



## Actionable enterprise architecture management

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**Focusing on enterprise architecture to meet business goals**

For decades, corporate executives and department managers have complained about the frequent budget overruns and schedule delays of complex IT projects. The fact that these costly undertakings often fall short of providing the expected business objectives only serves to increase their frustration. Underlying causes include the intricacy and size of modern applications, as well as miscommunication between business, operational and IT experts who each speak their own jargon. And the moving target of evolving technologies only exacerbates the situation.

Focusing on an enterprise architecture perspective has emerged as an effective way to surmount these obstacles. While not specifically an IT concept, this perspective encompasses the relationships between business strategy and processes, as well as the supporting information systems, data and IT infrastructure.

To benefit the organization, an enterprise's architecture must be actionable; that is, its utility lies in how it can enhance business processes and help the organization meet its goals. Actionable enterprise architecture focuses on enterprise-wide planning and governance to make sure that the right things are done right.

This paper provides an overview of the enterprise architecture concept and highlights how an actionable enterprise architecture approach from IBM can help organizations manage complexity and align IT projects and solutions with business objectives.

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**Highlights**

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**Actionable enterprise architecture can help organizations meet their business goals by defining and effectively reusing the elements that make up the enterprise.**

**What is actionable enterprise architecture?**

IBM views enterprise architecture as a discipline that defines and maintains the architecture models, governance and transition initiatives needed to drive business and IT toward goals derived from corporate strategy and vision. The enterprise architecture is made up of collections of elements such as processes, inputs, technology infrastructure, software components, services and roles. It also includes the relationships between those parts and the principles that guide and govern how they are constructed and used to deliver business value. As shown in Figure 1, there are four categories of reusable enterprise architecture elements:

- *Strategy architecture—including the business vision, goals, objectives and value propositions, as well as the strategies and tactics that will be used to achieve them.*
- *Business architecture—including, but not limited to, capabilities, services, events, information, roles, locations, organization and terminology.*
- *Information systems architecture—including the business scenarios, processes, applications, services, components, data, personnel and other elements that support or implement business functions.*
- *Technology architecture—including the specific hardware and software components upon which the information systems run.*

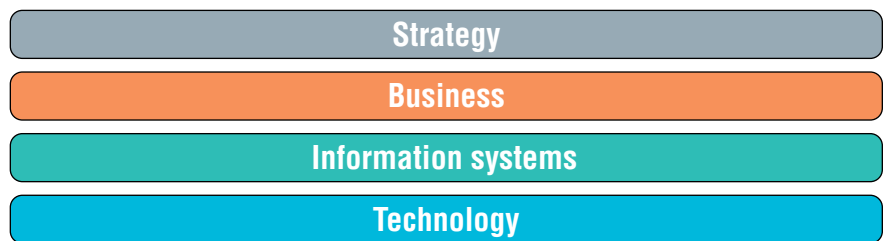


Figure 1: The four categories of actionable enterprise architecture span both business and technology elements.

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***The enterprise architecture provides a context in which to evaluate existing and new assets against business strategy, helping to ensure the most effective use of enterprise resources in planning, operation and transformation.***

Actionable enterprise architecture is a discipline that facilitates the execution of business goals by mapping strategies to the following:

- *Business processes that carry out the enterprise mission*
- *Applications and information resources used to enable those processes*
- *Technology infrastructure that drives those applications and information resources*

This discipline fulfills three objectives. First, it provides a context in which to evaluate enterprise assets against business strategy—delivering the information needed to make quantifiable decisions for guiding enterprise planning and transformation. Second, it helps ensure that assets are deployed effectively when developing and delivering solutions. Third, it encourages the development of new assets by leveraging existing solutions.

The actionable enterprise architecture methodology involves five phases:

1. *Evaluate the influences and influencers that motivate the enterprise to adapt its goals, strategies, value propositions and capabilities.*
2. *Determine the desired end state of the enterprise and the actions that must be taken to achieve that state, using the business strategy as the driving force.*
3. *Define a portfolio of projects that will advance the organization toward the achievement of its goals and objectives, and evaluate different opportunities and solutions against their potential effect on the business.*
4. *Construct solutions out of the enterprise's constituent elements—solutions that may, in turn, create new or updated elements that can be used in future projects.*
5. *Monitor, measure, manage and control the enterprise architecture and development initiatives to help ensure that business objectives are met and that the architecture evolves in a way that improves business performance.*

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***To help enable actionable enterprise architecture, IBM Rational System Architect helps organizations evaluate, manage and reuse architectural elements.***

The inevitability of changing business conditions and emerging technologies means that the final monitoring step will lead to iterations of the phases to realign the architecture with the evolving best interests of the enterprise.

The benefits of this approach can include more rapid, productive and effective implementations of new initiatives, faster response to marketplace changes, and lower costs of operations.

**Enabling actionable enterprise architecture**

A technology-based toolset is required to support successful enterprise architecture initiatives. IBM® Rational® System Architect® addresses this need by providing a repository-based, graphical modeling and analysis solution that enables the collection and analysis of information about enterprise elements. The use of shared enterprise element repositories provides a line of sight from the strategic enterprise plans to the operations, information, applications and infrastructure needed to implement those plans optimally. This visibility helps business and IT decision makers allocate funding and implement projects that can generate the most value.

Through the creation and integration of models that represent various aspects of the enterprise, including current and target states, business analysts and IT architects can identify redundant resources, obsolete processes and technologies, and gaps in business and IT capabilities. As a result, the organization can focus on the most salient issues and direct resources to high-value infrastructure and processes. And the enterprise architecture information can be captured and communicated across projects to help ensure consistent and rapid response to evolving business needs.

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***With the Rational System Architect solution you don't have to determine your entire future-state vision in order to begin realizing benefits of actionable enterprise architecture.***

You do not have to approach actionable enterprise architecture as a “big bang” project. You can grow into it as needed—provided that the supporting tools you choose are sufficiently comprehensive and flexible to accommodate the broader long-term vision. You can start by analyzing your IT infrastructure to identify areas where you can realize considerable cost savings by improving efficiency and productivity.

The IBM Rational System Architect solution helps you create strategy and architecture visibility across the lines of business and through the layers of abstraction that management uses to define the organization. It also provides advanced functionality for analyzing information and visualizing the gaps between the current-state architecture and a future-state vision. While having a future-state vision can help you fine-tune cost-saving efforts, you do not need to determine your entire future-state picture to begin realizing the benefits of actionable enterprise architecture.

**Driving the change necessary to fulfill the enterprise vision**

A key to change management is the exploitation of existing business elements in the planning, developing, monitoring and governing of new projects and solutions. To accomplish this reuse, the enterprise must first fully articulate its underlying motivations and the resulting strategies.

Business motivation starts with capturing a vision for what the business wants to achieve. The vision is then amplified by a set of goals that the business wishes to accomplish. Goals may be quantified by specific, measurable, achievable, realistic and time-bound (SMART) objectives that can be evaluated to determine whether the goals have been met.

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***The first step in developing an actionable enterprise architecture is capturing information about the state of the business and its processes.***

Once the desired goals are identified, the focus shifts to achieving them. The first step is to define the mission that will realize the vision. The mission plan is then translated into planned strategies that support goals. These strategies are implemented through specific business tactics.

Strategies, tactics and capabilities are all governed by business policies and rules. The role of actionable enterprise architecture is to break conceptual enterprise architecture out of its ivory tower by enabling collaboration among business strategists, business analysts, operational modelers, project planners and solution developers in a way that is beneficial to all parties.

**Starting from now**

The current state is a constraint that must be considered when setting out to implement change. Therefore, the development of an actionable enterprise architecture starts by capturing information about the state of the business and its processes.

Defining the starting-state architecture is not easy because it can consist of many business elements. The sheer number and complexity of these elements could render the architecture unusable without the aid of an automated tool that organizes the building blocks, documents the design, and provides facilities for employing the design to plan and develop solutions.

IBM Rational System Architect provides an organizing structure for business element definitions. At the same time, it facilitates coordination between the efforts of a central architecture group and line-of-business stakeholders—balancing organizational autonomy and enterprise needs. The central group

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***The business architecture consists of those enterprise building blocks that directly support the desired business capabilities and strategies.***

***Process model analysis and business architecture analysis affect timelines and costs, so they should be factored in early to project portfolio planning.***

can focus on enterprise issues, such as economies of scale and standards, while the lines of business can retain the flexibility to pursue individual strategies and independent processes driven by the overarching enterprise strategy and vision. To adapt a common metaphor, this helps the enterprise maximize the value of both the forest and the trees.

**Aligning architecture with strategy**

There may be many ways an enterprise can realize or respond to its business motivation. A good place to start is to understand the elements of the business architecture and how they need to evolve to better align with business strategies. The business architecture consists of those enterprise building blocks that directly support the desired business capabilities and strategies. It includes functional and operational aspects; however, it does not address how a solution makes use of these functions.

When exploring or developing the business architecture, process models may be used to describe how activities integrate to execute a tactic or provide a capability. Such process analysis helps explore different ways of realizing business objectives. Business process simulation may be used to verify that the objectives are met and to estimate the effect on the business.

Business architecture analysis may also be used to identify required new capabilities as well as changes to the existing business processes, information systems and technology architectures that are required to support the new capabilities. Because these considerations all affect the development times and costs of potential solutions, they should be factored into project portfolio planning.



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***The IT architecture is composed of the information systems architecture and the technology architecture, both of which facilitate automated IT realizations of business capabilities.***

**Realizing efficiencies through automation**

Some business capabilities may be candidates for automation using IT solutions. In identifying the building blocks that enable automated IT realizations of business capabilities, the IT architecture can be broken into two main parts: information systems architecture and technology architecture.

The information systems architecture defines the business function–based elements that may be used to realize the automation of business capabilities through the use of IT. The technology architecture, on the other hand, defines the technology-specific elements that provide the platforms and services upon which the information system components run. Because it provides the platform building blocks that support the execution of automated business processes, the technology architecture is a key part of the overall enterprise architecture.

**Visualizing and planning for the future**

Enterprise architecture can be used to map business motivation, cost, value, and time to the project’s definition, selection, and progress to help ensure that the organization remains effective. Project portfolio management can then be used to analyze the costs, time to market, business impacts, dependencies and priorities of the proposed solutions to define and select the projects that will be undertaken.

An enterprise architecture methodology offers an elevated level of analysis, insight and structure, but enterprise planning information is useful only if it is presented in formats and timeframes that are actionable. Will you be able to forecast the negative impact of high-level decisions in time to take corrective action? Will you be able to spot trends in processes or IT resources in time to

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***By accurately visualizing and assessing strategy, processes, and the supporting IT technologies and services, you can see how decisions made today may affect the future direction of the organization.***

exploit the opportunities or evade the threats? When enterprise information is presented in a meaningful way, it is easier to answer these questions. You're better able to predict evolving circumstances and requirements, ascertain the organizational and IT changes required to address those transformations, and manage changes as they ripple across the affected areas of the organization.

When you assess strategy, processes, and the supporting IT technologies and services, you need to understand how the decisions you make today will affect your organization tomorrow. Through the enterprise architecture and supporting visualization and impact analysis, companies can identify gaps and quickly correct operations and processes. By understanding the root causes of underlying issues, organizations can update their models and prevent the recurrence of problems later.

IBM Rational System Architect supports time-lapsed analysis and enhanced visualizations that capture time-based snapshots of a given aspect of the organization and then depict the evolution of that aspect over time. Diagrams can be layered to reveal the impact of changes, such as services available now and next year.

#### **Uniting operations and IT**

The enterprise architecture approach derives its strengths—actionable information and collaboration enablement—from the fact that it draws frequently on the insights and expertise of a wide range of contributors. These contributors can include frontline employees, managers and directors who are

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*The enterprise architecture approach helps enable organizations to align IT with business by drawing on the insights and expertise of a wide range of contributors.*

closest to the operating activities of the business, as well as operational and technical staff members who develop and maintain the supporting IT systems. By asking these people to participate jointly in enterprise architecture, business improvement and enterprise planning activities, organizations enhance buy-in and collaboration opportunities. At the same time, it is far easier to hold people accountable when they have a substantial role in setting targets and objectives.

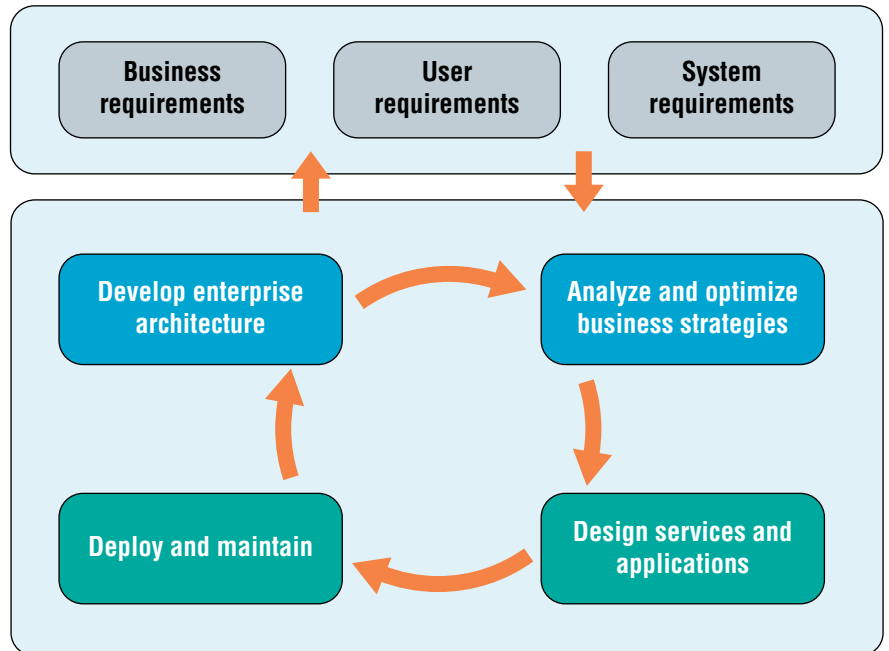


Figure 2: Actionable enterprise architecture is an ongoing, iterative process with continuous feedback loops that draw on the insights and expertise of a wide range of contributors.

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To make the promise of enterprise architecture a reality, information must be gathered from subject-matter experts across the organization. More important, the information and models must be kept current as the enterprise evolves and as new information becomes available.

Rational System Architect software helps organizations capture and maintain enterprise-wide information and models in the enterprise architecture repository. By seamlessly incorporating the business perspective into the enterprise architecture process, organizations gain the information needed to build models, develop insights required to make key business and IT investment decisions, and share information across the organization.

**IBM: taking enterprise architecture mainstream**

Organizations that recognize the value of enterprise architecture may face cultural and technology infrastructure challenges that impede deployment. IBM is committed to helping companies see practical results from enterprise architecture—both upstream to guide planning and downstream to enhance operations and supporting technology environments.

IBM recommends that companies investing in enterprise architecture consider harvesting their architecture elements from existing information resources. Then, they should find as many avenues as possible to directly sustain the chosen directions of their respective businesses and find solutions that support progress in those directions. This approach helps ensure that the enterprise architecture is current and relevant. And the recognition of the value that is created by this approach can result in continued and increased funding for enterprise architecture projects.

***IBM Rational System Architect helps enable you to harvest architectural elements from your existing information resources and explore as many avenues as possible to sustain the chosen direction of the business.***

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***The integration of IBM Rational System Architect with asset management, business modeling, change management and development products from IBM supports traceability across the enterprise system lifecycle, as well as enhanced governance and control over changes to the architecture.***

Integrating IBM Rational System Architect with other IBM Rational solutions and solution delivery products such as the IBM WebSphere® Business Modeler can provide vital support for this pragmatic approach. It facilitates efficient enterprise system implementation lifecycles that more accurately align with business goals, and it allows access to industry-leading modeling technologies at each phase of development. This integration also helps business process analysis and design teams collaborate for comprehensive traceability supported throughout the workflow.

Leveraging Rational System Architect technology with asset management products from IBM assists in making it easy to import enterprise assets into the enterprise architecture repository and coordinate that information on an ongoing basis. The integration of System Architect and WebSphere Business Modeler facilitates the consolidation of business process models between business strategic planning and business process management environments, and it helps ensure a clear workflow between the two systems. And linking enterprise architecture with business intelligence platforms enhances the way an organization's information is analyzed and used to support key decisions.

Because enterprise architecture spans multiple stakeholders and organizational boundaries, a key to successful development is understanding and tracking change throughout the enterprise. Thus, effective management of the enterprise architecture requires a degree of governance and control over changes to that architecture. Some of the questions that must be answered include:

- *What has changed?*
- *Why was it changed?*
- *Who changed it?*

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***Actionable enterprise architecture helps boost awareness of the relationships between systems, data, people and broader business goals to enable a more rapid and effective response to business change.***

The integration of the System Architect solution with change management products from IBM can provide answers to these questions while helping to continuously manage change.

**Realizing greater value from complex IT projects**

Successful organizations recognize how their business processes and IT projects contribute value to the enterprise. They understand the relationships between systems, data, people and broader business goals. Enterprise architecture can be a key enabler for this awareness.

Actionable enterprise architecture looks at how the organization is aligned to produce the results it is getting; analyzes the future direction of the enterprise to define the desired state; and identifies the changes necessary to move the organization to where it would like to be.

IBM Rational System Architect helps organizations develop actionable enterprise architectures by providing a flexible platform and shared workspace for all contributors to understand and enhance the business—helping to promote:

- *Increased organizational agility*
- *Alignment of business processes and IT systems with business objectives*
- *Planning, modeling and execution of business processes*
- *Rapid, effective and positive response to business change*

Finally, exploiting the integrations between Rational System Architect and solution delivery products from IBM automates development lifecycles. This provides enterprise-wide visibility to help improve the productivity and lower the costs of those lifecycles, while helping to ensure that your developed solutions better align IT development with real-world business needs.

**For more information**

To learn more about how IBM Rational System Architect software can help you enable actionable enterprise architecture, contact your IBM representative or IBM Business Partner, or visit: [ibm.com/software/rational](https://ibm.com/software/rational)



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