Introduction

Although many of the techniques and technologies described in this book are in active use, typically they have been used only in certain kinds of systems. As a result, these technologies have been perceived as solutions only for narrow problems—credit card fraud and loan originations, for example. Meanwhile, ongoing change in the business world has resulted in a broad need for smart enough systems. However, mainstream development technologies and approaches lack critical capabilities, and proven technologies are overlooked. This book is about smart enough systems—why you need them and how to use these technologies to develop them. Why smart enough? In the past, the term "smart systems" has been associated with Artificial Intelligence. The insertion of the modifier "enough" is meant to draw a distinction between Artificial Intelligence and those systems that are capable of automating many decisions without reliance on the esoteric practices of Artificial Intelligence.

The book is divided into two unequal "halves." The first "half," directed at both business and technical readers, explains the need for smart enough systems and describes the core concepts behind them. The second half, aimed at more technical readers, describes in more detail the techniques and technologies required and explains how to implement smart enough systems.

We begin with a manifesto—a statement of our beliefs about smart enough systems. Read first, it might seem like a series of assertions. By the time you have finished the book, however, it will seem more like a statement of obvious truisms.

The following list summarizes this book's chapters to give you an overview of what's covered:

- **Chapter 1, "The Need for Smart Enough Systems,"** shows how current business megatrends are increasing the importance of operational decisions and forcing organizations to treat operational decision making as a corporate asset. This chapter examines the pressures and difficulties of decision making in the future and the

particular challenges of decision making when your systems embody your business more than ever before. This chapter also introduces a theoretical company, SmartEnough Logistics, to illustrate concepts discussed in the book.

- **Chapter 2, "Enterprise Decision Management,"** introduces a way to build smart enough systems. It explains the enterprise decision management approach to automating decisions and making them into a corporate asset. It also describes the characteristics of operational decision making problems and finding the hidden decisions in your business. This chapter also discusses how this approach generates a return on investment and presents 11 case studies to show how real organizations have used this approach.

- **Chapter 3, "Why Aren't My Systems Smart Enough Already?"** gives you some historical perspective on the development of information technology (IT) and discusses the challenges and opportunities in managing data, building programs, and analyzing businesses.

- **Chapter 4, "Core Concepts,"** is a transitional chapter that explains the basics of the enterprise decision management approach: data and analytics, business rules, and adaptive control. Although this chapter is more technical, it should still be accessible to most readers. Five more case studies are presented.

- **Chapters 5, "Data and Analytics," 6, "Business Rules," and 7, "Adaptive Control,"** describe these areas in more detail and begin the more technical content of the book. Each chapter contains an architectural overview, definitions of some core concepts, an outline of the critical pieces of technology, and a basic process for using the technologies. You can read the process first and refer back to the concepts and technology or read the basics first and then see how they fit together. Another 11 case studies are presented in these three chapters.

- **Chapter 8, "Readiness Assessment,"** outlines how to consider your readiness for building smart enough systems in terms of business/IT collaboration, data, analytic understanding, organizational change, and management focus.

- **Chapter 9, "Getting There from Here,"** lays out the steps for developing true enterprise decision management competency in four phases: piecemeal adoption, localized decision management, expansion, and steady state enterprise decision management. Another nine case studies are included. The chapter wraps up with a discussion of how SmartEnough Logistics adopted the approach and some thoughts for future developments in enterprise decision management.

- **Chapter 10, "EDM and the IT Department,"** brings enterprise decision management back to IT and ties its impact to your existing IT architecture. It shows how

enterprise decision management complements your existing and future architecture, how it solves a number of issues, and how it enables you to deliver on some critical promises. This chapter includes an overview of how enterprise decision management changes your software development life cycle.

- **Chapter 11, "Closing Thoughts,"** wraps up the concepts and technologies discussed in the book.

- **An appendix, "Decision Yield as a Way to Measure ROI,"** is provided to explain a method for assessing return on investment. Few public examples of its use are available, however; so at the moment, it's more of a good idea than a proven technique.

The case studies used throughout the book are real companies that use enterprise decision management. A couple of case studies are amalgams of several similar companies, and all are anonymous to preserve their privacy. In most cases, these are Fair Isaac customers.

This introduction would not be complete without a note about Fair Isaac. The concept of enterprise decision management (EDM) was first developed at Fair Isaac. The technology and applications Fair Isaac's customers use are based on analytics, business rules, and adaptive control. This book—indeed, the whole approach—derives from Fair Isaac's experience in developing these systems and its customers' experience in using them. The phrase "enterprise decision management" was first used to give a handy label to something Fair Isaac, and others, had been doing for some time. It is not now, nor was it ever, a product or set of products. It's an approach proved by hundreds of organizations, Fair Isaac customers and others, over many years. One of the authors, James Taylor, works for Fair Isaac, where he has gotten most of his experience with this kind of system. Product names have been deliberately avoided because it's the approach—the mind-set—that matters. The central issue is not product-specific; it's about taking charge of the operational decisions that run your business and turning them from a liability into an asset, as expressed in this quote:

> "Enterprise decision management (EDM) is emerging as an important discipline, due to an increasing need to automate high-volume decisions across the enterprise and to impart precision, consistency, and agility in the decision-making process."[1]

Our goal in this book is to show you why enterprise decision management is important, how to adopt it, and how to succeed with it.

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[1] Curt Hall, "Enterprise Decision Management," *Cutter Consortium Business Intelligence,* Vol. 5, No. 6, 2005.