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# Service Oriented Architecture

FOR DUMMIES®

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- Identify what SOA is and why it's important
- Understand the components of a service oriented architecture
- Understand the business and financial imperatives of SOA
- Implement SOA best practices

**Judith Hurwitz**
**Robin Bloor**
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# Service Oriented Architecture FOR DUMMIES®

2ND EDITION

**by Judith Hurwitz, Robin Bloor, Marcia Kaufman, and Fern Halper**


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# About the Authors

**Judith Hurwitz** is a technology strategist and thought leader. She is the president of Hurwitz & Associates, a business technology strategy firm that helps companies gain business benefit from their technology investments. In 1992, she founded the Hurwitz Group, a technology research group. She has worked in various corporations, such as John Hancock, Apollo Computer, and Patricia Seybold's Group. She has written numerous articles and white papers, and publishes a regular blog. Judith holds a BS and MS degrees from Boston University.

Judith provides strategic guidance to both vendors and customers of distributed technologies. Judith is a frequent keynote speaker at industry events. She was named a distinguished alumnus Boston University's College of Arts & Sciences in 2005. She is also a recipient of the 2005 Massachusetts Technology Leadership Council award.

**Robin Bloor,** a Partner with Hurwitz & Associates, has been an IT consultant and technology analyst for almost 20 years. He lived and worked in the UK until 2002, founding the IT analysis company, Bloor Research, which published comparative technology reports that covered everything from computer hardware architectures to ecommerce. Prior to co-authoring this book, he was already a published author, having written the UK business best seller, *The Electronic B@zaar: From the Silk Road* to the E-Road (published by Nicholas Brealey Publishing), which analyzed and explained the field of ecommerce.

In 2002, Robin moved to the US and now resides in Austin, Texas. In 2005, he merged his US analyst company with Hurwitz and Associates and in 2006, he began to take an interest in the expanding area of SOA. Robin has become an influential and respected commentator on many corporate IT issues and is in great demand as a presenter at conferences, user groups, and seminars.

**Marcia Kaufman,** a founding Partner and chief operating officer of Hurwitz & Associates, has 20 years of experience in business strategy, industry research, service oriented architectures, software quality, information services, and analytics. In addition to publishing a regular technology blog, Marcia has written extensively on SOA, information management, and the business value of information technology. Marcia has worked on financial services industry modeling and forecasting in various research environments including Data Resources Inc. (DRI). She holds an AB from Connecticut College in mathematics and economics and an MBA from Boston University.

**Dr. Fern Halper,** a Partner at Hurwitz & Associates, has over 20 years of experience in data analysis, business analysis, and strategy development. Fern has published numerous articles on data mining and information technology. She has done extensive research, writing, and speaking on the topic of text analytics. She publishes a regular technology blog. Fern has held key positions at AT&T and Lucent Technologies. Fern spent eight years at Bell Laboratories leading the development of innovative approaches and systems to analyze marketing and operational data. She has also taught at both Colgate University and Bentley College. Fern received her BA from Colgate University and her PhD from Texas A&M University.

# Dedication

**Judith** dedicates her part of the book to her family — her husband, Warren; her children, Sara and David; and her mother, Elaine. She also dedicates this book in memory of her father, David.

**Robin** dedicates his part of the book to Judy, for her encouragement, support, and advice.

**Marcia** dedicates her part of the book to her husband, Matthew; her daughters, Sara and Emily; and her parents, Larry and Gloria.

**Fern** dedicates her part of the book to her husband, Clay; and her daughters, Katie and Lindsay. She also dedicates this book in memory of her parents, Stanley and Phyllis.

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# Contents at a Glance

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# Introduction

Welcome to *Service Oriented Architecture For Dummies,* 2nd Edition. We are very excited that service oriented architecture (SOA) is starting to mature and move into the mainstream. Increasingly, we see SOA becoming not just a technology platform but a business platform. SOA is game changing, and SOA successes make it clear that SOA is here to stay. We hope this book is enough to ground you in SOA basics and to whet your appetite for the SOA adventure. We are also pleased that we can share more than 20 examples of how companies across nine vertical markets have used SOA as a way to improve business agility.

Service oriented architecture is more than a bunch of new software products strung together to allow technology companies to have something else to sell. SOA represents a dramatic change in the relationship between business and IT. SOA makes technology a true business enabler and empowers business and technology leaders alike.

The software industry has been on a journey toward a service oriented approach to software for more than 20 years. Smart people have known for a long time that if software can be created in such a way that it can be reused, life will be a lot better. If software can be designed to reflect how business operates, business and technology can align themselves for success. Finding good ways to reuse the years of investment in software means money spent wisely. These issues are at the heart of SOA and are among the reasons we think this book is so important.

SOA isn't a quick fix: It's a journey — and a very rewarding adventure. It's an approach built on industry standards, with large doses of forethought and planning. It is indeed a journey. We hope this book inspires you and helps you get started.

## About This Book

Service oriented architecture is a big new area and requires that a lot of people familiarize themselves with it in a relatively short period of time. That's why we wrote this book. Some people may want to get deeper into the technological details, while others may care only about the business implications.

We recommend that you read the chapters in Part II, regardless of how deeply or shallowly you want to wander into the SOA pool. The information therein will help ground you in basic SOA concepts and prepare you for intelligent

conversations about the subject. We also recommend that everyone read the case studies in Part V, because seeing how real people put SOA to work is probably the best way to get a handle on what's in it for you.

You can certainly read this book from cover to cover (if you're that kind of person), but in true *For Dummies* style, chapters are self contained, so you can go straight to the topics that interest you most. Wherever you start, we wish you well.

# Foolish Assumptions

Try as we might to be all things to all people, when it came to writing this book, we had to pick who we thought would be most interested in *Service Oriented Architectures For Dummies,* 2nd Edition. Here's who we think you are:

- **You're smart.** You're no dummy, yet the topic of service oriented architecture gives you an uneasy feeling. You can't quite get your head around it, and if pressed for a definition, you might try to change the subject.
- **You're a businessperson who wants little or nothing to do with technology,** but you live in the 21st century and find that you can't escape it. Everybody around is saying "SOA this" and "SOA that," so you think you better find out what they're talking about.
- **Alternatively, you're an IT person who knows a heck of a lot about technology,** but this SOA stuff is new, and everybody says it's something different. Once and for all, you want the whole picture.

Whoever you are, welcome. We're here to help.

# How This Book Is Organized

We divide our book into six parts for easy consumption of SOA topics. Feel free to skip about.

## Part I: Getting Started with SOA

In this part, we introduce you to the basic concepts of SOA, and then give you some pointers on how to get started. This part also includes a test you can use to help determine if you're ready for SOA.

## Part II: Introducing SOA Basics

In this part, we introduce you to the major concepts and components so that you can hold your own in any meaningful conversation about SOA.

## Part III: Nitty-Gritty SOA

Some folks are more technically oriented than others. In this part, we dive deeper into the actual SOA architecture components. The material in these chapters is groundbreaking. We've done the research and put into print concepts that the software industry has been struggling to articulate for the past few years. At this point, you won't find this material anywhere else in print.

## Part IV: SOA Sustenance

Creating a SOA is one thing. Keeping it up and running, growing, adapting, and supporting business requires a lot more. This part delves into areas critical to SOA's longevity.

## Part V: Real Life with SOA

SOA is real. Real businesses are using it today to great advantage. This part shares stories that come to us from 24 companies actively helping organizations put SOA into practice. These companies represent nine different vertical markets. We interviewed people from each of the projects we describe. You can take their word for it. SOA rules!

## Part VI: The Part of Tens

If you're new to the *For Dummies* treasure trove, you're no doubt unfamiliar with The Part of Tens. In this part, Wiley editors torture *For Dummies* authors into creating useful bits of information easily accessible in lists containing ten (more or less) elucidating elements. We started these chapters kicking and screaming but are ultimately very glad they're here. We think you'll be, too.

After The Part of Tens chapters, we provide a glossary. We try diligently to define terms as we go along, but we think having a handy-dandy reference is very useful.

# Icons Used in This Book

Like all *For Dummies* books, this book makes use of icons in the margin. These icons help draw attention to paragraphs that we think you need to pay attention to, or in some cases, paragraphs that you can skip over.


We use this icon to highlight a paragraph that contains a particularly useful point that you'll be wise to pay attention to.


Watch out and pay attention when you see this icon. The bother you save may be your own.


This icon points out a reminder or a point you'll want to stow away in your long-term memory. You may be sorry if this little tidbit slips your mind.

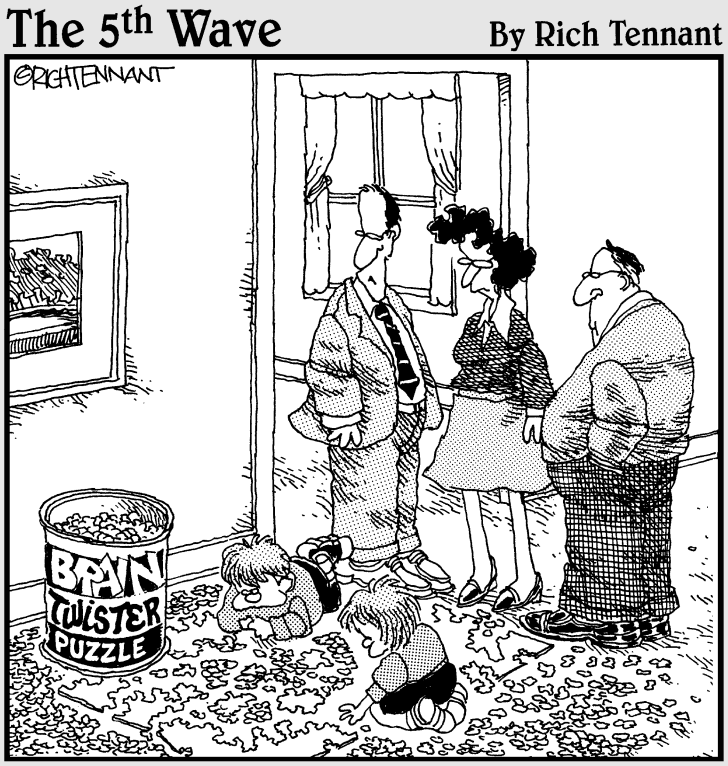

When we get into details that are highly technical or even geeky, we let you know with this icon. We hope these tidbits will augment the understanding for the more technically inclined. Those with sensitive stomachs can gleefully ignore these icons.

# Where to Go from Here

We created an overview of SOA and introduce you to all its significant components. Many chapters here could be expanded into full-length books of their own. SOA and the entire distributed technology landscape is a big focus for us at Hurwitz & Associates, and we invite you to visit our site and read our blogs and insights at `www.hurwitz.com`.

# Part I

# Getting Started with SOA




"That reminds me – I have to sort out the business services on the corporate network."

## In this part . . .

Starting a SOA journey might seem daunting. But, as the sages say, "A journey of a thousand miles begins with a single step." In this part, we help you take that first step by showing you some great places to start your SOA journey and some great ways to do it.

# Chapter 1

# Getting to Know SOA

### *In This Chapter*

- Finding out why you should care about SOA
- Liberating business from the constraints (and tyranny) of technology
- Illustrating the need for SOA
- Saving bundles by using what you have
- Expanding your SOA to customers, partners, and suppliers
- Focusing on function

Service oriented architecture (SOA) is a hot topic being bandied about by IT vendors across the globe. IBM, Hewlett-Packard, Software AG, Oracle, SAP, and Microsoft (just to drop a few names) are all singing from the SOA songbook, and hundreds of vendors are adding their tunes as we speak.

"What's SOA?" you ask. We suspect that you've already skimmed a dozen articles and read (or deleted) hundreds of e-mails from vendors pushing SOA, but the answers you've gotten so far have been, well, vague and inadequate.

The short answer is that SOA is a business approach to building IT systems that allows businesses to

- Leverage existing assets
- Create new ones
- Easily enable the inevitable changes required to support the business

For you impatient readers out there, we expand on this short answer in Chapter 5. However, right now, we think the more important question is, "Why should I care about SOA?" In this chapter, we try to answer this question.

The promise of service oriented architecture is to liberate business from the constraints of technology, unshackling technologists and business leaders from the chains they themselves have forged. ("IT workers of the world, unite! You have nothing to lose but your chains!" as it were.) This has major implications both for the business and for the IT structure that supports the business.

From our perspective, one of the most important aspects of SOA is that it's a *business* approach and methodology as much as it is a *technological* approach and methodology. SOA enables businesses to make business decisions *supported* by technology instead of making business decisions *determined* by or *constrained* by technology. And with SOA, the folks in IT finally get to say "yes" more often than they say "no."


We pronounce *SOA* to rhyme with boa (***bow**-uh*). Stretching it out by clearly articulating each letter (S-O-A) is perfectly acceptable but might leave you stymied when we say things like, "SOA what?"

# Business Lib

Executives have come to rely on technology — in terms of reporting, text analytics, projections, graphical representations, risk analysis, and other analytical tools — to make informed decisions for their company. The day-to-day operations of a company have slipped, little by little, into the hands of IT. Quite simply, more and more of the activities of an organization are supported by increasing levels of business process automation — whether its business is to build ships, sell insurance, or manage cities — and since IT implements the automation of business process, business decision makers have become more dependent upon IT. While this increasing use of technology has helped the business in so many ways, technology has also created significant constraints. At many companies, business and IT management operate in very separate worlds without the benefit of a common unifying language. Unfortunately, as organizations become more diverse and complex through mergers, acquisitions, globalization, and the need to manage lots more data, the supporting IT infrastructure has become more cumbersome and brittle after being stretched in so many different ways to keep up with all the changes. This is not good for business, and neither is it good for IT.

We're not advocating that business leaders should (or can) take control of the technology from the hands of IT. Modern businesses are inextricably tied to technology. No sizable business can function without IT — it's as simple as that. However, we are advocating a new world order. Indeed, we advocate that business leaders and IT work together to create this new world order. *Together,* business leaders and IT will communicate how the automated processes of its business should be facilitated, and work together to make it a

reality by using SOA. *Together,* IT and business leaders can determine a strategy that both liberates business from IT and allows IT to create maintainable, extensible, compliant systems to support the initiatives determined by business leaders.

# Tech Lib

Just because business has become constrained by technology, don't think that the folks in IT are having a jolly old time basking in their new-found power. On the contrary, the IT staff gets to spend its time in endless meetings accounting for why projects are late, explaining why applications can't easily be adapted to changing business conditions, and pleading for more staff. When some clever marketer presents a new concept for selling more widgets via the Internet or mobile devices or some other new channel, IT management is always the wet blanket, having to explain why (despite the company's investment in all the latest software and hardware) it will take 18 months to implement the new plan.

With SOA, business and IT have a way to meet each other half-way and collaborate using a business focused approach to develop new ways to use technology to grow the firm, help to spot new trends and opportunities, and see new ideas to fruition. But before you go marching off to save the world, though, we have some more explaining to do. A story will help.

# A SOA Case Study

Once upon a time, there was an insurance company called ABC Insurance Incorporated. When ABC was born — oh, maybe 150 years ago — it began by selling insurance policies to factories and manufacturers. In those days, there were no computers to mess things up. The company followed business processes that were pretty simple. A nice person sent a letter inquiring about a policy. A smart person set a rate, sold a policy, and hoped that nothing caught fire or blew up. ABC thrived for more than 100 years.

But then, things got complicated. Other companies started stealing ABC's business. Customers were asking for insurance for different kinds of risk. ABC had to change or die.

ABC was an early user of punch-card accounting systems. In the 1960s, ABC bought computers, hired programmers, and built software applications to support its business. In the 1980s, it bought software packages from different

suppliers to help it continue to compete. It bought or built business applications to solve problems all over the company — one at a time. For example, it bought an application for the corporate finance department, created one to handle customer claims, and procured other applications to manage research information about what type of accidents were most common under what circumstances.

This worked well for many years, until the 1990s, when ABC found itself competing against financial services companies who decided *they* could sell insurance, too. Suddenly, ABC needed to find new ways to compete so it could sell a larger variety of products to current customers and also find some new customers. Its leaders thought up exciting new solutions based on the knowledge of their business and their customers.

In addition, management thought ABC could expand its business by acquiring other insurance companies with complementary products. ABC could sell these new products to existing ABC customers and sell ABC's products to the customers of the companies they acquired. These smart guys and gals understood business strategy. Everyone got really excited until . . .

Management talked to IT, and IT said, "This is really, really exciting, but we have a *small* problem."

"What could it be?" asked management.

"It's this," said IT. "We can no longer simply buy or build more software applications to implement our innovative plans for new products and services. The business policies and processes that we follow have become more complex. Everything we want to do has to work in concert with what we already have. The very running of our company depends on all the business applications that we built and acquired over years working together smoothly — such as the programs that tally the premiums people pay; administer the claims we process; and make risk analysis, payroll, invoicing, and sales commission calculations. When you come right down to it, our company is the aggregation of all our programs. Everything we need to carry out our day-to-day business functions — including information about our customers, our products, and our risk performance — is locked inside these programs and processes."

"Well," said management, "You can just write new programs to tie everything together. We'll *integrate,* and we'll all be very happy."

And IT said, "Yes, it is possible to *integrate,* but integrating will take *a very, very long time:* at least 18 months. Maybe two years. And by then, you might want more changes that will take another 18 months or two years. By then, it might be too late. And," IT continued, "*it will cost lots and lots of money.*"