c is typically the step that needs formal collaboration and review procedures, and is also the step that needs to use linking between BPM and EA artifacts.

If the BPM artifacts from the project are already linked to existing and applicable EA artifacts, then identifying the scope of potential impact on the EA model is easy. Simply enumerate those EA artifacts that are linked to the BPM artifacts that were the origin of the project insight.

If links do not exist, the EA practitioner, the BPM process portfolio manager, and the BPM project representative need to collaborate to identify the relevant set of EA artifacts manually. If such EA artifacts do not exist, the EA practitioner needs to at a minimum create placeholders that can subsequently be linked to the (now) related BPM artifacts.

Note that while we have talked about this scenario as though project insight is only “reported” when the project completes, depending on the collaborative processes in a particular enterprise, new insight can be processed at any point

during the project life cycle. The steps and concerns will be the same as described for the end-of-project situation.

13.2.2 Systemic issue identified through operational monitoring

We have already explained how continuous monitoring and feedback is a key component of a well-driven BPM initiative. For this reason, BPM insight can be gained not only from projects, but also from analyzing monitoring results. For example, through monitoring of operational process efficiency, a systemic performance issue is identified that can be solved by applying a set of standards and patterns to all issue processes.

Admittedly, it could be tempting to just fix the problem from a solution perspective instead of collaborating with the EA practitioners as suggested, but doing that is not the optimal choice. Because this is a systemic issue and likely to occur again in future processes until better enterprise guidance is provided, a better approach is to collaborate with the EA function with the objective of establishing appropriate EA standards and blueprints for (all) business processes, as illustrated on the enterprise landscape in Figure 13-7.

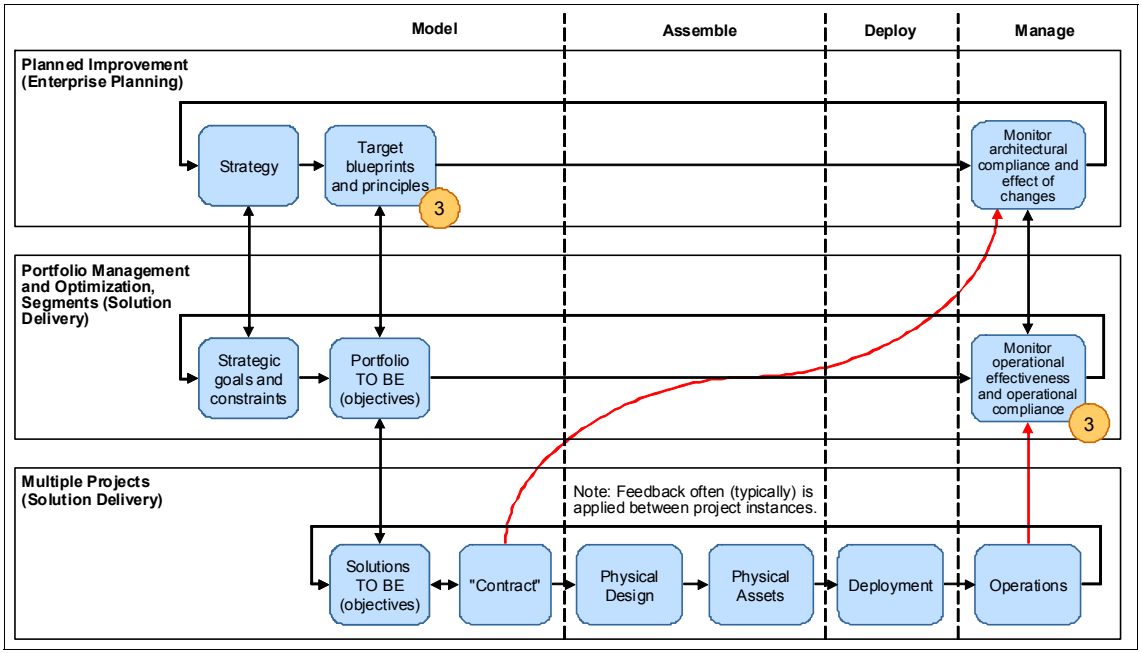

Figure 13-7 Acting on insight from BPM monitoring

If applicable EA standards and blueprints exist, either these are not working and need to be updated, or the EA governance processes are not working and need to be strengthened. See 13.1, “EA governance” on page 174, for more details on strengthening EA governance.

13.3 BPM exception

In this scenario, a BPM project cannot comply with defined EA targets. Whether the exact root cause is lack of time, unsustainable cost, lack of capabilities available, or something else, in all cases an exception request needs to be processed.

Although the project on its own cannot comply with the EA targets, this might be a case where it is so important to the enterprise to comply with the targets that additional aid from outside the project can be provided or the project parameters can be changed another way. The only way to assess this situation appropriately is to process the change request with relevant stakeholders. See 3.3, “Integrated strategic planning” on page 41, for more details about exception handling.

Figure 13-8 illustrates a major BPM exception that is requested when it is time for deployment. The exception needs to be assessed by and discussed with the EA function.

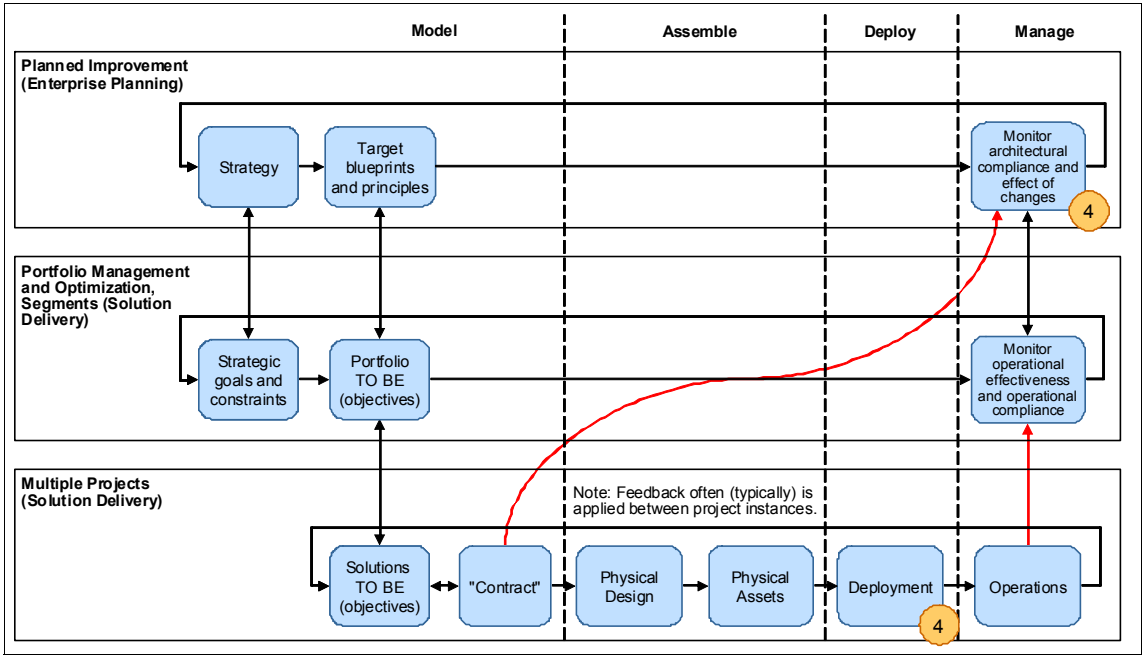

Figure 13-8 Processing a BPM exception

It is preferable to identify and process an exception request as early as possible in the life cycle of a project. The earlier a decision is made, the less costly any necessary adjustments will be. Note that it often can be difficult to decide, when compliance with the EA targets cannot be met, whether this is a case of an exception or the case of targets that need to be adjusted based on project insight, as explained in 13.2, “BPM insight” on page 179. The only way to determine the proper course of action is to collaborate with the EA function as suggested in Figure 13-8.

In our JKHL Enterprises example, the daughter bank in Germany is an acquisition. That bank currently uses SAP and will do so for the next two years. However, because of the acquisition, SAP will eventually be replaced and for cost and risk reasons no modifications or enhancements to the SAP system will be allowed in the meantime. Consequently, the online banking system in the German daughter bank cannot comply with the EA target that includes up-sell activities in the transactional processes and needs an exception for the next two years. The exception is logged in the EA model, and monitoring of EA compliance resumes after the exception period has expired.

Once again, this example illustrates how critically important the links between BPM and EA artifacts are to the desired collaboration between the BPM and EA practitioners. Without those links in place, the BPM practitioners cannot identify the need for requesting an exception, and the EA practitioners cannot continuously monitor architectural compliance.

Related publications

We consider the publications that we list in this section particularly suitable for a more detailed discussion of the topics that we cover in this book.

IBM Redbooks publications

The IBM Redbooks publications, *BPM Solution Implementation Guide*, REDP-4543, provides additional information about the topic in this document.

You can search for, view, or download Redbooks, Redpapers, Technotes, draft publications and Additional materials, as well as order hardcopy Redbooks publications, at this Web site:

ibm.com/redbooks

Other publications

These publications are also relevant as further information sources:

- Kathleen B. Hass, Richard Vander Horst, Kimi Ziemski, and Lori Lindbergh, *From Analyst to Leader: Elevating the Role of the Business Analyst Management Concepts*. Management Concepts, Inc. December 10, 2007.
- Rob High, Jr., Stephen Kinder, and Steve Graham, *IBM SOA Foundation: An architectural introduction and overview*. IBM, November 2005.

  http://www.ibm.com/developerworks/webservices/library/ws-soa-whitepaper/
- Claus Torp Jensen, Ian Charters, Jim Amsden, Scott Darlington, Martin Owen, Eric Herness, and Pablo Irassar, *Leveraging SOA, BPM and EA for Strategic Business and IT Alignment*. IBM, December 2008.

  http://www.ibm.com/developerworks/websphere/bpmjournal/0812_jensen/0812_jensen.html
- Claus Torp Jensen, Rob High, Jr., and Steve Mills, *Achieving business agility with BPM and SOA together: Smart work in the smart enterprise*. IBM, October 2009.

  ftp://public.dhe.ibm.com/common/ssi/ecm/en/wsw14078usen/WSW14078USEN.PDF

- Claus Torp Jensen, Rob High, Jr., and Steve Mills, *BPM and SOA require robust and scalable information systems: Smart work in the smart enterprise*. IBM, November 2009.

  ftp://public.dhe.ibm.com/common/ssi/ecm/en/wsw14104usen/WSW14104USEN.PDF

- Ray Harishankar, Kerrie Holley, Rob High, Jr., Dr. Jorge Sanz, Edward Giesen, S. Kevin Daley, Dr. Mamdouh Ibrahim, Samuel Antoun, Allison Botros, and Sham Vaidya, *Actionable Business Architecture*. IBM, October 2010.

  http://public.dhe.ibm.com/common/ssi/ecm/en/gbw03113usen/GBW03113USEN.PDF

Online resources

These Web sites are also relevant as further information sources:

- Open Services for Lifecycle Collaboration

  http://open-services.net/html/Home.html

- The Open Group Service-Oriented Architecture Ontology Technical Standard

  https://www.opengroup.org/bookstore/catalog/c104.htm

- IBM Banking Content Pack V7, Information FrameWork

  http://publib.boulder.ibm.com/infocenter/dmndhelp/v7r0mx/index.jsp?topic=/com.ibm.ws.icp.bkkpayfep1.doc/bkk/pay/paymdev/concept/ci/indstds/c_ifw.html

- Capability Maturity Model Integration

  http://www.sei.cmu.edu/cmmi/

- The Open Group Architecture Framework (TOGAF) Version 9 Enterprise Edition

  http://www.opengroup.org/togaf/

- BPMN.org

  http://www.bpmn.org/

- Service-oriented architecture Modeling Language (SoaML) documentation

  http://www.omg.org/spec/SoaML/1.0/Beta2/

- Service Component Architecture Home

  http://www.osoa.org/display/Main/Service+Component+Architecture+Home

- Reusable Asset Specification

  http://www.omg.org/spec/RAS/
- Business Process Framework (eTOM) In Depth

  http://www.tmforum.org/BestPracticesStandards/BusinessProcessFramework/6637/Home.html
- Introduction to OpenUP

  http://epf.eclipse.org/wikis/openup/
- The Agile Manifesto

  http://www.agilealliance.org/the-alliance/the-agile-manifesto/

Help from IBM

IBM Support and downloads

ibm.com/support

IBM Global Services

ibm.com/services

(0.2”spine)
0.17”<->0.473”
90<->249 pages

Combining Business Process Management and Enterprise Architecture for Better Business Outcomes

Learn how to transform your enterprise from conflicting tribes to a modern nation

Discover a unique synergistic approach to BPM and EA

See how to link planning and delivery effectively

This IBM Redbooks publication explains how to combine business process management (BPM) and Enterprise Architecture (EA) for better business outcomes. This book provides a unique synergistic approach to BPM and EA, based on a firm understanding of the life cycles of the enterprise and the establishment of appropriate collaboration and governance processes. When carried out together, BPM provides the business context, understanding, and metrics, and EA provides the discipline to translate business vision and strategy into architectural change. Both are needed for sustainable continuous improvement.

This book provides thought leadership and direction on the topic of BPM and EA synergies. Although technical in nature, it is not a typical IBM Redbooks publication. The book provides guidance and direction on how to collaborate effectively across tribal boundaries rather than technical details about IBM software products.

The primary audience for this book is leaders and architects who need to understand how to effectively combine BPM and EA to drive, as a key differentiator, continuous improvement and transformational change with enterprise scope.

INTERNATIONAL TECHNICAL SUPPORT ORGANIZATION

BUILDING TECHNICAL INFORMATION BASED ON PRACTICAL EXPERIENCE

IBM Redbooks are developed by the IBM International Technical Support Organization. Experts from IBM, Customers and Partners from around the world create timely technical information based on realistic scenarios. Specific recommendations are provided to help you implement IT solutions more effectively in your environment.

For more information:
ibm.com/redbooks

SG24-7947-00 ISBN 0738435619