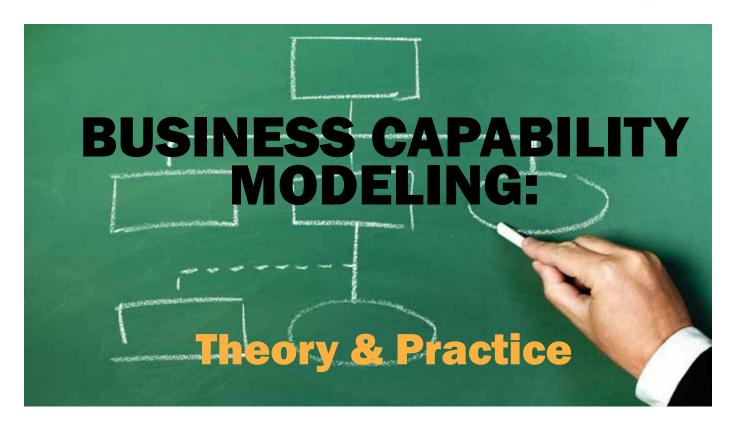
ARCHITECTURE & GOVERNANCE

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By Leonard Greski

THEORY: WHAT IS A BUSINESS CAPABILITY?

A business capability is an ability or capacity for a company to deliver value, either to customers or shareholders. Business capabilities are a useful abstraction because they represent the next level of detail beneath the business strategy. A business capability consists of three major components: business processes, people, and physical assets.

There are two kinds of capabilities: customer-facing and operational. Customer-facing capabilities directly deliver value to customers. A network of retail stores,

a product or service offering, or a transportation service such as rail or air are all examples of customer-facing capabilities. Operational capabilities deliver value to shareholders instead of customers. Examples of operational capabilities include strategic planning, mergers and acquisitions, and financial planning.

Business capabilities are extremely valuable as a mechanism to translate strategy into action. First, they represent discrete ways a business generates measurable value, so we can associate benefits and costs with them.

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Enterprise Integration
Gauging the Value of Strategic IT Planning and Enterprise Architecture



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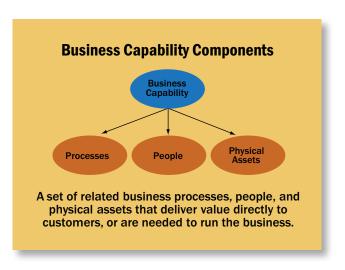
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BUSINESS CAPABILITY MODELING

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Second, capabilities are hierarchical. They can be modeled using parent/child relationships, allowing us to understand them at multiple levels of de-

tail. Third, they can be managed as assets. We can think about them as a portfolio of investments and proactively manage them to meet or exceed a target return on investment. Finally, business capabilities allow companies to create sustainable competitive advantage through unique combinations of people, processes, and physical assets.



PRACTICE: BUSINESS CAPABILITY MODELING TECHNIQUES

Business capabilities can be modeled using a variety of simple techniques, using low-cost tools. There are four steps to create a capability model:

- 1. Develop the capability hierarchy.
- 2. Identify key relationships between capabilities and other planning elements.
- 3. Develop demand models for the capabilities.
- 4. Develop financial models for the capabilities.

Develop the Capability Hierarchy

To complete the first step, collect information about the organization's capabilities starting with customer-facing capabilities. Since most companies do not use the term "business capabilities" to describe the capabilities they bring to market, the architect may have to derive the capabilities from other kinds of information. Useful sources of information about capabilities include annual reports, interviews with business planners and line-of-business leaders, strategy documentation, business process models, product/service marketing materials, and the company's organization chart.

Review the collected information and identify the capabilities, stating them as nouns. For customer-facing capabilities, they will likely describe product or service offerings. Draw the hierarchy with an organization chart diagramming tool, or build it as a team exercise using Post-It® notes and a large, empty wall to display the hierarchy. The root (or parent) node of the diagram represents the entire company. The first level below the root lists

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the major ways the company generates value to customers and shareholders. Additional levels of decomposition break down the major capabilities into subcomponents.

See the example on this page, which illustrates some of the capabilities of an Internet retailer, organized into a hierarchy.

Identify Key Relationships

After drafting the capability hierarchy, using a set of association matrices, define the hierarchy's relationships with other planning elements. List the capabilities on the row dimension of the hierarchy, and the other planning element on the column dimension. Display the capabilities at the most detailed level of granularity or include all levels of the hierarchy in an outline format. Start with matrices to cover the three components of a business capability: business processes, people, and physical assets. These matrices will be used as inputs to the demand and financial models. As needed, you can also document relationships between capabilities and business units and/ or strategy elements.

Business processes should be listed in the matrix at a level of detail that is consistent with the detail level in the capabilities hierarchy. The people side of the capabilities/people matrix can be a list of roles that are associated with the business processes, or the different departments that support the capabilities. Instead of using an "X" in the cells to mark a relationship, enter the head count (or total cost of head count) in each department that directly supports a capability. For the capabilities/physical assets matrix, group the physical assets into categories that are meaningful to the business stakeholders, and use the annual expense cost or the asset value

to represent the relationship between a capability and associated physical assets.

Develop the Demand Model

The next step in the capability modeling process is developing a demand or utilization model for the capabilities. Work with the business partners to identify the things the business does to generate demand or usage for a specific capability, such as advertising or promotions. Use known conversion factors (e.g., shoppers entering a store converting to orders) to relate the demand generating activities to utilization of the capability and its component business processes. Enter this information into a spreadsheet, illustrating the relationship between demand generation activities and frequency counts of the business processes on a monthly basis.

Another approach to generating the demand model for customer-facing capabilities is based on historical trending of a capability's business processes. Gather the revenue growth forecast for a capability and frequency counts for its business processes over a 12– to 24-month period. Identify relevant conversion factors between the revenue forecast and the business processes, and model the process utilization on a monthly basis, using the historical data and growth factor to project past utilization into the future.

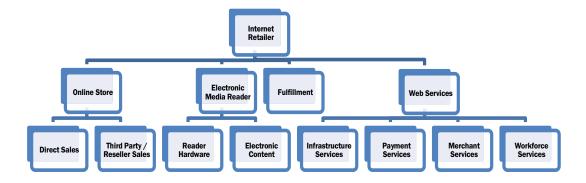
Develop the Financial Model

Organize the information collected in previous steps into two categories: benefits and costs. Create a statement of cash flows to illustrate the relationship between benefits

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Example

Internet Retailer Capability Hierarchy



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- Capability modeling helps business people
- visualize consequences of business plans
- and decisions by highlighting the things
- that are impacted by changes in the
- business.

and costs associated with the capability. Both ongoing and one-time benefits and expenses (e.g., capital investments, gain from sale of assets, etc.) associated with the capability should be included in the model.

USING THE CAPABILITY MODEL TO MAKE DECISIONS

Capability modeling helps business people visualize consequences of business plans and decisions by highlighting the things that are impacted by changes in the business. For example, if a company changes its strategy, it can evaluate the impact of strategy change on the existing portfolio of capabilities. What capabilities must change to support the new strategy? What capabilities are no longer needed? Are there any new capabilities that must be developed in order to execute the strategy?

The capability model can also be used to manage ongoing operation of a capability. Using the demand and financial models, one can estimate the impact of changes in planning assumptions on the business processes, people, and physical assets associated with the capability. For example, as demand grows, what processes or assets are at risk of failure? Where will costs increase at a level greater than acceptable levels as demand grows? If demand falls, where will fixed costs jeopardize profitability of the capability?

Capability models are also useful to support merger

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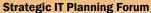
and acquisition activity. Acquisition targets can be evaluated in terms of the capabilities they provide and the overlap between target and acquirer. What capabilities must be integrated to generate sufficient synergies to make the acquisition profitable? Conversely, a company can review the capability model and identify the processes, people, and assets that would be lost through a divestiture.

Finally, managers can use the model to evaluate investments across capabilities. By knowing the returns generated by each capability, managers can focus investments on the highest performing capabilities and restrict investment in lower performing capabilities. **A&G**

A&G CALENDAR

Gartner Enterprise Architecture Summit

September 14–15, 2009 London (Royal Lancaster Hotel) www.gartner.com/it/page.jsp?id=778115



September 14–23, 2009 Various European cities www.rubiksolutions.com

2009

Technology Solutions and Asset Management

September 15, 2009 New York City www.tsam.us

Business Process Management Conference Europe 2009

September 28–30, 2009 London www.irmuk.co.uk/bpm2009

Gartner Enterprise Architecture Summit

October 7–9, 2009 Orlando, FL (Hyatt Regency Grand Cypress) www.gartner.com/it/page.jsp?id=849312&tab=partners_v2

12th International Business Rules Forum

November 1–5, 2009 Las Vegas, NV (Bellagio) www.businessrulesforum.com/index.php

Data Management, Information Quality and Data Warehouse & Business Intelligence Conference

November 2-4, 2009 London www.irmuk.co.uk/dm2009/

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Making the Case for Enterprise Integration

Some Guiding Principles for Steering Your IT Transformation

By Bhavish Kumar

chaotic, and complex situation.



EA provides the essential backbone or blueprint for the communication, interpretation, and implementation of corporate objectives throughout the organization and enables the evolution of a strongly aligned IT environment. A plausible way of achieving this would be through creation of a number of interconnected architecture views. The various available frameworks (commercial and/or noncommercial) break the definition of enterprise architecture into a different number of models and artifacts. EA at the most consists of three main elements: business, information, and operations.

An effective and pragmatic EA relies on having a common platform and systems infrastructure on which to base the organization's products and services. What we see is, an increasing need for convergence of multiple technologies into a platform providing components for building, managing, and deploying services. The convergence platform should be centered on loosely coupled integration at all levels—system, applications, information, processes, and people—and the ability to quickly reconfigure these elements to react to threats and opportunities in an organization's environment.



GUIDING PRINCIPLES FOR IT TRANSFORMATION

Many organizations look to guiding principles to establish consistency across their IT transformation initiatives. The most important are:

Architecture, and adoption of frameworks like TOGAF.

- **Security:** There is a delicate balance between acceptable risk and usability. It is vital that an enterprise's information is adequately protected. Security will become a precondition of doing business in the future, especially with the inextricable move toward e-business and e-government.
- **Adaptability:** In ever-altering internal and external environments, solutions have to be flexible, catering to changes in requirements, procedures, processes, and organization. An important facet of architecture must be the use of modularity to enable continual adaptation, meet changing business needs, and allow reuse of software.

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- **Standards:** Open interfaces and data models delivered through an enterprise-wide governance framework are crucial if an EA approach is to succeed. The use of standards extends further than just being used for interoperability. Openness shields against supplier dependency and is important for protecting IT investments. The move to more componentization relies on standardization.
- Performance: As with security, it is costly to add scalability as an afterthought. Systems need to maintain efficiency and service levels regardless of demand. The whole operation relies on the performance of the weakest link! The architecture must support the increase in users, transaction volumes, and data capacity and prevent bottlenecks.
- Management: Management of the complete architecture process is another important factor. The need for features such as version control, end-to-end visibility, and monitoring become even more critical.

OBSERVATIONS ON EA AND ENTERPRISE INTEGRATION

When implementing EA and enterprise integration approaches in support of IT transformation, it is important to understand, position, and execute these disciplines consistent with industry best practices. These key observations have helped many EA and integration teams achieve results quickly while avoiding costly mistakes.

Enterprise Architecture

- A number of organizations have implemented an EA. Approaches vary from top down or bottom up.
- An EA model can have four levels: business architecture, information architecture, applications and systems architecture, and technical architecture.
- It is important to have a common vision of where the business is going. This greatly influences application and hardware strategy.
- Key: Model the business based on its services through templates; processes can then be modeled.
- Aim for reusability. Identify interdependencies.
- EA is the technique for communicating with the business. Methodologies and tools help this.

- Tools can be used to document applications and business processes (not necessarily in one tool).
- Important: Consider how the information from the tool will be used to ensure it is fit for its purposes and aids communication.
- Plans: Make sure the business strategy translates into the IT strategy.
 - Have a planning period covering three years.
 - Review and update the plan regularly.
 - O Have a decommissioning plan.
 - O Expose projects at an early stage.
- Build governance from the board down. A strong CIO is needed to get support from the business.
- Identify the IT elements of business budgets and aggregate them. This shows a total cost of IT.
- Have some form of EA policing/auditing/review. Always review pilots.
- Achieving control: Make the adoption of governance part of personal appraisal objectives.

Enterprise Integration

- Increase the access to and ability to change the application services (based upon business need):
 - Open published interface standards including XML data formats, Web Services, JMS, FTP, and HTTP; WSDL and W3C Schemas as service definition language; and SOAP as the "messaging protocol language."
 - The capability to selectively store message data in an external data store as it traverses the middleware.
 - Reduced impact of changes to IT business services to the business.
- Improve the availability and reliability of the application services:
 - Access to additional (existing) services.
 - Generic high availability interconnects facility between all supported system components.
 - Reduced technical risk of supporting IT business services.

WHAT TO CONSIDER WHEN FOCUSING ON ENTERPRISE INTEGRATION

Requirements	Description
Message Transformation/ Message Translation	Transform from one message format to another, for example between different XML schemas using extensible Stylesheet Language Transformation (XSLT). Transform an XML message to any of the supported industry formats, and vice versa. Also the ability to act as an intermediary between source and destination systems when message interactions happen to enable translation of formally defined messages. This is to ensure that messages are enriched and distributed in real time/batch to and from disparate sources.
Support Industry Protocols and Formats	The ability to support specific industry message formats such as FIX, SwiftNet and SWIFT(ISO 15022 and 20022), PDF, CSV, MS-Excel. Further it is also assumed that there will be a point in time in the future where the messaging solution will need to support proprietary formats for asset management services.
Message Transactionality	The ability to ensure that message interactions are persistent and transactionality (XA transactions)/state are maintained through point to point and publish/subscribe.
Routing	The ability to intelligently route messages based on their subject and/or contents and allowing set up of complex dynamic message paths that will help services to interact with source and destination systems. For e.g., route on SWIFT message.
Guaranteed Message Delivery	The ability of the solution to ensure that message persistency is maintained throughout the interaction life cycle and that messages are delivered to the destination system even when there are network failures or the destination system is down.
Batch Processing	The abilities to extract, transform, and transfer files from one system to another and to process a series of batch requests through files with sync points maintained between different communication patterns (file to file, file to DB, file to messaging).
Centralized Comm <mark>a</mark> nd and Control	Centralized monitoring, configuration management, service life cycle, and deployment management.
Governance Framework	Linking the adoption of SOA closely to business as usual in the areas of operations, processes, services, data, and infrastructure.
Orchestration	The ability to "technically" orchestrate between business services based upon events raised in business processes (either system based or through human workflow). The solution should provide for technical orchestration of business services out of the box, most preferably through a BPEL workflow and engine.
Metadata Management	The solution should support strategies, principles, and standards that will be established for efficient handling of metadata to enable for the creation of operational data stores used in business dashboarding and efficient decision making.
BAM	The solution should support the ability to technically track and monitor business events/processes in real time to enable auto-error handling and publishing of this information for resolution by the BAU teams. This information is used by technical and business operations to provide visibility, measurement, and assurance of key business activities, and to support root cause analysis and alerts that warn of impending problems.
Service Assembly	The solution should provide the abilities to build services at various levels. For example, "Create and Manage Order" could be a composite service containing many underlying services such as "Order Creation," "Order Fulfilment," etc.

EPILOGUE

This article deals with some of the basics around why organizations are giving a serious thought to enterprise architecture and how these considerations play a major role in linking to initiatives like enterprise integration.

While it is important to focus on immediate programs at hand—it is becoming increasingly imperative to also take a step back and view the enterprise from an "aircraft pilot's viewpoint" to enable stronger linkage of IT initiatives to business goals, strategies, and measures.

Enterprise integration through traditional EAI methods need to focus on distributed/federated architectures that span multiple geographies and disparate business processes. A clear view on the definitions, policies, and

standards for EA and requirements for EI will help the architect on the ground to safely steer this ship to the target destination. A&G

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Did you know that 80 percent of all enterprise architecture (EA) initiatives are not completed because they fail to demonstrate "value added" to current business practices? I recently attended the Troux Directions Federal Users Conference, which made some excellent points on the theme: "How does EA add value?"

Here are some take-away notes from the conference that may help with your Strategic IT Planning (SITP) initiatives and show you how a mature EA can add value and perhaps generate some continuing dialogue.

PRESENTATIONS

At the Washington conference, the Department of Homeland Security (DHS) presented its EA methodology and how it uses Troux for its strategic IT planning efforts. DHS is moving onto a phase where the enterprise architects are collaborating with DHS's strategic planning office, which is consistent with the notion that EA and SITP are inseparably interrelated. DHS also has plans to move to a federated architecture, which it hopes will create a movement in the EA and IT space and allow DHS to share information between agencies and organizations. To this end, DHS willingly shares its constructs or data structures with other agencies and industries. It presented a great template for how you can gather valuable information.

In addition, there were many more briefings on EA

value-added by the USMC CIO office, the Department of Health and Human Services (DHHS), EDS, CA, SRA, and ManTech, which added to the following list of observations.

THE EA LANDSCAPE

Developing an enterprise architecture using PowerPoint presentations and Excel spreadsheets is a thing of the past. Sophisticated tools are available and uniquely positioned to bring IT planning to a new level of strategic implementation and forecasting. If you find yourself burdened by regular use of homespun spreadsheets to manage large volumes of information, with multiple tabs and hyperlinks to documents, other spreadsheets, Web sites, presentations, etc. to access information, and then have to manually digest and analyze the information into a workable presentation for decisions on the enterprise, you are overdue for adopting more advanced EA and SITP tools for automating these same processes.

It may take several years for large agencies to adopt an EA approach to strategic planning or create a culture that is EA-minded. Therefore, EA customers need something they can deploy quickly and get value from fast and often. Business intelligence needs to be transformed thorough the EA into intelligent business practice. The

GAUGING THE VALUE OF STRATEGIC IT PLANNING AND EA

reality is that it takes time and resources to generate a useful model so agencies can learn from one another's best practices, successes, and failures.

The use of SITP is on the rise as evidenced by more than 200 participants to this User Group Conference, and agencies mentioned more than once a need for federated modeling and data standards so they can share data when appropriate (i.e., crisis response) between agencies.

EA teams are relatively small (typically five to six principals) regardless of the agency, and include operational, logistics, engineering, modeling, financial, and architectural savvy team members.

Considering rice bowls, inter-agency cultures, and other inherent roadblocks, EA requires an effective champion to produce or obtain the data, mandate the process, or influence and make budgetary decisions regarding its use. Be sure to find a champion first. Someone must see the value added and be willing to foster EA initiatives.

EA VALUE ADDED

Quick success may ensure the value of EA initially, but the long-term value is in using EA for Strategic IT Planning. You can achieve both simultaneously, which will be important to your champion, your advocate, and resource sponsor.

CIOs, program managers, capability portfolio managers, operators, engineers, and financial management personnel can customize their own dashboards to have daily insights from the EA, according to their own preferences or perspectives. Basically, they all run into similar problems like access to information, relevancy, integration, etc.

"Buy-in" from agencies contributing data or users of the EA is absolutely essential to its success. Authoritative and reliable sources of information need to be identified early in the build process and then partnered with for the success and credibility of the enterprise.

However, be prepared to cross cultural boundaries between organizations as you identify and evaluate their contributing potential to your EA and SITP initiatives; not everyone likes to share.

The EA data refresh mechanism must be automated to the greatest extent possible. If not, data is less likely to be kept up-to-date, and then it becomes a

more burdensome governance issue. If someone is not generating the data, don't get into the data generating business. EA will never replace the man-in-the-loop since not everything can or will be automated, especially analysis.

Optimum performance of the EA would include maximum use of automated, cyclical data mining of existing databases (reliable, verifiable, and authoritative). Many relevant databases exist and can be tied to architectures with relatively little effort—push and pull capability is available now. Your real challenge may be finding authoritative data sources that are also reliable—they are not mutually exclusive.

There are also security and access issues that must be addressed up front. When does the collection of data become classified? Who has or controls access to the data? Where does the data reside? There are no security classification guides to my knowledge that spell out when the volume of information in the enterprise compromises the security of the enterprise, unless, of course, the data in the enterprise dictates the security level. You need to be cognizant of that turning point and act with prudence and foresight.

Generating data and views from existing data is standard business practice. Relating disparate information in the EA environment lends itself well to clearer understanding. Although not discussed in detail, obtaining useful SITP information from architectural artifacts has produced some success in this area.

Visualization of the enterprise (programs, processes, data, relationships, assessments) is supremely important and quickly adds value to enterprise partners by keeping everyone on the same page during dynamic evolutions of the architecture. While there may be an immediate ROI with "out-of-the-box" capabilities in reports, dashboards, etc., one view does not fit the needs of all of the stakeholders. An application's ability to customize the front-end view to suit the needs of the echelon stakeholder is supremely important to getting the maximum value out of the EA.

The EA needs to talk the language of the agency, business, unit, or level of client it serves. The objective of EA tools is to deliver purposed information to a variety of stakeholders. You will need to customize the views for it to be useful and used, or else it will be an exercise in futility.

GAUGING THE VALUE OF STRATEGIC IT PLANNING AND EA

Metadata standardization, interoperability, and artifact reuse not only saves time and resources, but opens venues for federated use of architectural information between agencies using different tools. For this to effectively work, data latency and business rules need to be identified, thoroughly vetted, and understood through metadata tagging. This is also key to maintaining a living architecture and for accomplishing accurate analysis within your enterprise.

Time and resources spent on the data's pedigree up-front will help establish the credibility of the architecture as an authoritative source for enterprise partners and participants. The federation's success is dependent on accurate, timely, and relevant information from the enterprise and an established, verifiable pedigree from whence it came. If you plan to tap into another enterprise's data sources, the mechanism for refreshing and/or maintaining its vitality must also be considered.

EA will continue to grow at its own pace until legislation mandates its use for IT planning—then it will grow more exponentially. Just like the cash register wasn't popular until Congress changed the laws to value the receipt as a legitimate contract and for tax return claims. EA policy guidance and reporting requirements already exist.

A mature EA provides real-time enterprise information to multiple stakeholders delivered in user specific views, via a central repository. It also provides traceability of capabilities to requirements and allows investment analysis, decision support, identification of cross-component capabilities, and performance analysis.

Definition of an EA use case: information the users are interested in knowing. To determine what information is paramount to the EA, questions related to governance, business processes, data (needs, existence, organization, source, etc.), analysis views, technical, programmatics, resourcing, and functionality need to be addressed across the enterprise. Users of

the EA may be small in number or diversely large and dispersed geographically so the EA Framework must be useful and visible to all potential users.

No one can learn everything about the enterprise, and not everyone is an enterprise architect with their hands on the data from day to day. So you need to know what you're looking for and how to get to it. EA in a metadata-rich environment provides one mechanism to locate, assess, display, and use authoritative, pedigreed data for more informed decision making to the nth degree. EA and SITP tools are designed to facilitate that end.

SUMMARY

Agencies and industry are most interested in the bottom-line of EA—what value-add can be derived from its efforts. The ROI must show that EA will outweigh the expense of creating and maintaining it. A fully functional EA may take several years to accomplish, so to maintain advocacy, the EA and SITP teams must quickly show the value add.

Ultimately, a mature, well-administered EA has the potential to facilitate a vision and affect positive changes in programs, policies, resources, and schedules, providing unilateral continuity and saving time and resources while building a more capable enterprise. If done right, the enterprise architecture used for strategic IT planning will help answer questions before they are asked. **A&G**

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