



Business Architecture and Agile Methodologies

A Business Architecture Guild Whitepaper

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Introduction

The increasing pace of business innovation continues to push organizations to evaluate business models that will meet stakeholders' demands to interact in novel ways, anywhere and anytime. As utilization of agile methodologies becomes more prevalent – over 50% of organizations are using agile in some manner¹ – it is important for business architecture practitioners, business partners, and executives to understand the benefits to be gained from aligning business architecture and agile methodologies.

This paper provides guidance for incorporating business architecture in organizations employing agile methodologies, including guidance targeted to companies with mature and immature business architecture practices. The authors contrast an organization newer to business architecture practice with one that has a mature practice within an agile environment. This contrast demonstrates the benefits any company can derive from using a business architecture framework to measure delivered value² in agile environments. The paper concludes with recommendations for businesses to consider as they examine when and how to use business architecture and agile methodologies. For background purposes, the paper has included a summary of business architecture and agile in Appendix A.

Benefits of Business Architecture and Agile Methodology Alignment

The structure and frameworks offered by a business architecture practice can help overcome some of the perceived shortcomings of initiatives following agile practices:

1. Agile teams are self-organizing; which can result in deliverables that do not meet business needs or comply with dependencies for other initiatives. Business architecture can provide insights into priority setting, when the team has completed delivery of a product, the need to focus on specific features, or where there are new gaps that need to be addressed. Closing communications gaps is a key value that the business architecture practice brings to the business.

¹ Project Management Institute (PMI) survey 2011.

² Business Architecture Guild, *A Guide to the Business Architecture Body of Knowledge™, v 4.1 (BIZBOK® Guide)*, 2014. Section 3.7, Page 308.

2. Budgeting for agile initiatives should not be assumed to be endless. Business architecture can help identify when enough of the future state has been addressed such that budgets can be closed or re-allocated.
3. Agile teams do not always have line of site to other teams' efforts. Utilizing business architecture best practices, artifacts produced identify the alignment between strategies, initiatives, value delivery perspectives, and shared capabilities, which collectively provide this line of site.
4. Measurement of value delivered is not always easily traceable to strategies, objectives, and tactics of an organization. The product owner for an agile team may not see important interrelationships and dependencies that are present. Business architecture identifies the value streams, value stages, and the related business capabilities, allowing easier identification of the work efforts that would need to be completed (i.e., "epics" in Scrum terminology). Look at it from an agile Scrum perspective, these epics – aligned to business architecture – get broken down into agile requirements (user stories, etc.) in the backlog of work to be delivered by the agile team. The maturity of the value streams or the capabilities supporting each value stream can be tracked and compared against future state value streams for each, as the "cross-mapping between the value and capability concepts is a key component of business architecture."³

In order to validate the target state for value streams and capabilities that are being worked on by one or more of the agile teams coincide with overall enterprise vision, objectives, and strategies, we suggest that practitioners of business architecture collaborate with the self-organized teams. At a minimum, a practitioner of business architecture needs to be prepared to discuss the current state of vision, objectives, and strategies with all the members of each agile team to help them identify important factors to consider in prioritizing requirements (user stories) in a backlog. Ideally, each agile release targets and is tracked against the capabilities it automates and delivers, within the context of the value stream targeted for that agile product.

³ Business Architecture Guild, *A Guide to the Business Architecture Body of Knowledge™, v 4.1 (BIZBOK® Guide)*, 2014. Section 2.4, Page 121.

Principles of Business Architecture and Agile Methodology Alignment

In order to prepare for these conversations and get best results, the business architecture practitioner must consider business performance⁴ and the way changes to internal and external factors affect business capabilities. Available performance dashboards and business architecture tools may be used individually or in conjunction: Porter's Five Forces model⁵, the Business Model Canvas⁶, and/or SWOT Analysis⁷ allow "what if" analysis and introspection to uncover dependencies when one or more strategies changes or one or more external or internal factors changes.

These performance analyses are critical to agile planning efforts. The same type of analyses of target state vision, objectives, and strategy make sense both at the start of an agile effort, and at consistently scheduled evaluations of agile team progress. Business architecture deliverables provide agile teams, product owners, and business leaders with metrics and visual artifacts to improve release planning and informed decision-making. While both agile methodologies and business architecture provide some insight to value attainment, the benefits are maximized when business architecture practitioners collaborate with agile teams as shown in case studies covered later in this paper.

Principles related to the concept of leveraging business architecture to deliver increased value from agile methodologies include:

1. Business architecture highlights strategies and objectives, which can be documented, assessed and discussed in order to align agile efforts.⁸
2. Business architecture heat mapping assessments identify the state of business capabilities from strong to non-existence and help the business make strategic decisions

⁴ Business Architecture Guild, *A Guide to the Business Architecture Body of Knowledge™, v 4.1 (BIZBOK® Guide)*, 2014. Section 3.7, Page 308.

⁵ "Porter Five Forces Analysis." *Wikipedia*. Wikimedia Foundation, Mar. 2014. Web. Nov. 2014.

⁶ Business Model Generation, A. Osterwalder, Yves Pigneur et al., self-published, 2010.

⁷ Business Architecture Guild, *A Guide to the Business Architecture Body of Knowledge™, v 4.1 (BIZBOK® Guide)*, 2014. Section 2.1, Pages 27-28.

⁸ Business Architecture Guild, *A Guide to the Business Architecture Body of Knowledge™, v 4.1 (BIZBOK® Guide)*, 2014. Section 2.1, Pages 17-45.

on prioritization.⁹

3. Business architecture provides the ability to visualize and discuss current-state-to-future-state transformation of business models. The business model is a starting point for understanding the business and how strategy mapping, value streams, capability maps, organization maps and information maps can be put into context.¹⁰
4. Business architecture value streams, value stages, and related capabilities provide a framework for initial reference and ongoing management of the business as progress is made by agile and other business transformation efforts.¹¹
5. Business architecture identifies stakeholders through the practice of stakeholder mapping. These mappings tie the stakeholders and value outcomes in each agile requirement to a value stream and one or more capabilities, and identify which strategy(ies) and objective(s) each story addresses.¹²

Business architecture artifacts help the agile teams prioritize, understand the business, and ensure their outputs provide ongoing business value. Agile efforts can be tied to a prioritized set of goals and strategies and help stakeholders understand which capabilities and value streams¹³ are enabled with each release. This typically occurs in three steps in agile efforts that may include activities such as: Requirements Grooming, Prioritization, and Scrum/Release planning.¹⁴ This holds true at a project level and when organizations embrace agile techniques at a program level.

Aligning agile requirements constructs to business architecture – as highlighted in Figure 1 below – allows agile teams to identify the areas that require work within an accepted, well-defined, and well-bounded business perspective. Using business architecture artifacts, particularly value streams, value stages, and capabilities (including heat mapping of those capabilities), business units, and stakeholders, an agile team can prioritize the work according to business leaders'

⁹ Business Architecture Guild, *A Guide to the Business Architecture Body of Knowledge™*, v 4.1 (BIZBOK® Guide), 2014. Section 2.2, Pages 84-86.

¹⁰ Business Architecture Guild, *A Guide to the Business Architecture Body of Knowledge™*, v 4.1 (BIZBOK® Guide), 2014. Section 3.3, Pages 248-258.

¹¹ Ibid.

¹² Business Architecture Guild, *A Guide to the Business Architecture Body of Knowledge™*, v 4.1 (BIZBOK® Guide), 2014. Section 2.8, Pages 215-223.

¹³ Business Architecture Guild, *A Guide to the Business Architecture Body of Knowledge™*, v 4.1 (BIZBOK® Guide), 2014. Section 2.4, Pages 117-149.

¹⁴ Business Architecture Guild, *A Guide to the Business Architecture Body of Knowledge™*, v 4.1 (BIZBOK® Guide), 2014. Section 3.8, Pages 309-322.

insights, heat mapping and captured requirements. The alignment of epics to value streams, and user stories to capabilities, highlights the requirements and features that require priority focus, which can be used to drive release planning.

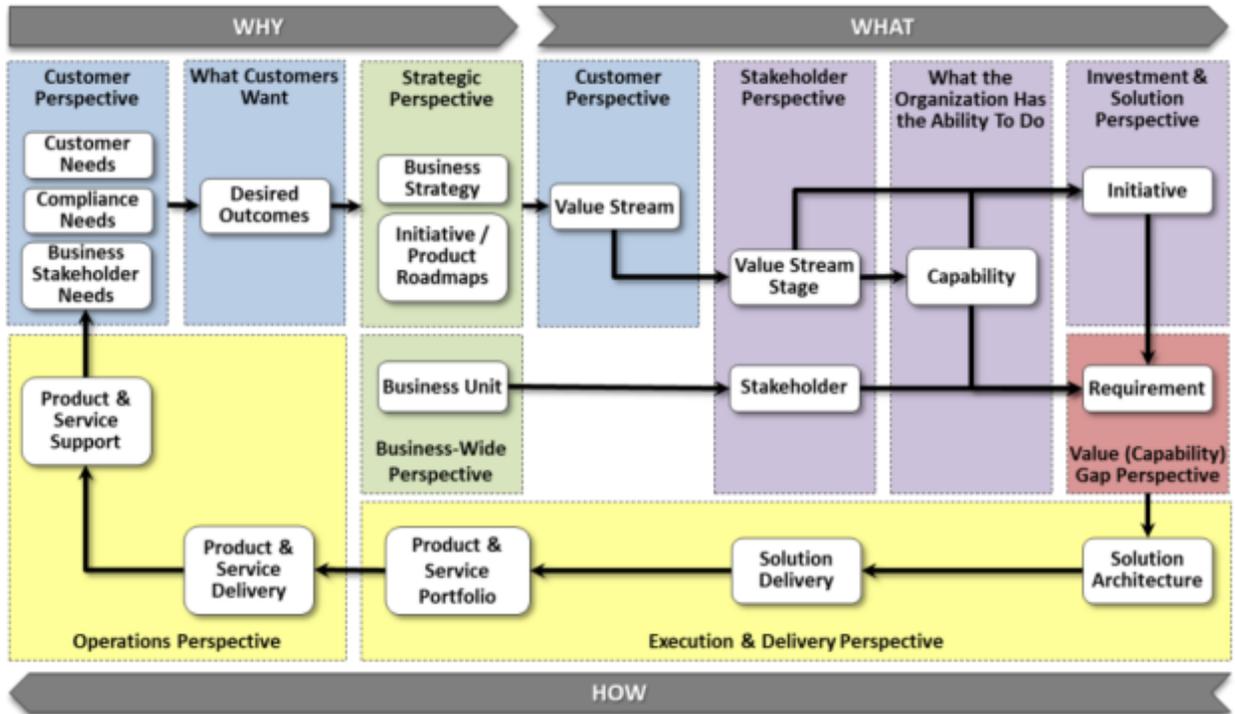


Figure 1 – Business Architecture Frame of Reference Enables Business Requirements Traceability across Multiple Business Perspectives¹⁵

An organization’s approach to business architecture engagement with agile teams will evolve over time. Often organizations begin with existing agile teams operating without business architecture. As highlighted by Figure 2 – Business Architecture and Agile; Evolution of Collaboration Maturity below, the approach and description of this collaboration will improve over time, to a point where agile teams can become self-sufficient in using business architecture artifacts.

¹⁵ Alex Randell, Eric Spellman, William Ulrich, Jeffrey Walk. “Leveraging Business Architecture to Improve Business Requirements Analysis – A Business Architecture Guild White Paper,” Mar. 2014.

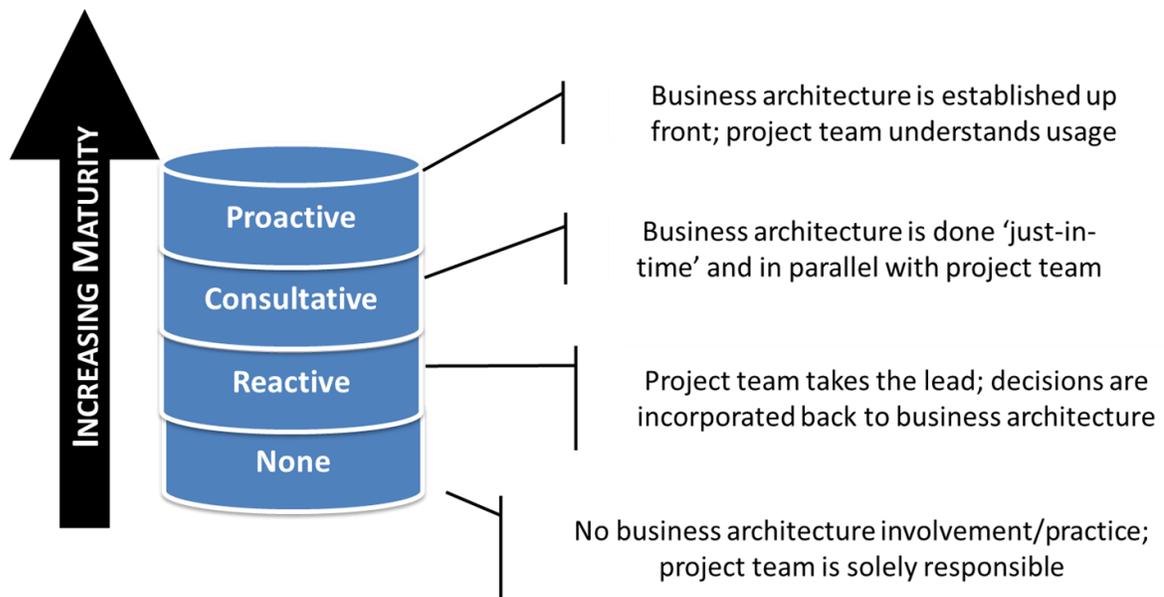


Figure 2 – Business Architecture and Agile; Evolution of Collaboration Maturity¹⁶

We introduce two scenarios or case studies in the following sections. The first addresses how business architecture is initially introduced and leveraged by an organization that has adopted agile. The second case study involves a situation where a mature business architecture practice is in place and how it benefits an agile practice.

Introducing Business Architecture to an Agile Organization

“Even though your team might be agile, it doesn’t mean that your company, or even your department is.” – ThoughtWorks conference on agile practices¹⁷

This statement is not only applicable for agile, but also to the implementation of business architecture within a company, and the related maturity of its business analysis practice in aligning to either agile or business architecture. This is especially true in this first case where we review an entrepreneurial/small business environment that is growing due to its success in the market. The challenge of getting an organization to recognize the value of the practice was

¹⁶ Elliott, Eric Shayne, and Alex Randell. "Business Architecture & Agile Methodologies." Proc. of Business Architecture Innovation Workshop, Austin, TX. Business Architecture Guild, 16 Sept. 2014.

¹⁷ ThoughtWorks Summit: "Agile Fundamentals for Leaders," Dallas, TX, 04 Oct. 2011.

amplified by the viewpoint of, “That’s how we have always done it, and it works just fine.” Applying business architecture to agile efforts helped identify pain points that may have otherwise gone unrecognized in this growing company. The following steps outline how the business architecture practitioner influences change and strategic vision when business architecture was unfamiliar and what any practitioner could do at organizations that lack familiarity with business architecture:

1. Create organizational understanding through a controlled approach. Key questions to ask include:
 - Who are the key stakeholders?
 - What pain points are felt by customers?
 - What pain points are felt by the executives?
 - What are the immediate business priorities?
 - What are the pending initiatives and their prioritization?
 - What is the development methodology for the company?
2. Utilize business architecture assessments to identify quick wins, highlighting stakeholder value that could be achieved.
3. Communicate business architecture deliverables to executives and agile teams. Applying the above principles allow the practitioner of business architecture to educate their stakeholders on the needs of the business that must be addressed by a development effort using an agile methodology. And, just as importantly, establish a business architecture foundation ahead of the agile project teams’ efforts.

Important benefits of this approach included agreement on scope and closing gaps that would have been missed during normal requirement gathering sessions. Aligning user stories to value streams allowed the company to focus on the user stories that delivered the most strategic value. In addition, aligning user stories to business architecture focused the agile teams on the highest priority areas for work. The alignment between business architecture and agile methodologies was used to successfully drive prioritized release planning. Based on the success of the team, this alignment between business architecture and agile methodologies became an ingrained part of the culture of the organization that was once unfamiliar with business architecture.

The advance insight to business priorities allowed requirements analysts and IT architects to map out needs prior to each sprint. While development was in execution, quality assurance resources developed or confirmed test cases, and requirements analysts further drove specifications and acceptance criteria, all based upon clear business architecture deliverables.

Aligning the prioritization of efforts with business architecture provided a clearer direction on

priorities, which increased opportunities to provide value and project success. Tracking user stories back to business capabilities increased the potential for re-use of requirements by lifting them outside of each initiative, giving them a lasting impact.¹⁸ The iterative approach of requirements gathering within the context of agile methodology enabled the team to move forward using a focused approach with business architecture providing structure and insight at every level. Due to the maturity of the organization with business architecture, the practitioner maintained more frequent engagement with the agile team in order to provide ongoing definition and clarity of scope, prioritization guidance for the development organization, and guidance to the application architects, requirements analysts, and development teams.

Agile within a Mature Business Architecture Practice

Once a business architecture practice is established within an organization, the practice can begin to increase maturity of collaboration in the diagram highlighted in Figure 2 – Business Architecture and Agile; Evolution of Collaboration Maturity. Note that this maturity is specific to agile methodologies or requirements analysis, and only forms one component of the Business Architecture Maturity Model, found in the *BIZBOK® Guide*.¹⁹

In our second case study, the ability to increase in maturity is highlighted in the experience of one United States-based governmental organization. This organization experienced both a reactive and proactive approach to application of business architecture principles. While we state prior that application of business architecture is beneficial at any level of maturity, the examples below highlight the benefits of moving to a proactive state.

Reactive Approach

The first business unit to apply business architecture did so in a reactive approach. The project team on an initiative established their requirements via a user story-based agile approach. The team completed this work through roughly their sprint zero – initial review and high level capturing of requirements – used to establish what the perceived deliverables and estimates might be; they had user stories defined and prioritized without first applying business architecture concepts mentioned above, such as capability mapping, heat mapping, and alignment to business unit strategies.

Once the user stories were defined, the team paused to document business capabilities, then

¹⁸ Ibid

¹⁹ Business Architecture Guild, *A Guide to the Business Architecture Body of Knowledge™*, v 4.1 (*BIZBOK® Guide*), 2014. Appendix B.3, Page 488.

walked through the user story requirements and matched them to the business capabilities. The outcome of this exercise was a realization that not all business capabilities necessary for the initiative had been addressed with requirements. The team was then able to revisit those business capabilities and identify requirements necessary to satisfy the capabilities.

The overall outcome captured previously missed requirements, highlighting that the application of business architecture contributed to a better overall product. However, it should be noted that the gaps identified would have resulted in significant re-work had they not been identified. While re-work is not only acceptable, but often a positive “fail fast” mentality, the reactive application of business architecture in this case better positioned the team working on this initiative to deliver desired value.

Proactive Approach

In the other case with this organization, the business unit reversed the approach of the first team. Instead of beginning with user story elicitation, the business architecture was completed to the necessary extent, capturing and assessing value streams, value stages, and business capabilities. This allowed the project team to utilize the foundational blueprints of the business as a guide to requirements elicitation. In this instance, the user stories were developed in alignment to the business capabilities, allowing the team to discuss the extent to which each business capability needed to be addressed within the initiative.

The primary deliverable utilized in this effort was a value stream/capability cross-mapping²⁰. This cross-mapping not only provided the definition of these components of business architecture but also highlighted multiple instances of each business capability, so that the project team can consider each instance of a business capability and its related stakeholders, place it in the value stream, and value item output.

This approach delivered business insights to the project team from the onset of their efforts, with a more holistic view – through capability cross-mappings – to stakeholders and value delivery. With the framework and definitions provided by business architecture, the team was not only able to deliver user stories more rapidly than they previously did before the practice was engaged, but IT also was able to contextualize elements such as logical data models, processes, and knowledge artifacts. Additionally, the user stories were categorized and available for potential re-use – future efforts can easily re-visit the requirements analysis completed in earlier initiatives to understand existing requirements and each capability they may impact.

²⁰ Business Architecture Guild, *A Guide to the Business Architecture Body of Knowledge™*, v 4.1 (BIZBOK® Guide), 2014. Section 2.4, Pages 141-143.

Contrasting Organizational Maturity

Comparing the small company with no business architecture practice to the government organization with a more mature business architecture practice, there is a clear difference in approach. In the first organization, the business architecture practitioner is tasked with both building organizational acceptance of the practice and providing value through business architecture. In the second, the business architecture practice is well developed, and the focus related to agile methodologies becomes applying business architecture to ongoing initiatives.

Through understanding of the organization and maturity of business architecture, one must determine the best approach to use for a given initiative. As the business architecture practice develops, the artifacts will prove to not only be reusable but will be sought after. Eventually, key stakeholders begin to identify the business value our practice brings to the organization. At this point, business architecture typically will move from a “nice to have” to a sought after role in every engagement, occurring earlier and throughout its entire lifecycle.

In fact, as the organization moves from a reactive, to collaborative, to proactive approach with business architecture and agile methodologies, the role of the business architecture practitioner is optimized in relation to the project team. Indeed, a practitioner of business architecture realizes the highest level of success when no longer directly working with the project team but when consulting with the product owner and agile team on an ad-hoc basis. This highlights an apparent dichotomy related to business architecture and agile: The business architecture practitioner attains the highest level of success when least directly engaged in daily project activities. Consider the implications of this statement; it implies the business architecture is well understood and communicated through the business area as well as technical, information and process management partners.

Business architecture provided the mature organization a clearer picture of the business than either previous requirements analysis or business process diagrams could alone. Additionally, the business architecture is provided in a consistent, clear, and concise format where it can be easily and repeatedly leveraged by project teams and other stakeholders.

Conclusion

“Business architecture is having that holistic view to ensure you are not missing something.”-
Business Architecture Innovation Workshop²¹

²¹ Elliott, Eric Shayne, and Alex Randell. "Business Architecture & Agile Methodologies." Proc. of Business Architecture Innovation Workshop, Austin, TX. Business Architecture Guild, 16 Sept. 2014.

Business architecture deliverables can be used in conjunction with sound “just in time” requirements analysis techniques to achieve optimal results. Though rapidly changing internal and external environments often make business transformation daunting, the approach is simple: Take small steps to help the organization realize rapid wins using business architecture and maturity.

Key points for optimal results in business architecture to agile methodologies alignment include:

- Business architecture and agile are both iterative approaches, learning what is needed for more effective alignment and execution to provide continual and increasing value to the business.
- Make the business architecture measurable and useable – if artifacts are not clear or well-communicated, they exist only as “shelf-ware,” which does not allow actionable results. The governmental organization provided examples, videos, and system-based integration between business architecture and requirements analysis systems.
- Align business architecture to strategies – business architecture artifacts provide a connection between mission, vision, strategies, and initiatives. Project teams must understand this framework. If the team is unable to track their work back to this framework, there is a fundamental misalignment that must be investigated.
- Business architecture is defined by the business²² – the application of business architecture in these examples provided existing definitional work that the product owner and other agile team members can utilize in initiatives. This clears a common hurdle in which project teams – agile or not – indicate they do not have understanding of business strategies, stakeholders, and value.
- Business architecture should not be driven by project needs – if business architecture is defined within the scope of an initiative, it will be constrained by the previously defined goals of the initiative. The business architecture is independently defined with business stakeholders. At a minimum, once an initiative is identified, business architecture is to be engaged and the business needs understood prior to agile team engagement, to ensure thought independence.

²² Business Architecture Guild, *A Guide to the Business Architecture Body of Knowledge™*, v 4.1 (BIZBOK® Guide), 2014. Part 1, Page 1.

- Focus first on efforts that have desired and clearly defined outcomes that stakeholders can easily tie back to goals and strategies. The small company referenced in this paper chose efforts with well-identified risks to reduce the potential of business architecture's success being tempered due to unanticipated outcomes.

As an organization recognizes the contribution of business architecture in delivering agile efforts solutions at a rapid pace, practitioners should anticipate invitations to apply business architecture principles in many more scenarios, and earlier in the business and corresponding development lifecycle(s). This serves as an indicator of success for the business architecture practice, and results in outcomes more closely tied to goals and strategies.

Appendix A

Overview of Business Architecture and Project Management Methodologies – Agile and Traditional

Business architecture is defined by the Business Architecture Guild as follows: “A blueprint of the enterprise that provides a common understanding of the organization and is used to align strategic objectives and tactical demands.”²³ This definition is also in agreement with the OMG Business Architecture Special Interest Group and The Business Architecture Institute. Business architecture enables organizations to provide actionable views through an understanding of internal and external environmental factors and dependencies. Not all organizations have embraced the formal title of business architect, but often these organizations have employees that utilize business architecture principles and practices. This is perfectly acceptable as the practice and use of business architecture should not be constrained by one’s title.

Traditional project management often follows a “Waterfall” software development lifecycle methodology. It requires project charters up front, adhering to the triple constraints: fixed scope; defined delivery dates of any interim deliverables, with a stated final completion date; and identified resources – budget, human, and technology – that delineate limits within which an organization must execute a project. The successful accomplishment of any project, however, is dependent not only upon satisfying scope, cost, and schedule but also upon results that deliver customer satisfaction.²⁴

Agile methodologies adhere to a different approach to deliver value – frequent releases of deliverables that meet requirements aligned to evolving business needs.

The “Agile Manifesto” originated in the arena of software development and states the following:

“Value individuals and interactions over processes and tools, working software over comprehensive documentation, customer collaboration over contract negotiation, and responding to change over following a plan.”²⁵

²³ Ibid.

²⁴ Gido, Jack and Clements, James P. *Successful Project Management*. 4th Edition, Cincinnati: South-Western Publishing Co, 2009. Page 7.

²⁵ "Manifesto for Agile Software Development." *Manifesto for Agile Software Development*. N.p., 2001. Web. Oct. 2014.

We propose the following interpretations and implications of agile that satisfy the intentions of the “Agile Manifesto”:

- Agile is a philosophy advocating iterative elaboration²⁶, which can be applicable everywhere, not just in software development. There are several experts who espouse the universality of agile approaches. This universality supports that business architecture can – and should – be developed iteratively.
- Agile is a journey to becoming flexible and quick with emphasis on delivering value in a rapidly evolving environment, focusing on regular delivery of value without fixing requirements that is commonplace in project charters used with traditional project management.²⁷
- Though agile has come into vogue, its concepts are not completely absent from traditional project methodology. The *PMBOK® Guide* included Rolling Wave Planning, Progressive Elaboration, and Decomposition long before the “Agile Manifesto” was written.²⁸ *PMBOK® Guide* inclusion of these methodologies provides another proof that the value of business architecture applies to all initiatives, regardless of methodology.

Here is a quick summary of what most experts agree agile is not:²⁹

- Agile is NOT an excuse to stop producing documentation.
- Agile is NOT an opportunity to eliminate planning.
- Agile is NOT open season on scope creep.
- Agile is NOT about blindly following a set of “best” practices, whether or not they’re best for your project.

²⁶ ASPE – PMI Agile Certified Practitioner Workshop Materials, Davisbase Consulting, 2013. Page 14.

²⁷ Ibid.

²⁸ John Stenbeck, PMP, PMI-ACP, CSM, CSP of GR8PM, “Understanding Agile from a PMP®’s Perspective! Exploding the myth that Agile is not in the PMBOK.” Webinar.

²⁹ Sliger, Michelle. "What Agile Is - And What It Isn't." Scrum Alliance. ProjectsAtWork, Sept. 2012. Web. Oct. 2014.

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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