

Leveraging Business Architecture to Improve Business Requirements Analysis

A Business Architecture Guild Whitepaper

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Introduction

With all the money and resources invested in new product development, over 80% will fail.¹ That is an astonishing fact given all the information and knowledge being tracked about customers, products, competitors, and environmental factors. This level of waste would never be tolerated in any supply chain, yet it persists and prospers in most organizations. The number one reason for this level of failure is the inability of organizations to link the relevancy of their products to what their customer's are trying to get done in their lives.²

"The statistics are quite alarming when it comes to new products; 4 out of 5 will fail."

The problem doesn't stop at defining customer needs. Projects designed to deliver new products involving information technology also have a poor track record. There is a clear need to improve performance and delivery of software projects. Consider that 70% of software projects fail due to poor requirements. The estimated rework associated with these failures exceeds \$45 billion annually. The question is – why is this happening? The answer is twofold. First, business requirements tend to lose focus on the customer; and second, the requirements lack a holistic frame of reference that enables requirements analysts to drive and trace requirements from customer need, through strategy, and down to the solutions being implemented. Business architecture addresses both challenges and has the potential to turn this figure around.

*"70% of software projects fail due to poor requirements with an associated rework spend just north of \$45 billion annually"*³

Most organizations treat requirements management as a means towards an end for projects and/or programs. Successful organizations tend to think about requirements management as a corporate capability and the data that is captured as a corporate asset, which can be carefully nurtured, validated, warehoused, and mined. Done right, requirements management can be used to link desired outcomes from customers and stakeholders to drive change and ensure sustainability for the organization. As the complexity of launching new products and services and driving continuous improvement increases, organizations are turning to business architecture to help them reduce risk, costs, and cycle time.

*A Guide to the Business Architecture Body of Knowledge™ (BIZBOK™ Guide)*⁴ has helped numerous organizations establish a business architecture framework that can be leveraged throughout the requirements management lifecycle. The next evolution for the requirements management lifecycle is to fully incorporate this framework to maintain a customer perspective, aligned to strategies, value streams, business capabilities, and planning roadmaps.

The outcome of this alignment is an improvement in the success ratio of product-related investments.

Ideally, organizations should commit to an institutionalized priority around customer focus. This requires a level of commitment and discipline to create a deep understanding of what customers want using a value-centric approach. The company must determine what the customer is trying to achieve as an end goal when they “hire” a product/service to accomplish one or more jobs?⁵ By establishing a customer-focused, value-centric approach, organizations can align their business capabilities to ensure they deliver the right products. Organizations need to expand their definition of “customer” to include regulatory, statutory, and business stakeholders – investors, partners, and upstream/downstream participants – in various value streams and value networks. The definition of customer is broadened to include stakeholders and consumers, since both may benefit directly and indirectly from an organization’s products and services.

Companies may feel that they lack the time and resources to establish a customer-oriented, value-centric approach, so instead they often opt to only improve process and productivity, leaving customer value totally out of the equation. This internally-focused, efficiency-oriented approach means that little value analysis has been performed, leaving value mapping concepts totally out of the picture. The result is an improvement in productivity, but alienation of customers who ultimately move towards competitors and other options. This is fundamentally flawed since the only way to establish customer intimacy and gain a deeper level of understanding is to observe and talk with customers, which can be accomplished by modeling customer behavior through value mapping.

As outlined in this whitepaper, positioning business requirements from a customer value perspective, through the use of business architecture, provides a fresh approach for organizations to drive strategy and maximize investments that increase customer satisfaction and retention, and deliver more value for their investment in business requirements analysis.

Business Architecture vs. Business Requirements

A business architecture-based approach allows for increased clarity of purpose, design, and scope. A generally-accepted goal of business architecture is to provide “a blueprint of the enterprise that provides a common understanding of the organization and is used to align strategic objectives and tactical demands”.⁶

Key blueprints, as defined in the *BIZBOK Guide™*, relevant to business requirements primarily include strategy maps, value streams, and capability maps, as well as organization, information, stakeholder, product, and initiative maps. The progression of mappings utilized in business

architecture define strategy, value delivery, and what a business does, which then allows for the alignment of specific project requirements.

Business requirements, on the other hand, are defined by a different focus, typically manifested as solution-oriented statements of need. *A Guide to the Business Analysis Body of Knowledge®* Version 2 from IIBA defines a requirement as:

1. A condition or capability needed by a stakeholder to solve a problem or achieve an objective
2. A condition or capability that must be met or possessed by a solution or solution component to satisfy a contract, standard, specification, or other formally imposed documents
3. A documented representation of a condition or capability as in (1) or (2).⁷

It is important to note that a requirement can take many forms, such as: technical or business-oriented, functional or non-functional, high-level or detailed. Requirements, in the context of this whitepaper, may also include use cases, agile user stories, or other structures. Regardless of the methodology employed by an organization, this holistic view of requirements can leverage a business architecture framework.

Business requirements provide a means to consistently and methodically address gaps and limitations in capabilities and value streams, with the result being solutions that address a wide variety of strategic and tactical business needs. All of these requirements artifacts provide a structured way to capture and warehouse the specifications used to precisely guide changes to products and services used to deliver value. In order to achieve this level of precision, a commitment to requirements management and the business architecture used to frame (and align) these artifacts is required. Where organizations often go off-course, resulting in rework or worse (delivering the wrong products and services to customers), is when the commitment to aligning business requirements and business architecture is bypassed in favor of a quick fix.

At this point, it is important to address a common misperception related to this subject. While business architecture and business analysis share some similarities, both disciplines have a distinct purpose, multiple inputs and multiple consumers, and as such need to evolve and be managed as separate disciplines. The blueprints created by a business architect may be used as a framework for business requirements, as we expose further in this whitepaper. In addition, these blueprints assist executive leaders in gaining clarity of thought, making better decisions, meeting business challenges, and forming solutions to those challenges. Further, business architecture blueprints are of use to strategic planning teams, portfolio managers, project

managers, agile teams, business process modelers, technical architects, and many other downstream stakeholders.

Oftentimes, organizations jump into defining the solution before they fully understand the needs or even the boundaries of the issues. In some cases, tools and/or technology choices are made based on a presumed understanding of a technical need. Without the traceability back to what customers want, the execution of changes to products and services is based on guesswork. Organizations cannot afford to rely on intuition to drive sustainable organic growth. The future remains bright for organizations with leadership who commit to driving growth using a disciplined process for guiding their investments.⁸ While efforts at solution architecture, technical design, or implementation details are often needed, they are not the core of a business requirement. A strong business architecture will ensure that the right requirements are captured and aligned to drive change.

As outlined in the remainder of this whitepaper, business architecture provides a structure for requirements alignment. The key outcome of business architecture is to provide a framework for the business. The elements of this framework – primarily but not exclusively value streams and capabilities – can be improved and extended through the requirements of a project. In rare cases, requirements are provided in support of new capabilities. It is optimal in these cases to design business architecture first, and then provide implementation level details through requirements.

Business Requirements Analysis Approaches and Best Practices

Requirements management can be broken down into four primary phases: Planning, Elicitation, Analysis, and Solution Design. The expected outputs of this process are specific statements and/or rules essential to achieve a defined target state, utilizing multiple levels of detail. However, as projects continue to miss delivering anticipated business value within scope, the requirements process will continue to be suspect. Not only is it a common perception that this process is problematic, but opinions are backed by industry statistics as previously noted where approximately 70% of software projects fail due to poor requirements⁹ with an associated rework spend just north of \$45 billion annually.¹⁰

Attempts to reverse this trend have brought about the development of several techniques and frameworks, and have also been a dominant driver for organizations adopting Application Lifecycle Management (ALM) platforms. Methodologies such as the Rational Unified Process (RUP), maturity in Iterative Development, and Agile have had positive impacts remediating risks associated with controlling scope, standardizing documentation, and improving business-to-IT communications. What still remains to be addressed are several key considerations that improve both the formation, capture, and cataloguing of requirements to improve their initial

and ongoing value as a core business asset. The goal can be met by establishing clear business boundaries for requirements and using these boundaries to improve the resulting requirement, establishing traceability (linking business strategy through solution design), and establishing the ability to reuse requirements across common organizational capabilities.

Addressing these goals requires a common understanding of the business strategy and needs, regardless of the form of output the business analyst is producing. There must be a framework that provides both the ability and essential artifacts to examine, interpret, and transform information (implicit and explicit) that enables sound decision-making. Herein lies the value business architecture provides to the process of requirements analysis.

Possessing these artifacts and perspectives are absolutely critical. Today, business analysts do a respectable job delivering lower-level, system requirements, but they do not always address the true business need. There are two primary reasons for this. First, the business analyst developing functional requirements typically has access to technical artifacts to perform analysis – application/information architectures, data-flow diagrams and dictionaries, and user interfaces. Possessing these blueprints and references creates a common functional context to connect the dots between ask and system behavior. Second, the majority of business analysts are functionally aligned with IT (65% residing in IT vs. 35% residing within the business unit)¹¹. As such, responsibilities tend to focus on developing the “what’s” that define the technical solution. Although this is a must have capability, this creates an unnecessary gap in the ability to connect these defined behaviors back through intended business results tied to value perspectives and capabilities.

Business architecture provides the necessary context to narrow this critical gap. As outlined above, business architecture provides an essential framework that not only creates the linkage from business strategy to business capability through a value perspective, but also the capacity to quickly identify those common, reusable requirements tied to widely used capabilities.

Business Architecture as a Framework for Business Requirements Analysis

Business analysts must be able to answer the question “why”. This is not necessarily why the project was initiated, but why the business requirement exists. Requirements are the instructions guiding the design of the solution that will create the intended return on investment (ROI). Analysts have to represent the output of accurate and thorough analysis, and they have to be accurate.

The recommended approach to effectively address the “why” question is to trace the requirement logic from its basic components – stakeholder, goal, and reason – through its

origins and deployment highlighted via business architecture – business strategy, value stream, and capability. However, frameworks today guide analysts to trace specific requirements back to specific project artifacts – business requirements to project scope, functional requirements to the business requirements document, and implementation requirements to the functional specification. Projects rarely have the ability to fully trace requirements from business strategy through solution design. The reason is not due to a fundamental design flaw in traceability matrices, but rather an inability to state the strategy of the business as a whole. Indeed, a study by Kaplan & Norton found that “95% of company employees are unaware of, or do not understand, its strategy”.¹²

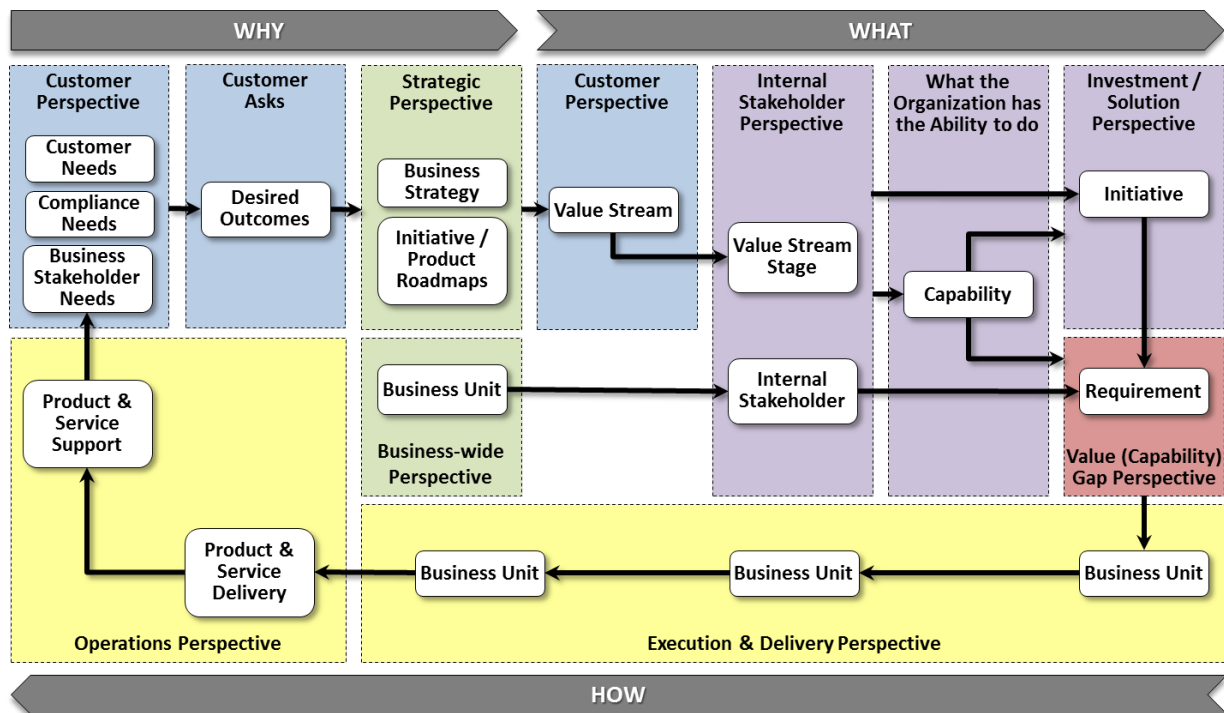


Figure 1: Business Architecture Frame of Reference Enables Business Requirements Traceability across Multiple Business Perspectives

A business architecture-enabled analysis framework links requirements with the perspectives of business strategy through solution design. This framework, shown in figure 1, can be described as follows.

- Requirements are framed and aligned using business architecture to ensure they address the perspectives.

- When requirements are properly framed, they align strategy and execution to ensure the right value is delivered through the products and services.
- Business architecture provides a consistent framework for aligning what customers want against what the organization provides, as well as driving continuous improvement in value delivery by closing defined value and capability gaps.

Such a framework, which is based on business architecture, provides business analysts and impacted stakeholders with a visual business context that represents a traceable logic between the requirement and its structural business components. Organizations leveraging this framework should anticipate the following benefits throughout the entire project lifecycle:

- Improved definition and completion of business cases through aligning customer/stakeholder needs, value streams and capabilities
- Informed business decisions through the identification of capability gaps/overlaps, misalignments between value propositions, and delivery channels
- More precise initiatives prioritization and sequencing through alignment with the strategic roadmap and customer key performance indicator (KPIs)
- Ability to provide accurate, consumable business requirements that define intended business objectives through a language understood by both the business and IT
- A framework for effective identification of business functions requiring the same or similar capabilities for reuse

To gain perspective on how these benefits manifest themselves, let's align the framework between key business architecture integration points and business analyst outputs.

Strategic Analysis and the Business Case

Business initiatives typically require the development of a business case before being chartered and funded as a project. Business analysts must be able to piece together business and functional concepts into a consumable, actionable business case that defines those data points that justify the investment, and ensures the initiative is appropriately aligned with strategy, customer/stakeholder needs, delivery channels, and capabilities.

Analysts not having the ability to reference higher-level views such as strategy maps, value streams, and business capability maps, either at an enterprise or business unit perspective as context for analysis, often yields two unfavorable elements into the business case – additional assumptions, and additional work to create the business case. Additional risks, such as the duplication of a solution that has already been completed for a given capability, or proposing

functionality that is misaligned with value propositions or delivery channel capabilities, are also potentially exposed.

Accessibility to these business architecture artifacts enables the analyst to analyze vs. engage in a seek-and-find mission – most often requiring a few rounds of validation that may not ever be agreed upon. The ability to define and directly link these business facts during the planning stage establishes a solid foundation for delivering a better defined and more complete business case supported by accurate requirements.

Architectural Alignment and Elicitation, Requirements Definition, and Requirements Validation

There are two primary mechanisms that drive effective elicitation – knowing who and what to ask. Alignment between the “who” and the “what” are the foundational attributes of an accurate requirement. When the business case fails to correctly identify the stakeholders and/or contains too many assumptions, the rework meter automatically, yet covertly kicks into gear. As business analysts develop requirements plans, it is around those stakeholders and their surrounding ecosystems that the basis forms from which they conduct their analysis.

To mitigate the risks of soliciting the wrong “who’s” and asking misguided “what’s”, business analysts are starting to leverage the concept of a requirements roadmap. This roadmap enables the business analyst to formulate and align specific business scenarios with the level of detail needed to develop the requirement. This approach effectively transforms the elicitation process from multiple discovery activities to a set of actionable conversations among targeted stakeholders that can frame a target state.

Context to develop these scenarios are contained within business architecture artifacts. Through the strategy maps, organization maps, value maps, capability maps and strategic roadmaps, the business analyst has the necessary references to create a comprehensive analysis approach.

Requirements must accurately represent the business need in terms of stakeholder, goal, and reason. However, the business analyst must also consider constraints inherent in existing business structures (capabilities, value streams) and perspectives (stakeholders, solution scope) when developing accurate requirements. For example, a business analyst assigned to enhance a retail consumer product develops requirements calling for mobile functionality. Limited to the project scope document as the foundational business reference, the analysis process could fail to identify lack of mobile capabilities (captured in a capability mapping) or recognize the planned outsourcing of mobile services to an external partner (captured in a strategic roadmap).

The latter scenario (requirements linkage to a strategic roadmap) introduces an additional dimension to the traceability framework business architecture can enable – requirement sequencing. Incorporating roadmaps, whether for an enterprise strategy or specific to a product, enables a deeper level of collaboration between the business analyst and stakeholders to link requirements to a specific stage of the overall initiative.

Before a requirement can be actionable, it must be validated by a variety of resources possessing various perspectives. Validation sessions can be lengthy and quite painful, as requirements are read aloud one by one, and often accompanied by numerous requests for operational definitions and the need for qualifying context. To this end, material impacts to requirements in terms of changes, deletions and additions are often introduced, resulting in extra time required to rework the definition process.

As our framework utilizes the common perspectives and language contained within the business architecture, a basic level of agreement is built directly into the requirements. This materially improves both the efficacy and efficiency of the validation process. However, as requirements may be questioned, the ability to quickly evaluate the scenario is possible as the business analyst can simply project the appropriate artifacts to walk through and discuss the logic.

Scoping, Framing and Categorizing Requirements Using Business Architecture

Requirements are driven by various business strategies and objectives and, as a result, requirements scoping and categorization should reflect these strategic considerations. Business requirements should be tied to tangible business focal points as a vehicle for framing the issues at hand and work to be completed. As stated above, this can be accomplished by leveraging the framework provided by business architecture.

Value streams, for example, show how a business derives end-to-end value for external and internal stakeholders, including customers and partners. Capabilities define the essence of what a business does using a concise, widely-vetted business vocabulary. When paired, value streams and capabilities collectively show which business capabilities are used to enable the delivery of customer value for various stakeholders. Strategies can be shown to directly impact stakeholder value delivery and business capabilities, and in turn serve as a focal point for requirements definition and initiative scoping. By definition, therefore, any business requirement should further the delivery of stakeholder value by improving one or more capabilities or by adding a new capability.

Consider the following example. A financial institution has been issuing high-risk loans, putting the institution and the customers at risk. Analysis of the business architecture shows that there

are two stages across two value streams where risk-rating capabilities are leveraged to further loan approval. The initial scope of requirements may focus on the Approve Loan stage of the Acquire Loan value stream, and target specific improvements to certain risk rating capabilities. The strategic objectives, supported by KPIs point to this value stream stage and enabling capabilities as the scope of the problem and focal point for a solution. Participating stakeholders, which are mapped to each stage of a given value stream, further serve as focal points for establishing a series of user story requirements.

In this example, the project team would need to define some number of user stories, for one or more stakeholders who participate in the aforementioned value streams and focus on improving or adding various business capabilities. This provides business analysts with a concrete point of reference for user interface requirements, the capabilities and by extension business objects and information to focus on, and the stakeholders targeted for various user stories. In this way, business architecture serves as a frame of reference to bound the scope of the story while tying it directly back to the strategic business objectives.

Let's explore our example again to identify some other benefits business architecture provides in the context of business requirements. Assume that the previously referenced business capabilities are used by an insurance division to assess policy risks under the context of a different value stream, yet this is not clear to anyone on the original project. Efforts to improve these capabilities within a loan approval context may also satisfy improvements to these same capabilities for the insurance division. The business architecture can be used to identify that these same capabilities enable other value streams and are tied to other business units. As a result, the aforementioned framework allows another project team, working on an insurance upgrade, to quickly refer back to and reuse these business requirements. In this way, business architecture serves as a cornerstone for establishing business requirements as reusable artifacts on a larger scale. This in turn can save time on related or similar issues that arise and provide a reference point as to what was done to meet certain business objectives within the context of a given business strategy on a business-wide basis.

Using Business Architecture to Derive and Drive Business Requirements Analysis

In addition to using business architecture as a framework for tying requirements to key aspects of the business and subsequent business requirements, business architecture provides the ability to help drive and derive requirements. Consider our previous example of the loan value stream. The business has "heat-mapped" the value stream stages and more importantly the capabilities, using color to draw attention to areas of need. For example, red means the capability is significantly problematic. Let's assume that the Account Risk Rating, Customer Risk

Rating and Aggregate Risk Rating capabilities are red, meaning that they are in severe distress. Other capabilities involved in this project may be green (hence, not a problem).

Obviously, the requirements would focus on the red capabilities first. Impact analysis and other metrics tied to a given business architecture perspective, often bound by a given business strategy, provide a basis for prioritizing and focusing requirements on the highest impact, most problematic areas of the business. Value stream stage heat mapping offers similar insights.

We can see that business architecture not only provides a framework for scoping, defining and tracing business requirements across the business, but also provides a basis for prioritizing and focusing requirements efforts. This two-phased approach to scoping, organizing and prioritizing requirements, ensuring reuse across the business as well as long-term business knowledge capture, essentially shows how business architecture and business requirements analysis are not just casually linked but critically interwoven.

Conclusion

With all of the tracking and management abilities that have evolved over the past decades, the ability to effectively derive, trace, and reuse business requirements has remained in its infancy. The previously cited statistics regarding requirements being the source of lost investments and project failures demonstrate that a fresh perspective is required. Business architecture provides this framework by offering insightful, consistent perspectives of the business from a variety of perspectives that are essential to managing, understanding, deriving, and reusing business requirements.

Business architecture complements other disciplines. A number of major projects are underway that effectively leverage business architecture alongside various other frameworks and disciplines, including the use of Agile. Without business architecture, however, these projects would have many of the disadvantages cited in this paper, and run the risk of becoming another failure statistic in the long line of challenged projects and investment disappointments. Implementation and use of a business architecture framework provides a major step forward in avoiding these issues and driving project and business success.

¹ *New Media Marketing Blog*, April 2014, The number 1 reason new products fail, <http://www.newmediaandmarketing.com/the-number-1-reason-new-products-fail/>

² *Harvard Business Week*, Working Knowledge Newsletter, 14 Feb 2011, Clay Christensen's Milkshake Marketing, <http://hbswk.hbs.edu/item/6496.html>

³ National Institute of Standards & Technology (NIST)

⁴ The Business Architecture Guild, www.businessarchitectureguild.org

⁵ *Harvard Business School*, What Customers Want from Your Products, Jan 16, 2006, <http://hbswk.hbs.edu/item/5170.html>

⁶ *A Guide to the Business Architecture Body of Knowledge™ (BIZBOK™ Guide)*, Part 1: Introduction

⁷ *A Guide to the Business Analysis Body of Knowledge® (BABOK® Guide)*, Version 2.0, 2009

⁸ *Harvard Business Review*, Creating an Organic Growth Machine, May 2012, <http://hbr.org/2012/05/creating-an-organic-growth-machine/ar/1>

⁹ National Institute of Standards & Technology (NIST)

¹⁰ U.S. Bureau of Economic Analysis, 2008

¹¹ Forrester / International Institute of Business Analysis (IIBA), 2010 Global Online Survey

¹² *Harvard Business Review*, The Office of Strategy Management, October 2005, <http://hbr.org/2005/10/the-office-of-strategy-management/ar/1>

About the Business Architecture Guild

A cadre of leading industry experts formed the Business Architecture Guild to develop A *Guide to the Business Architecture Body of Knowledge™ (BIZBOK™ Guide)* and to promote best practices and expand the knowledgebase of the Business Architecture discipline. The Business Architecture Guild is a member-based and member-driven not-for-profit organization dedicated to growing and disseminating authoritative information on Business Architecture. Contact us at info@businessarchitectureguild.org or at www.businessarchitectureguild.org.

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