AGILE BY DESIGN

AN IMPLEMENTATION GUIDE TO ANALYTIC LIFECYCLE MANAGEMENT

RACHEL ALT-SIMMONS

WILEY

From *Agile by Design.* Full book available for purchase here.

Contents

Introduction **xiii**

About the Author **xix**

Chapter 1 Adjusting to a Customer-Centric Landscape 1
- It's a Whole New World 1
- From Customer-Aware to Customer-Centric 3
- Being Customer-Centric, Operationally Efficient, and Analytically Aware 6
- Our Example in Motion 9
- Enabling Innovation 10

Chapter 2 The Analytic Lifecycle 13
- What Are Analytics, Anyway? 13
- Analytics in Your Organization 15
- Case Study Example 17
- Beyond IT: The Business Analytic Value Chain 18
- Analytic Delivery Lifecycle 19
  - Stage One—Perform Business Discovery 20
  - Stage Two—Perform Data Discovery 21
  - Stage Three—Prepare Data 22
  - Stage Four—Model Data 23
  - Stage Five—Score and Deploy 24
  - Stage Six—Evaluate and Improve 25
- Getting Started 25
- Summary 26

Chapter 3 Getting Your Analytic Project off the Ground 27
- A Day in the Life 29
- Visioning 30
- Facilitating Your Visioning Session 32
- Think Like a Customer 33
- Summary 36

Chapter 4 Project Justification and Prioritization 37
- Organizational Value of Analytics 37
- Analytic Demand Management Strategy 38
- Results 40

Project Prioritization Criteria 42
  Value-Based Prioritization 43
  Financial-Based Prioritization 45
Knowledge Acquisition Spikes 46
Summary 47

Chapter 5 Analytics—the Agile Way 49
Getting Started 49
Understanding Waterfall 51
The Heart of Agile 53
The Agile Manifesto/Declaration of Interdependence 54
Selecting the Right Methodology 57
  Scrum 58
  eXtreme Programming (XP) 59
Summary 61

Chapter 6 Analytic Planning Hierarchies 63
Analytic Project Example 63
Inputs into Planning Cycles 66
Release Planning 69
Analytic Release Plan 70
  Release Train 71
Summary 73

Chapter 7 Our Analytic Scrum Framework 75
Getting Started 75
The Scrum Framework 77
Sprint Planning 78
Sprint Execution 80
Daily Standup 81
How Do We Know When We're Done? 82
Sprint Review 83
Sprint Retrospective 85
Summary 85

Chapter 8 Analytic Scrum Roles and Responsibilities 87
Product Owner Description 89
  Product Owner: A Day in the Life 91
ScrumMaster Description 92
  ScrumMaster: A Day in the Life 94
Analytic Development Team Description 95
Additional Roles 97
Summary 98

Chapter 9 Gathering Analytic User Stories 101
Overview 101

- User Stories 103
  - The Card 104
  - Analytic User Story Examples 105
  - Technical User Stories 106
  - The Conversation 107
  - The Confirmation 107
- Tools and Techniques 108
- INVEST in Good Stories 109
- Epics 111
- Summary 112

Chapter 10 Facilitating Your Story Workshop 113
- Stakeholder Analysis 113
- Managing Stakeholder Influence 116
- Agile versus Traditional Stakeholder Management 118
- The Story Workshop 118
  - Workshop Preparation 119
  - Facilitating Your Workshop 121
- Must-Answer Questions 123
- Post-Workshop 124
- Summary 126

Chapter 11 Collecting Knowledge Through Spikes 127
- With Data, Well Begun Is Half Done 127
- The Data Spike 129
- Data Gathering 131
- Visualization and Iterations 135
- Defining Your Target Variable 136
- Summary 138

Chapter 12 Shaping the Analytic Product Backlog 141
- Creating Your Analytic Product Backlog 141
- Going DEEP 145
- Product Backlog Grooming 146
- Defining "Ready" 146
- Managing Flow 147
  - Release Flow Management 148
  - Sprint Flow Management 148
- Summary 149

Chapter 13 The Analytic Sprint: Planning and Execution 151
- Committing the Team 151
- The Players 153
- Sprint Planning 154
- Velocity 155

Task Definition 156
The Team's Definition of Done 158
Organizing Work 159
Sprint Zero 160
Sprint Execution 161
Summary 163

Chapter 14 The Analytic Sprint: Review and Retrospective 165
Sprint Review 165
  Roles and Responsibilities 168
Sprint Retrospective 168
Sprint Planning (Again) 171
Layering in Complexity 173
Summary 175

Chapter 15 Building in Quality and Simplicity 177
Quality Planning 177
Simple Design 181
Coding Standards 183
Refactoring 184
Collective Code Ownership 185
Technical Debt 186
Testing 187
  Verification and Validation 188
Summary 189

Chapter 16 Collaboration and Communication 191
The Team Space 191
Things to Put in the Information Radiator 194
Analytic Velocity 195
Improving Velocity 196
The Kanban or Task Board 197
Considering an Agile Project Management Tool 198
Summary 200

Chapter 17 Business Implementation Planning 203
Are We Done Yet? 203
  What's Next? 205
Analytic Release Planning 206
  Section 1: What Did We Do, and Why? 206
  Section 2: Supporting Information 208
  Section 3: Model Highlights 208
  Section 4: Conclusions and Recommendations 208
  Section 5: Appendix 209

- Model Review 209
  - Levers to Pull 210
- Persona-Based Design 211
  - Segmentation Case Study 213
- Summary 214

Chapter 18 Building Agility into Test-and-Learn Strategies 215

- What Is Test-and-Learn? 215
- Layering in Complexity 218
- Incorporating Test-and-Learn into Your Model Deployment Strategy 219
- Creating a Culture of Experimentation 221
- Failing Fast and Frequently 222
- Who Owns Testing? 222
- Getting Started 223
- Summary 225

Chapter 19 Operationalizing Your Model Deployment Strategy 227

- Finding the Right Model 227
  - Simplicity over Complexity 231
  - How Deep Do We Go? 231
- What Is an Operational Model Process? 232
- Getting Your Data in Order 234
  - Automate Model-Ready Data Processes 235
  - So Who Owns It? 236
  - What If I Can't Automate This Process Right Now? 236
- Determine Model Scoring Frequency 237
- Model Performance Monitoring 239
- Analytics—the Success to Plan For 241
- Summary 243

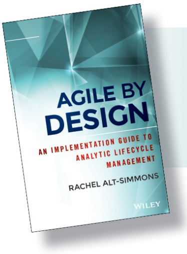
Chapter 20 Analytic Ever After 245

- Beginning Your Journey 245
- Supporting the Analytic Team 246
- The Importance of Agile Analytic Leadership 248
- Finding a Pilot Project 249
- Scaling Up 249
- The End of the Beginning 251

Sources 253

Index 255

From *Agile by Design: An Implementation Guide to Analytic Lifecycle Management*, by Rachel Alt-Simmons. Copyright © 2015, SAS Institute Inc., Cary, North Carolina, USA. ALL RIGHTS RESERVED.



From *Agile by Design.* Full book available for purchase here.

CHAPTER 1

Adjusting to a Customer-Centric Landscape

Emerging customer needs and demands are driving a new imperative to align business, technology, and analytic strategies. With consumer forces forcing both rapid and dramatic change throughout every industry, companies need to take an outside-in approach to enable customer-centricity. A customer-centric organization aligns their business model to the customer's point of view, integrating functional areas, product lines, and channels to create 360° customer-centric business processes. Analytics facilitate the decision-making within those processes. Most companies lack the organizational structure to innovate quickly and are challenged by the scale of this transformational change. Agile approaches can be used to incrementally (ergo, more quickly) drive the transformation and create a fail-fast/succeed-sooner culture.

IT'S A WHOLE NEW WORLD

Just a few short years ago, if you wanted to buy something, you likely got into your car and drove to a store. Maybe the product you wanted was special and only one store in town offered the item. You arrived at the store and paid whatever price the store was asking because you really, really wanted it. Fast forward to today—instead of going to the store, you pick up your mobile device, tap a few buttons, and you find that same item available from dozens of online marketplaces. You select the cheapest price, and a drone drops it off on your doorstep the same day. You've also sold your car, since you don't need to drive to the store as much. It's much simpler to rent from a car-share service or be picked up by a ride-share service when you need it! This is a simple but common example of what tens of millions of people do every day.

The traditional businesses in this example—the physical stores, product manufacturers and distributors, and automakers—have all gone through tremendous change. Suppliers like Amazon.com changed the retail market by offering products quickly, increasing competition from suppliers from all over the world and putting pressure on them to offer those products at low prices. The landscape of online shopping has changed so much that you don't necessarily have to gravitate to the Amazons of the world anymore. Aggregation services have become pivotal in finding a particular item at the lowest price to be delivered in the quickest time (with minimal or free shipping & handling). Products can be sent directly from the manufacturer, obviating the need for the distributor. Car and ride-sharing services—part of our new "peer-to-peer" economy—are transforming (and disintermediating) the auto manufacturer and taxi industry.

This is great news for consumers: Globalization opens up new markets for companies while technology makes it easier to connect customers directly with products and services. But when traditional barriers to market entry are reduced or the market changes entirely, good and services become commodified and power shifts to the hands of the buyer. As consumers, the determination of how and when we get our goods and services has changed dramatically: We get to decide! Social media give us a voice, providing us with the opportunity to publicly promote or criticize a brand.

There are very few industries that have not been impacted by this change. Companies are struggling for relevance in an increasingly crowded and democratized marketplace. Here’s why:

1. Technology connects consumers with products and services previously out of reach.
2. With ubiquitous access to products, services, and content in real-time, consumer expectations are heightened, and consumers are more educated and empowered.
3. As the cost of switching providers decreases, customers become less loyal.
4. With barriers to market entry reduced, new entrants flood the market, disrupting traditional business models.
5. Increased availability and accessibility commodifies products and services.
6. Distribution and communication channels rapidly evolve.
7. Product development cycles become shorter, decreasing first-to-market competitive advantage.

With so much access and buyer empowerment, many companies are unable to keep up with the pace of change. Many react by trying to compete on price. Yet differentiation isn’t necessarily about the cost of goods. Organizations recognize that creating a positive and proactive customer experience across the customer lifecycle (from awareness to purchase to loyalty to advocacy) is critical to attracting and retaining profitable customers. In fact, as customers, we expect you to do it!

FROM CUSTOMER-AWARE TO CUSTOMER-CENTRIC

With the explosion of digital media, people engage with each other—and the companies they do business with—in new ways. The relevance of traditional print and broadcast channels are on the decline, completely changing the consumer-corporation dynamic. Digital channels open doors for consumers, who no longer are passive participants in a one-sided marketing conversation, but empowered authors, publishers, and critics. The digital landscape is participatory, an area where consumers exchange ideas. Marketers no longer drive the discussion. Everyday people are the style makers and trendsetters.

For companies competing in this new medium, it's incredibly difficult to surface your message above the noise. While the amount of time consumers spend on web and mobile has increased dramatically, the amount of available content has increased exponentially: More digital content is created in a day than most people can consume in a year. With so many distractions and choices, your audience has a very short attention span.

The exponential growth in digital channels has given rise to the importance of digital marketing. But digital marketing isn't just about the channel; it's the mechanism by which people are creating and sharing experiences: engaging not only with each other, but with companies they do business with.

For your financial services customers, there is no longer a traditional "path-to-purchase." The customer journey is no longer linear, and purchasing decisions are taking place across multiple channels: both physical and virtual. With such high channel fragmentation, making strategic decisions on audience, content, and platforms is critical. Companies need the capability to leverage data to define their market, build outstanding content, tailor messaging, and provide that messaging in the right medium—quickly!

With customer interactions constantly changing through your brand relationship, consumer behavior is difficult to predict. New consumer-driven tactics are emerging every week, making multimonth planning cycles a thing of the past: Your customer-centric strategy has to be adaptive and relevant. Slow and predictable internal processes must be replaced with quick and creative execution. You need to create a messaging that speaks to each audience segment differently. Data-driven approaches give you the ability to create that level of precision. Agility can speed up time-to-market cycles.

The entry point for becoming customer-centric is different for every organization. Many customer-centric strategies start with operational transformations, with the contact center as the new customer-centric hub. Around the hub, disjointed marketing campaign and contact strategies, customer relationship management strategies, product development, pricing and risk strategies, analytics, and operational strategies begin to synchronize—at least conceptually! For the first time, many companies are starting to view their operations from the outside in by mapping out the customer lifecycle and looking at ways to optimize that lifecycle across the organization.

There's a lot of complexity there. Executing on a large-scale transformation like this requires significant change. Organizationally, it necessitates a shift away from product silos to customer segments. Customer contact planning and execution strategies need to be coordinated and streamlined. The underlying operational technology platforms and systems need to connect in way to accommodate the customer-centric perspective. Cross-functional operational workflows need to be redesigned around a consumer view. The customer data needs to be integrated, analyzed, and modeled in a way to provide a comprehensive view of that customer. Analytics and predictive modeling provide insights to help anticipate customer needs and behavior. The entire organization mobilizes around the analytic customer-centric hub.

Our hub encompasses five core areas, as shown in Figure 1.1.

Business strategy The business strategy defines the types of projects that are important to the organization based on the needs of the market, customers, and the business. Analytic work must link back to strategic business goals.

Organization Organization defines the structure of the company, including the composition of teams and how they engage.

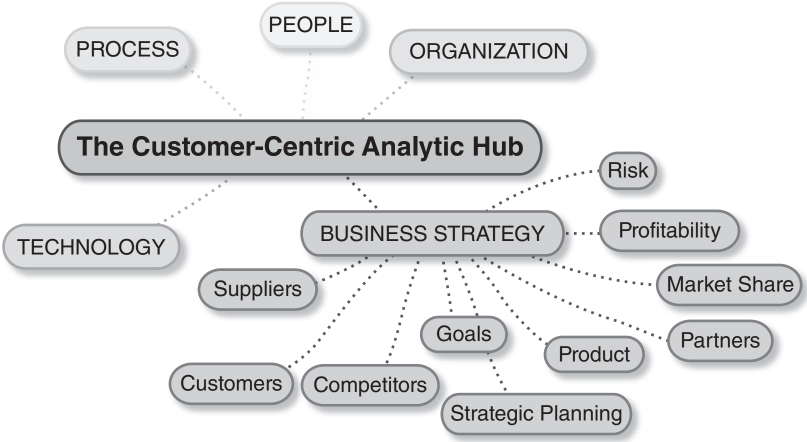

PROCESS
PEOPLE
ORGANIZATION
The Customer-Centric Analytic Hub
Risk
TECHNOLOGY
BUSINESS STRATEGY
Profitability
Suppliers
Market Share
Goals
Partners
Product
Customers
Competitors
Strategic Planning

Figure 1.1 The Customer-Centric Analytic Hub Linked to Business Strategy

People The people category relates to individual roles, responsibilities, and skillsets needed to support the analytic hub.

Process Process defines the day-to-day interactions of internal and external parties throughout the organization. While this can include how teams engage in order to achieve a business objective, it also encompasses how your employees and operational systems interact with customers and suppliers.

Technology Technology provides the underlying platform to support the hub. Technology also includes the data needed to perform analysis.

BEING CUSTOMER-CENTRIC, OPERATIONALLY EFFICIENT, AND ANALYTICALLY AWARE

In our customer-centric world, business strategies are more enterprise in focus, requiring the integration and automation of business processes crossing functional, product, and channel boundaries. As organizations evolve out of their traditional product or functional silos to respond to the need for customer-centricity, their operating models must evolve with them.

As your customers' digital footprints grow through increased use of always-on mobile devices and social media as well as the transactional breadcrumbs they leave behind, they're expecting that that data will be used to their benefit.

> *Australian bank Westpac uses data-driven marketing and analytics in support of their "Know Me" program for their nine million customers. Westpac takes their customers' digital and transactional data and creates a picture of who that customer is, where they are in their life journey, and anticipate what needs they might have. Although their program is driven by the marketing organization, the bank is careful to take a service-oriented approach to their interactions. The benefits of the program have included higher conversion rates for offers and an increase in the number of products by household.*[1]

---

[1] Nadia Cameron, "Customer-Led Big Data Programs Deliver Millions to Westpac Bottom Line," CMO (February 24, 2014).

Data and technology enablers are changing the competitive landscape and providing capabilities for new product development and market penetration:

> *In late 2014, investment advisory firm Charles Schwab launched an automated online investment service called Robo Advisor. The system uses an algorithmic approach to automate portfolio management services. This low-cost service was created as way to reach an untapped market of investors, to "appeal to the masses and get more people into well-diversified portfolios."* [2]

These are just two examples in a sea of analytic innovation that's sweeping across industries. The operating model needed to support these types of initiatives bonds core business processes to technology infrastructure. The implementation strategies in our examples require the integration of several strategic areas within the organization, outlined in Figure 1.2, including business process automation, technology, analytics, and data.

Channel and Contact Strategy This is a critical (and sometimes neglected!) component of the overall hub. The contact strategy outlines how you will interact with customers, what their preferences are, and the optimal sequence of events. The contract strategy takes into account things like customer needs and

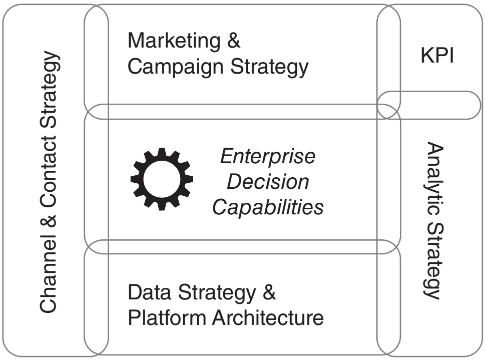

Channel & Contact Strategy
Marketing & Campaign Strategy
KPI
Enterprise Decision Capabilities
Analytic Strategy
Data Strategy & Platform Architecture

Figure 1.2 Enterprise Decision Capabilities

preferences, offer-eligibility criteria, and campaign response history to ensure that the right offer is presented to the right customer in their preferred channel.

---

[2] Tara Siegel Bernard, "Schwab's Service for Investors Seeking Thrifty Advice Raises Eyebrows," *New York Times* (March 5, 2015).

Marketing and Campaign Strategy Marketing teams provide the heartbeat of the process by coordinating the design and execution of the marketing strategy. This includes customer segmentation and analysis (**who** is my customer?), campaign planning (**what** are our organizational goals?), campaign operating rhythm (**how** do I get that message to my customer?), and campaign performance management (how **successful** are our campaigns?). Sophisticated organizations use optimization techniques in their planning process to balance the trade-offs between eligible campaign populations and available offers.

Analytic Strategy and Lifecycle Management Predictive models can anticipate the likelihood of a person to respond to an offer, or respond to an offer within a particular channel. Coupled with customer segmentation strategies, models can help you focus on groups of "like" people—understanding and anticipating their behavior and facilitating the tailoring of messaging and content instead of taking a one-size-fits-all approach. Model scores, represented as a percentage likelihood to respond to a given event or fit a various profile, and model algorithms driving decisions at the point of interaction can be integrated within a business rules or decision management architecture.

Enterprise Decision Capabilities Hub The decision hub sits at the center of the ecosystem and directs traffic across an automated business decisioning processes. This is the technology hub that integrates operational and analytic decisions by integrating applications, workflow, business rules, and analytics. In addition to customer offer eligibility rules and models, pricing, underwriting, and fraud detection models can be layered into the process.

Data Strategy and Platform Architecture Of course, none of this is possible without data. Ideally, you have this perfect database with a complete view of the customer and everything you want to know about them in one place. Unfortunately, that's just not a reality for many organizations. But don't fear—many organizations take an incremental approach to getting out of product silos and into a customer-centric data view. However, the need for customer data integration becomes more critical as the organization moves toward automated decisioning processes and the number of channels increase.

KPI (Key Performance Indicators)—Measurement and Monitoring Every initiative must be measured. Without clear and consistent metrics there will be a lack of accountability for your strategy. This leads to an inability to accurately measure new test-and-learn approaches to improve results. Key questions asked are: How do we measure the success of our program? What metrics drive accountability? How do we incentivize our resources? Consistent and credible metrics are essential to organizational buy-in. They also provide an indicator of when the organization needs to readjust the strategy.

This integrated data-driven approach creates relevancy for your customers at the point of interaction:

> *Bank of America launched their BankAmeriDeals loyalty program in 2012. The program mines transactions in their customers' bank accounts to see what purchases they make, and sends them offers from other merchants that complement those purchases. Since the program launch, Bank of America has sent out more than 1.5 billion offers across their more than 40 million online and mobile banking customers. In a unique twist, the customer activates the discount online (web or mobile), uses their bankcard to make a purchase, and then receives cash back in their bank account. The bank estimates that they've saved customers $20 million since the program launch and that the program positively impacts customer retention.*[3]

OUR EXAMPLE IN MOTION

As we start down the path to creating our customer-centric analytic hub, we'll use a hypothetical company to illustrate the real-world opportunities and challenges faced by most organizations, and to provide an agile framework that you can use to manage through these challenges. The example will reflect a collection of experiences and practices leveraged by many companies, large and small, analytically immature and mature, gathered from companies we've worked with over the past few years. Our hypothetical company, Always Best Products, Inc. (ABP), reflects many of these organizations: They have analytic capabilities and some great talent, but the overall organization has been slow to adopt analytics within the day-to-day cycle of the business. Out of necessity, our analytic team has been managing all things analytics alone, with little support from IT. After reaching critical mass, they undertake an initiative to improve engagement, execution, and delivery by implementing an agile framework. Throughout this book, we'll follow ABP's journey on a high-profile analytic project that crosses business, operational, and technological boundaries.

---

[3] Heather Fletcher, "Cover Story: First Date, Sans Coupons," *Target Marketing* (February 1, 2014).

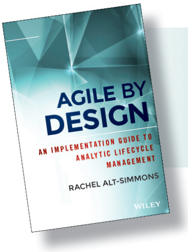
ENABLING INNOVATION

Transformation is always disruptive. The organizational change required in the standardization and integration process requires reconfiguration of roles and responsibilities, the design or redesign of business processes, and the implementation, integration, and rationalization of technology platforms—and we need new, more efficient ways of accomplishing this! Analytics, in the form of predictive algorithms, propensity scores, segments, and so on, are integrated within the business processes. The need for the analytic teams to modernize and integrate within this ecosystem is critical.

The organization must develop the ability to modularize the components of business processes. Automated decisioning workflows must be flexible enough to be reconfigured easily, allowing for changes and enhancements, whether to the process itself, the analytic components within the process, or new technologies. For many organizations, this requires rethinking their solution delivery models. IT departments typically have mature delivery capabilities around their operational systems. However, the integration of data, new technologies, and analytic methods requires a new iterative delivery rhythm as you try different customer treatments and approaches—you're not always going to know what works! This ability to integrate trial-and-error analytics into the process may be challenging to both IT departments and analytic teams!

While it may sound daunting, there are pragmatic approaches to increasing capabilities in all of these areas and incrementally developing the organizational and technology frameworks to enable them. Few companies have mastered all elements of this vision—the first step is to frame out the vision, identify your current capabilities, prioritize your high-impact opportunities, and test and learn along the way.

From *Agile by Design: An Implementation Guide to Analytic Lifecycle Management*, by Rachel Alt-Simmons. Copyright © 2015, SAS Institute Inc., Cary, North Carolina, USA. ALL RIGHTS RESERVED.


AGILE BY
DESIGN
AN IMPLEMENTATION GUIDE TO ANALYTIC LIFECYCLE MANAGEMENT
RACHEL ALT-SIMMONS
WILEY

From *Agile by Design*. Full book
available for purchase here.

About the Author

Rachel Alt-Simmons is an analytics and technology professional with 20 years of experience developing and integrating business analytic and technology strategies. Having worked across North and South America, she's helped Fortune 500 organizations build and continuously improve their analytic competencies.

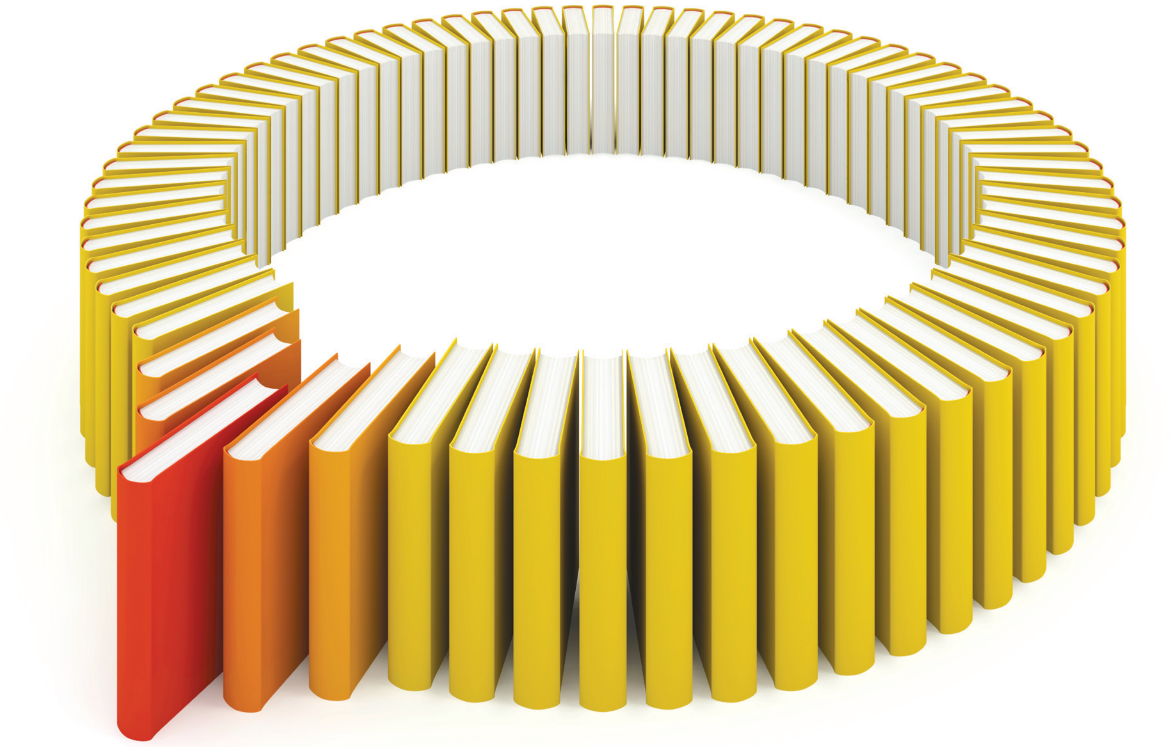
She started her career in the mutual fund industry and moved into business intelligence and analytics leadership roles at The Hartford, where she built out an analytic competency center within the Global Wealth Management division.

Following that, she spent two years as research director for the Life and Annuity practice at the industry analyst firm TowerGroup before returning to the insurance industry. Rachel joined Travelers Insurance as part of a strategic leadership team to transform business intelligence and analytic capabilities within the Small Commercial division, and went on to create an enterprise analytic center of excellence.

In her role at SAS, Rachel works with customers across industry verticals to create customer-centric analytic processes, driving alignment between business and technology strategies.

In addition to her work at SAS, Rachel is an adjunct professor and agile coach at Boston University in the Computer Sciences department, teaching Agile Software Development, IT Strategy, and IT Project Management. Rachel is a Certified Lean Master, Six Sigma Black Belt, PMI Agile Certified Practitioner, and Project Management Professional.

A frequent industry speaker, writer, contributor, and thought leader, Rachel currently consults with companies across Canada, the United States, and Latin America on the strategic use of analytics and defining integrated approaches to aligning business and technology strategies.



Gain Greater Insight into Your SAS® Software with SAS Books.

Discover all that you need on your journey to knowledge and empowerment.

support.sas.com/bookstore
for additional books and resources.

sas®
THE POWER TO KNOW®

SAS and all other SAS Institute Inc. product or service names are registered trademarks or trademarks of SAS Institute Inc. in the USA and other countries. ® indicates USA registration. Other brand and product names are trademarks of their respective companies. © 2013 SAS Institute Inc. All rights reserved. S107969US.0413