



SentientPoint

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The Pivotal Role of the Business Analyst in a Service-Oriented World

Identifying and Enabling SOA Talent

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What the Heck is SOA?

SOA is a software architecture that allows the development of smaller "services" (groups of software components that carry out business processes) that solve immediate problems. These smaller services can be hooked together with other services to solve bigger problems. These services are "loosely coupled" (an application doesn't have to know the technical details of another application in order to talk to it); have a well-defined, platform-independent interface; and are reusable.

Web Services are a particular implementation of SOA.

We like this definition from CIO Magazine: "SOA is a higher level of application development that, by focusing on business processes and using standard interfaces, helps mask the underlying technical complexity of the IT environment. It's like translating a high school science text for your kindergarten-age daughter; you can tell her that the heart pumps blood without getting into the mitral valve and pulmonary veins."

"Web Services technology is so compelling that most companies should at least try it and see if it lives up to its promise."

Yankee Group

Should You Seriously Consider Web Services and Service Oriented Architecture?

According to a recent Yankee Group Survey of over 400 organizations, the use of Web Services has *improved collaboration with business partners, driven revenue increases, trimmed application development costs, and reduced the complexity in distributed applications*. This early feedback from companies currently using Web Services clearly supports the strengths of this technology.

On going industry surveys indicate not only are companies enthusiastic about the promise of Service Oriented Architecture (SOA), the vast majority intend to increase their spending on Web Services. According to Siew-Joo Tan, a Senior Analyst at Yankee Group, Web Services are now established enough for most companies to give the technology serious consideration.

Could failure to recognize the benefits of Web Services threaten your organization's competitive position?

Maybe.

As more organizations incorporate Web Services into their strategic plans to increase business and wring out costs, the value of Service Oriented Architecture (SOA) continues to grow. But, like all good things, time, energy and investment are required. Building SOAs requires special skills and a unique brand of individuals who are both business and tech savvy.

In a complex business organization, we are fundamentally talking about *Business Analysts*. Business Analysts are individuals who are responsible for recognizing the critical details of business processes and have the unique ability to interpret business requirements into business models.

This paper focuses on the changing demands of the Business Analyst in the successful transition to a Service Oriented Enterprise.

Although the benefits of Service Oriented Architecture are becoming clearer, we believe success in SOA initiatives is largely dependent on the business, technical and communications skills of the Business Analyst.

The SOA Talent Crunch

The increase in Web Service and SOA indicates a growth in the number of people working as Business Analysts. Unfortunately, in many organizations today, the Business Analyst role has morphed into the IT organization (usually in the form of a Systems, Data or Process Analyst) with a diminished business focus. While some Business Analysts are tech-savvy, many others are not. And, we have found that most also lack at least some of the most sought-after skills required to develop appropriate business models in the SOA environment.

As SOA technologies mature, organizations will be able to more accurately design and develop systems that simulate real life business situations. As a result, the successful enterprise will require Business Analysts who can: (1) communicate with business executives on a strategic level and (2) work with architects to interpret business needs into service oriented, process driven business models using Unified Modeling Language (UML).

For SOA to succeed, more "translator" people need to exist.

Now that Web Services and SOA are increasingly considered key to profitable growth, having the right talent to execute these technologies can directly impact the bottom line and the ability to compete in a challenging global marketplace.

Introduction

As part of its ongoing work on SOA and Web Services, Gartner Research states that, by 2008, potent business drivers and advances in software technology will prompt more than 60% of enterprises to consider SOA as the guiding principle in the design of new, mission-critical business applications and business processes.

This transition to SOA is influenced by the fact that an increasing number of organizations using Web Services are suddenly experiencing the pain of inefficient business integration. These organizations are now recognizing the need to blend business needs and technical capabilities.

Some ramifications of poor business integration are:

- **Supporting existing customers is difficult because internal systems don't communicate.** Within many organizations, systems are typically comprised of multiple, incompatible "islands of information". Although applications may run efficiently as stand-alones, once they are required to interface with others, compatibility issues can surface that add complexity to processes and result in higher costs.
- **Providing access to new customers is expensive and time consuming.** Within some organizations, the limitations of interfaces require duplicate efforts and/or secondary follow-up to complete customer setups.
- **Offering new products/services to customers may be hampered by the limitations of current systems.** Buying and selling products/services may require access to business processes and data from a variety of sources. If a seamless interface between these sources is lacking, efficient delivery to customers is hindered.

With proper use of the tools and techniques common to the SOA environment, organizations can overcome the limitations of insufficient integration, become more agile, and reduce costs and time-to-market for new products and services.

Bridging the Communications Gap

One of the greatest challenges facing organizations today is bridging the gap that divides business and technology. To do this, the process of mapping business functionality and requirements into information systems models must be extended to include multiple perspectives.

Business Analysts are the pivotal points in providing these perspectives and aligning business goals with investment in technology. To thrive in organizations that adopt SOA, Business Analysts must learn new skills, master them to greater depths of competency and gain additional experience.

Even organizations with large IT departments must realize that development within an SOA environment requires additional skills, greater competency and broader experience.

PART I - The Evolution of the Business Analyst

Business Systems Now Go Beyond Data Management to Reflect Real Life Business Situations

Organizations are increasingly using Internet/Intranet-based systems to decrease costs, identify new markets or better target existing markets, and capitalize on the globalization of the economy. The widespread demand for and access to the Internet and Intranet require more complex system designs to accommodate and take advantage of new and impending technology advances.

For many years, information systems were designed and developed primarily to store and retrieve data based on business activities. Now, business models must be developed to define systems to capture and manage the data --- *and* to integrate the business processes that enable the transition to Internet-based business systems.

In order to create reliable, scalable, agile, reusable systems, new business models must be developed with an understanding of the business, its processes, goals and objectives. Additionally, these models must be designed from multiple perspectives, reflecting the way people naturally think and act in real life business situations. This is called *Service Oriented Business Modeling*.

One of the greatest dangers for organizations in developing service oriented business models is approaching the task from a technology point of view only. While technologists certainly have much to contribute, the reason they are called "business models" is because, to truly represent the organization, they *must* be designed with an understanding of the business.

In order to succeed in the SOA environment, the Business Analyst must have a cadre of skills, characteristics and experiences including knowledge of business, design techniques, and technology. This is necessary in order to ensure that viable business models are in place to drive business gains.

A New Approach to Gathering Business Requirements

Historically, the Business Analyst investigated, analyzed, designed, and evaluated an organization's business needs. The primary responsibility was to identify business requirements and translate them into a format for a development team of architects and developers. In doing so, the Business Analyst created business requirements, delivered presentations, and provided written documentation.

In the SOA environment, Business Analysts approach their tasks differently. Although analytical skills are still crucial, they are used in new and different ways. For example, Business Analysts need a more holistic and deeper understanding of how an organization functions, its business goals, and overall strategic vision. Business Analysts must interact with business managers and executives on a more fundamental level to insure that critical business needs *are being met through IT* -- rather than IT directing business decisions.

Close-up: The Value of Learning Service Oriented Business Modeling

"As a Principal Business System Analyst, I wanted to improve my ability to efficiently complete system requirements. My class in Service Oriented Business Modeling taught me how to ensure a better mapping to business processes by improving my translation skills between the business and technical teams. Now I can start thinking in technical terms earlier while still keeping the appropriate focus on process and business objectives. This system works for technical people needing to better understand the business system analyst and vice versa."

Nancy Bilodeau

Principal Business Systems Analyst

IT Global Applications

Openwave

**Unified Modeling*

The Traditional Systems Development Team

Traditionally, each member of the development team performed specific tasks and developed explicit skills.

- The traditional Business Analyst role specifically entailed gathering, analyzing and documenting requirements from a variety of sources required to design an information system.
- The Data Modeler/ Architect worked from business requirements and facilitated design sessions to identify, define, and document information (or "entities") and their relationships (i.e. data model).
- The Process Modeler's role entailed identifying, defining, and documenting business processes (the "actions") and their relationships between processes. They also worked from business requirements and facilitated design sessions.

PART II – Identifying Skills, Experience and Personal Characteristics of the Business Analyst in the Service Oriented Environment

New Expectations for the Business Analyst Role

In the SOA environment, the role of the Business Analyst is expanded and more critical than ever. Pivotal to the development of business driven system designs, the Business Analyst must have *business knowledge* (a deep understanding of company business goals and processes) and *technical knowledge* (understanding the value of when and where to apply new and current technologies).

Business Analysts must be able to define services and incorporate them into service oriented processes. Additionally, Business Analysts are responsible for working with Architects to translate – or interpret – business models into system models using Unified Modeling Language (UML). To perform effectively in this expanded role, the Business Analyst needs to learn new skills, master them to greater degrees of competency and gain additional experience.

The following figure identifies key traits of the Business Analyst role and the level of competency required, in a pre-SOA vs. SOA environment.

Category	Skill (S), Experience (E), or Personal Characteristic (C)	Trait	Competency Required Pre-SOA	Competency Required in SOA Environment
Analytical	C	Abstract Thinking/ Multiple Perspectives	Entry level	Mastery level
Analytical	C	Problem-Solving	Mastery level	Mastery level
Analytical	E	Business Knowledge	Intermediate level	Intermediate level
Organizational	S	Planning	Intermediate level	Mastery level
Leadership	C	Social Skills	Intermediate level	Intermediate level
Leadership	C	Conflict Resolution	Intermediate level	Intermediate level
Technical	E	Keep Pace with Technology Advances	Entry level	Intermediate level
Communication	S	Interviewing	Mastery level	Mastery level
Communication	S	Writing/ Documentation	Mastery level	Mastery level
Communication	S	Facilitation	Entry level	Intermediate level
Communication	S	Presentation	Intermediate level	Intermediate level

(Entry level = perform the skill with supervision, Intermediate level = perform the skill with occasional assistance, Mastery level = perform the skill well enough to teach it to others.)

Figure 1: Business Analyst Trait Competencies Pre-SOA and SOA

According to comedian George Carlin, most of us see the world as "stuff." Any object is stuff.

Understanding and Integrating Multiple Perspectives

The business world consists of physical things (individuals, products, etc.) and conceptual ideas (services, etc.). People naturally form mental pictures (models) to represent things and ideas as they develop an understanding of the world around them.

The ability to reflect the way people naturally think is one of the key advantages of object oriented design. To understand this concept more readily, consider how comedian George Carlin sums it up. According to Carlin, most of us see the world as "stuff". An object (or stuff) can be a person, place, thing, event or possibly an abstract concept. Most business professionals view the world as stuff. A more diverse and informed view is required of the successful Business Analyst in an SOA world.

In order to develop business models that realistically simulate the world, Business Analysts need to consider multiple viewpoints. Abstract business models created from multiple perspectives result in systems that are agile and able to accommodate changing business needs. The Business Analyst must work with the business team to gain the critical knowledge to examine existing and new relationships based on changing circumstances.

To achieve this, Business Analysts must adapt their investigation and interrogation skills in ways that allows business managers and executives to respond based on their natural tendency toward a "stuff"-oriented perspective.

Organizational and Leadership Skills

Due to the increased complexity of business model design in the SOA environment, Business Analysts will be required to tap their organizational and leadership skills to a greater degree than in the past. In their pivotal role, Business Analysts are actively involved in discussions with a wider range of participants in the business, architecture and technical communities. As such, they will be required to establish plans, resolve problems and elicit high-quality collaboration on all levels.

Keeping Pace with Technology Advances

The expectations of most business executives are influenced by new technologies. Therefore, Business Analysts must keep pace with technological advances in order to visualize how specific technologies can be used by the organization and how better business models and solutions can maximize the technology investment.

Representing both the business professional and information technologist, the Business Analyst role can be likened to a bi-lingual interpreter at the United Nations with the ability to speak and interpret multiple languages.

PART III – Bridging the Communication Gap Between Business and IT

Speaking a “Shared Language”

In an SOA environment, the role of Business Analyst increases in importance because it is their mission to bridge the gap between business and IT.

Of all the new skills and deeper competencies required of the SOA-ready Business Analyst, perhaps the most important is learning a “shared language” to enable high-quality communication between the business team and IT architects and developers.

The benefits of a shared language are significant and can foster:

- The rapid development of web-based, SOA business models designed from solid business processes
- The development of standards and best practices to create stable, scalable SOA infrastructures with repeatable processes, procedures and policies
- Solutions dictated by business needs, rather than technology-driven
- Enhanced communications and cooperation between technical and business teams
- Maximum return on technology, tools and personnel

Communicating With the Business Team

To successfully translate business needs into business models, the Business Analyst needs intimate knowledge of the business functions from a business process perspective -- as well as the organization's strategic objectives. To communicate effectively with the business team, the Business Analyst must be adept in the following areas:

- **Visualization:** Envision a solution from a business process point of view rather than strictly a technology perspective; formulate and analyze multiple business perspectives (data, process, event, responsibility); creative thinking
- **Focus:** Understand the appropriate and realistic technologies needed to solve a business problem; see the big picture, yet still be detail-oriented; think beyond existing constraints and evaluate options
- **Communication:** Work with business experts; effectively communicate through pictures and words; facilitate design sessions using shared language
- **Coalescence:** Use ideas from past experiences and modify or extend them based on current business situations
- **Decomposition:** Simplify business processes and not be intimidated by complexity; identify and separate non-essential details for later review and resolution; organize and prioritize
- **Action-oriented:** Act as a conductor; keep the team on task and in sync and working together

Communicating With the IT Team

To successfully translate a business model into an SOA system solution, the Business Analyst must communicate a business-centric solution using service oriented design techniques to the architect and developer.

Given the more detail oriented, systematic and deductive mindset of the typical technologist, the Business Analyst must transition from abstract to linear thinking. In order to effectively communicate with the IT team, the Business Analyst must be:

- **Bi-lingual:** Able to work with architects and developers; effectively communicate through business models; facilitate design sessions using shared language
- **Techno-savvy:** Know the capabilities and limitations of the technical environment; understand UML techniques and technical design standards and practices

PART IV - Accelerating the Development of SOA Talent

Organizational Learning Considerations

It should be fully noted that enterprises committed to realizing the promise of SOA face classic challenges. Chief among them is the demand for new (and often scarce) skills. Accelerated organizational learning has become a way of life for companies that strive to remain agile in today's dynamic global economy. Executives who sponsor and lead changes required to continuously hone their company's competitive edge need to expedite the learning curve for SOA skills. Careful consideration must be given to the best use of limited human and financial resources (i.e., key staff and training/development dollars).

"Dollars and Sense" Insights

Executives called upon to "take action on SOA" clearly benefit from a strategic application of resources so that time, dollars and talent are fully leveraged to the best advantage.

Investing precious training and development resources required to train *everyone* involved in an SOA initiative to the highest degree of skill competency is imprudent and impractical

Knowing exactly who to train, what skills to train them on, and the proper depth of competency required is an approach favored by executives who insist on best practices and expect a good return on their investments. The ROI for SOA training and development can be dramatically enhanced by focusing on:

- Training staff members who are *most pivotal* to overall success, and, in the SOA environment, these are the Business Analysts
- *Acquiring key skills* that most positively impact performance and predict success (see Figure 1)
- Providing the appropriate *level of competency* required for these skills (see Figure 1)
- Accelerating SOA skill acquisition

Business Analysts provided with the most effective skill training will become the "secret weapons" that help drive SOA success and value.

Executives considering migrating to an SOA environment, who want to maximize their training and development investment, will want to consider:

1. Some core critical skills require a higher level of competency, or mastery, than others.
2. Some Business Analysts may already possess some of the necessary skills but may need to enhance them to a higher level of competency.
3. The learning curve for acquiring skills and mastering competencies can be accelerated by using interactive training techniques and specific hands-on experience.

4. The most effective programs provide formal training of new concepts, applied practice of techniques, and on-site mentoring.

Mentoring For Mastery

Given the proper learning situation and resources, a Business Analyst will rapidly develop the skills and competencies necessary for SOA success.

The most successful organizational learning environment is one where accelerated learning is encouraged and rewarded and is comprised of the following four proven approaches:

1. Provide high quality training coursework and materials to drive new skill acquisition
2. Provide opportunities to practice new skills under the guidance of a proven expert and mentor
3. Provide opportunities to work on current initiatives so that new skills can be applied immediately in a real-world situation and refined based on hands-on experience
4. Augment the development team on initial SOA projects with outside experts who can mentor in-house staff until they attain the appropriate level of competency on necessary skills. To provide the greatest return on investment, any outside resources considered for this role should possess:
 - a. significant depth of SOA expertise and experience,
 - b. high quality training curriculum and materials, and
 - c. proven mentoring capabilities

PART V - Conclusion

Investing in SOA Readiness

Service Oriented Architecture is gaining traction as more corporations are drawn to its value. Driven by Web Services momentum, SOA is fast moving from leading-edge software projects to the mainstream.

According to ZapThink, the biggest potential threat to SOA momentum is the imminent scarcity of SOA expertise - the internal talent and consultants required to do the job.

As the promise of SOA becomes more widely recognized, the hunt for expertise in implementing SOA initiatives is picking up steam. Whether this entails cultivating individuals from within or engaging professional services firms with established SOA qualifications, even companies with sizeable IT departments are realizing they cannot develop or scale an SOA environment without skilled help.

As organizations strive to identify and cultivate talent that understands the business and technical ramifications of these new technologies, there are indications that, during 2006, attempts to get access to SOA expertise and talent will become frenzied.

Organizations ramping up SOA initiatives must be highly motivated to secure the best expertise (internally or externally) to meet their business objectives. The first time an organization takes on the challenge of development in an SOA environment, we recommend they supplement their current staff with recognized industry experts who can transfer relevant knowledge, techniques and best practices. These companies will need to actively seek out the appropriate (scarce) resources to train their staff, and/or contribute the appropriate consulting services to jump-start their SOA initiatives.

Considering the increasingly lucrative offers for SOA experts, companies fortunate enough to already have SOA-savvy staff should do whatever it takes to support and develop them. And, while training programs will become more available, it's important to ensure that a Business Analyst orientation is the foundation of the curriculum, rather than the usual technical audience orientation that traditionally prevails.

Development of the Business Analyst Role is Key to Success

When competitive forces drive new possibilities for significant performance improvements to center stage, executives are forced to scramble. Not only must they quickly assess and understand what's new and different, they must also justify the expense and resources required to take appropriate action.

Such is the case with SOA.

As you have read this document, we believe that the Business Analyst is key to your organization's success in using SOA to create significant business advantage. This pivotal role requires specific training, coaching and mentoring to tackle the demands that SOA initiatives place on the organization. As such, any investment in SOA-readiness must include the training required to accelerate your Business Analyst's progress to mastery-level competencies of key skills.

According to Gartner, the "transition to a corporate service-oriented architecture will dominate the agendas of users and vendors." Understanding its role and value beyond the hype, is the imperative for every Business Analyst and enterprise Software Architect.

Many companies are now actively seeking talent with real-world expertise in building and scaling SOA. In addition to internal development, fast-moving companies are accessing talent from outside resources with SOA experience and deep expertise in specialized training where new skill development is mandatory.

About the Authors:

Jack R. Hilty - Managing Principal and Founder of SentientPoint, Inc.

Jack has over 25 years of experience leading IT departments in the design and development of and transition to Service Oriented Enterprise Architecture environments and web-enabled model driven solutions. He specializes in Organizational SOA Readiness, SOA Best Practices, Enterprise Architecture and Business Process Management. Jack has developed and teaches courses in Business Modeling for a Service Oriented Architecture, Business Requirements to Use Cases, Service Oriented Concepts for Executives, Business Process Modeling, Relational Data Modeling and Facilitation Techniques. He holds a Bachelor of Science degree in Computer Science from DePaul University and is a member of the Chicago Chapter of the Association of Business Process Management Professionals (ABPMP), Data Management Association (DAMA), and Executives' Club of Chicago.



Gil Laware - Asst. Professor, Purdue University, School of Technology

In addition to his pioneering work at Purdue, Gil Laware consults in both the public and private industry sectors in the areas of modeling to support business and application solutions, metadata (business and technical) to support enterprise application integration, Knowledge Management, and Data Warehousing. With a focus on the technologies and key tools needed for information delivery solutions, Purdue's curriculum includes Systems Analysis and Design, Enterprise and Systems Architecture, Database Management (SQL) and Web Development. An invited industry speaker, Gil is the Vice President of Research for the DAMA (The Data Management Association) Foundation and holds an MBA in Management and another in Management Science.



About SentientPoint

SentientPoint is a Chicago-based business consulting and training firm that specializes in agile business modeling services for organizations with complex integration needs. SentientPoint helps its clients to profitably enable SOA technology and bridge the communication gap between business and IT. The firm was founded by Jack Hilty, a 25+ year veteran in the design, development of and transition to Service Oriented Enterprise Architecture environments and web-enabled, model-driven solutions. SentientPoint has a seasoned management team of business architects and facilitators with academic strength, IT experience, and business process acumen. By combining their expertise in agile business modeling with the growing demand for SOA-based process, SentientPoint continues to advance as a leader in this area. SentientPoint provides customized services for its clients as well as training classes and mentoring experiences to help companies become self-sufficient and employ best practices that drive competitiveness and significant business value.

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