Update

Business Architecture:

Part IV — Building a Robust Foundation for the Future

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In Parts I and II of this six-part *Executive Update* series, we discussed the importance of executive sponsorship and outlined how business architecture provides the means for shaping and communicating business strategy, transformation roadmaps, and funding models.[1] Part III explored using value streams as a basis for planning and deploying various business initiatives.[2] Here in Part IV, we examine how capabilities, introduced in Part I, form the foundation for fusing business and IT through a shared vocabulary, vision, and transformation strategy.

BUSINESS CAPABILITY ESSENTIALS

Capabilities form the core of the business architecture because they enable organizations to succinctly state what the business does, regardless of location of work (or who does it), which stakeholders participate in or benefit from that work, or the types of technologies that enable it. The benefit of defining capabilities independently from other business views is that business issues or limitations can be identified objectively and without conflating issues such as politics or technological weaknesses into the discussion. As a result, we can eliminate many of the struggles related to a lack of cohesion and concurrence of requirements across business units, the inability to determine how to deploy a given capability, or even basic definitions of what a business does.

For example, a manufacturing company seeks to improve product innovation, but the capabilities to assess future market demands and then respond to them are lacking. An examination of the product management

capability determines that the enterprise has little knowledge of innovation concepts, limited international reach, sparse market research, and fragmented market analysis and planning operations. Focusing on improving these capabilities involves determining cross-functional objectives, impacts, and benefits across product lines and business units. The goal would be to establish a common set of disciplines to address innovation, including researching, planning, aligning strategic partnerships to advance capabilities, and then determining if and how automation can further enable them. Improvements may be addressed independently or in conjunction with organizational change.

This example demonstrates how capability-based analysis allows management to focus investments across business units and product lines. Organizational mapping provides insights into which business units should participate in the analysis, planning, and deployment of a new capability. If business partners are to be engaged, they would also be identified as crucial to the planning and rollout of any solution. Should technology be required to enable these capabilities, then IT would be engaged as necessary to provide appropriate automation solutions.

A clear definition of each capability is a prerequisite for this analysis. Once the capability map is in place, stakeholders can identify weaknesses across the board and identify ideal capability requirements for the product innovation capability. This type of coordinated analysis and planning is a rarity in organizations because management often lacks visibility into basic business capabilities. Capability-based analysis also tends to force coordination across business units that may try to seek product innovation solutions on their own, even though the organization may be better off with a cohesive innovation capability.

CAPABILITY-BASED SITUATION ANALYSIS AND RESOLUTION

When we introduced the use of value streams in Part III, we explained their importance in establishing strategies and priorities focused on stakeholder value. One way to contrast capabilities and value streams is to

think of the capability map as showing the business "at rest" while value streams show the business "in motion" because value streams move from left to right. These two views collectively provide a multidimensional lens into a business that enables situation analysis, planning, and roadmap development.

Capabilities define the *essence* of the business. And while value streams define how to achieve stakeholder value and align business process and case management strategies, capabilities provide the foundation that allows a value stream to deliver value at each stage. Consider, for example, the Acquire Product value stream introduced in Part III. Figure 1 depicts this value stream, the related business process/user interface automation plan, and selected business capabilities required to enable each stage of the value stream to deliver stakeholder value.

Each stage in Figure 1 — Inquiry, Apply for Product, Accept Application, Register & Deliver Product, Notify Customer, and Manage Payment — requires certain business capabilities to deliver stakeholder value. The figure shows how business capabilities enable each stage within a value stream to deliver stakeholder value, allowing the value stream to move to the next

stage. All the value stream–related guidelines and concepts discussed in Part III still apply, but Figure 1 demonstrates how capabilities complete the picture.

Capability-based planning leverages value stream-driven priorities to determine where to apply resources and in what priority. If, for example, product registration was the value stream's weak link, then analysts would determine why that stage was weak, which would include assessing if the capabilities enabling this stage were acceptable or required attention. In this case, the Account Update, Financial Update, and Product Ship capabilities become the target of examination as to their effectiveness.

If you establish a capability "heat map," capabilities could be color-coded to identify how well or how poorly they are performing. A capability heat map uses the color red to signify significant issues, yellow to signify capabilities working below par, and green to signify acceptable levels of performance. If any of the capabilities enabling the Register & Deliver Product stage of the value stream in Figure 1 were red or yellow, the business would determine requirements for taking these capabilities from red to green. For example, if the Product Ship capability within fulfillment was the
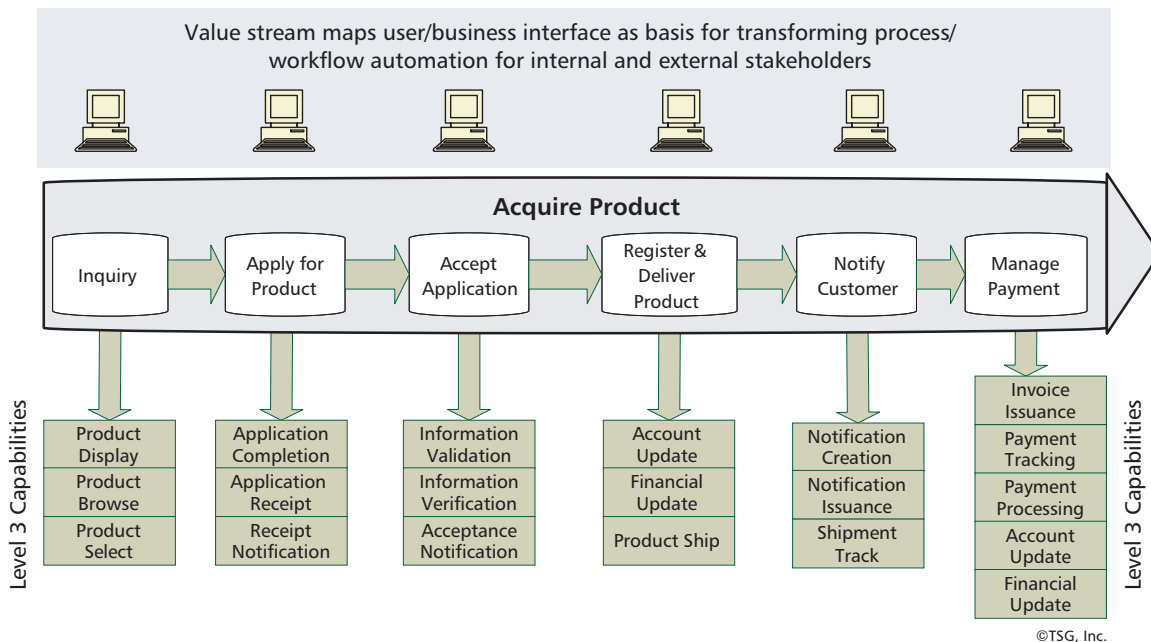

Figure 1 — Value stream stages mapped to enabling business capabilities.

roadblock in the value stream, the business may specify that this capability should be able to reduce shipping time to an acceptable level, across all product lines and business units. In addition, any other value stream that relies on the Product Ship capability would similarly benefit from these improvements.

In practice, several higher-level capabilities that decompose into dozens of lower-level capabilities often enable a given stage. Situation analysis requires a careful and systematic narrowing of various issues to a lower and lower level, pinpointing exactly where problems lie. In the Figure 1 example, it may boil down to an inability to bundle a shipment because cross–product line synchronization is poorly coordinated. In this case, Shipment Bundling (a lower-level capability beneath Product Ship not shown in Figure 1) may be the capability in question. A solution could involve organizational changes, synchronizing processes or case management across business units or product lines, and adding automation to fully enable this capability. Improving a given business capability may not require further automation, but it often does. The most important step, however, is to pinpoint the agreed-upon capabilities that require improvement or, in some cases, a new capability.

Note that because most businesses are surviving at some level, most capabilities are already in place from a business perspective, even if those capabilities are functioning well below par. A completely manual capability opens up a low-hanging fruit for automation teams, but automating a capability does not mean that it is a new capability, only one that had never been automated. This distinction is simple, if you view capabilities from a business perspective. In addition to situation analysis and resolution, capabilities also provide the basis for more strategic planning and transformational development.

## BUSINESS CAPABILITIES AND TRANSFORMATION PLANNING

Business capabilities provide significant value to an organization when structural or systemic challenges require large-scale transformation, particularly when those challenges cross business-unit or organizational boundaries. Large-scale change inevitably impacts multiple customer-facing capabilities and value streams. (Part III discussed the use of value streams to plan and implement major transformational changes as it relates to the customer experience.)

Customer experience from a portfolio and customer information management perspective can be improved to some degree through process improvement and automation, but long-term systemic solutions require aligning customer information across product lines and business units that share common customers. In addition, automation solutions must align to and consolidate common customer management capabilities, including product portfolio viewing and customer information management. Capabilities and related business vision drive automation requirements and help shape data and application architectures in ways that have proven historically difficult due to lack of formalization of the business architecture.

For example, a capability map with related capability definitions serves as a foundation for strategic data architecture. Each Level 1 capability should have a corresponding information asset that serves as the prime information impacted by that capability. Figure 2, for example, depicts Customer Management, a Level 1 capability that relies on the Customer information asset. Customer information is the prime information asset for this capability because it is established and modified when this activity is active. Other information assets may be used by a Level 1 capability, but capability/information alignment is based on vocabulary alignment and degree of impact.

For example, an Account Management capability must use the same definition of "Account" as the Account information asset. This may sound like a simple concept, until a business strategy requires ensuring that the Customer Management capability and corresponding Customer information asset are synchronized across
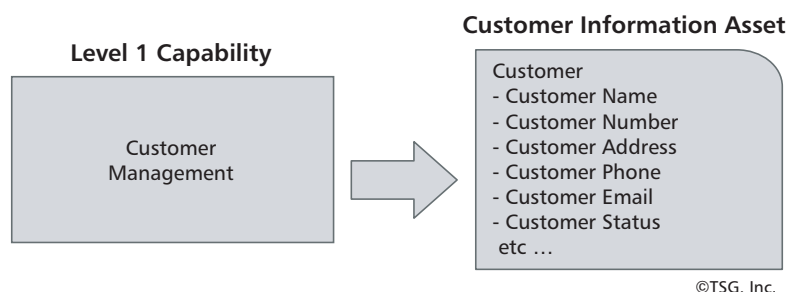
Figure 2 — A Level 1 capability used to define an information asset.

all business units that leverage this capability. Such a strategy requires IT to put away all the smoke-and-mirrors techniques it has been using to *guess* which customer owns a portfolio of products or to *approximate* what a custom portfolio contains. Such a strategy impacts core data architectures. Consequently, the business has a clear way of communicating this strategy back to IT, which has been much of the battle in gaining a foundation for data architecture work in the past.

In one case study example, the business architecture team walked the data architecture team through a capability map over the course of several working sessions. The conceptual data model that resulted had a robust, comprehensive business foundation, which the data architecture team could use to evolve the model into more detail based on traditional techniques. Arguments over what defines an "Account" or a "Customer" were all settled by the business during the capability mapping effort.

The capability map has an equally profound impact on application architecture through current-state and target-state capability-to-application mapping. Once you identify and prioritize a set of capabilities for improvement, IT and the business can jointly determine related requirements, project priorities, and deployment strategy. High-priority capabilities, often based on value stream analysis, are then targeted to become new services or to be improved upon through the modernization of current-state applications. IT architects have a significant degree of latitude under this approach because the business is only stating what should be deployed and when, rather than dictating the systems to be used, built, modernized, or licensed. This moves IT back to its core strength — dealing with IT architecture — and away from guessing what the business wants.

SUMMARY

Capabilities provide the vocabulary and formal reference point for a business to clearly state what's working, what's not working, and what should be prioritized for improvement. Capabilities may be prioritized on an individual basis (common for resolving more tactical issues) or driven by value stream priorities (common for strategic transformation initiatives). Capabilities not only form the basis for evolving strategic data architectures but also serve as the foundation for defining service design and deployment requirements and priorities. Capabilities, when mapped directly to current-state application architectures, also serve as a guidepost to application modernization strategies.

In Part V, we will provide a rapid roadmap approach for establishing business architecture as well as socialization and utilization approaches.

ENDNOTES

[1]Ulrich, William. "Business Architecture: Part I — Why Business Architecture Matters to Business Executives." Cutter Consortium Business & Enterprise Architecture *Executive Update*, Vol. 14, No. 7, 2011; Ulrich, William. "Business Architecture: Part II — Business-Driven Transformation Strategies, Roadmaps, and Funding Models." Cutter Consortium Business & Enterprise Architecture *Executive Update*, Vol. 14, No. 8, 2011.

[2]Ulrich, William. "Business Architecture: Part III — Leveraging Value Streams in Business Transformation." Cutter Consortium Business & Enterprise Architecture *Executive Update*, Vol. 14, No. 9, 2011.

ABOUT THE AUTHOR

William M. Ulrich is a Senior Consultant with Cutter's *Business Technology Strategies*, *Business & Enterprise Architecture*, and *Government & Public Sector* Practices and President of TSG, Inc. He specializes in business and IT planning and transformation strategies. Mr. Ulrich has more than 30 years' experience in the business-IT management consulting field. He serves as strategic advisor and mentor on business-IT alignment initiatives and continues to work as a workshop leader and author. Mr. Ulrich has the unique ability to cross business and IT boundaries to facilitate and streamline business-IT transformation strategies. His workshops on business-IT architecture alignment have been widely attended by organizations worldwide.

Mr. Ulrich currently serves as VP of the Business Architecture Guild, Cochair of the OMG Business Architecture Special Interest Group, Editorial Director of the Business Architecture Institute, Director-at-Large of the Business Architecture Society, and is a member of the EA Advisory Board for Penn State. Previously, he was cofounder of Triaxsys Research and served as KPMG's Director of Reengineering Strategies prior to leaving and forming his own company in 1990. Mr. Ulrich has also served on the faculty of Northeastern Illinois University and facilitated numerous workshops, including sessions for SEI. He has lectured internationally to thousands of business and IT professionals and has testified as an expert witness on the use of IP within the computer field. Mr. Ulrich continues to serve as a software forensic and litigation support expert in technology-related cases. In 2005, he was awarded the Keeping America Strong Award by Rear Admiral Kevin F. Delaney (Ret.). Mr. Ulrich has authored hundreds of articles appearing in major publications, including *InformationWeek* and *Computerworld*. He is coauthor of *Business Architecture: The Art and Practice of Business Transformation*, *Information Systems Transformation: Architecture-Driven Modernization Case Studies*, and *Legacy Systems: Transformation Strategies*. He can be reached at wulrich@cutter.com.