

# Applied Microsoft<sup>®</sup> Business Intelligence



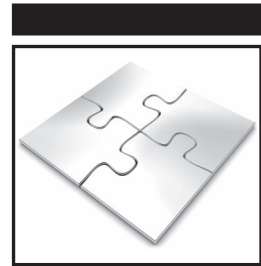
Patrick LeBlanc  
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WILEY



# **Applied Microsoft® Business Intelligence**





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## Applied Microsoft® Business Intelligence

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# Introduction

Business intelligence, including reporting and analytics, is essential to an organization's survival and growth. Understanding your data and turning it into actionable insights is the key to sustaining and growing your business. As companies recognize this need, the employees that facilitate these insights, also known as "data scientists," are highly sought after across the board.

Microsoft's business intelligence suite contains tools that help the data scientists and developers perform their duties quickly and efficiently. Understanding which tool to use and how to use it in the best manner is required to provide the data. This book discusses each of the business intelligence tools and best practices associated with the Microsoft business intelligence stack, including reporting and analysis.

## Overview of the Book and Technology

---

Microsoft's business intelligence landscape is changing at a faster rate than ever before. Several new methodologies have been incorporated into the stack, including self-service, big data, and the cloud. With the advent of these new methodologies affecting business intelligence, the number of tools is increasing. With all these changes, we recognized a need to have one place that describes each of these business intelligence tools and how they fit into a business intelligence solution.

The book also takes you outside the boundary of just the tools. You learn about different data and business intelligence architectures and when to use each type. You learn how to pick the tool right for your organization. You learn how to design and develop in each of the tools. You even learn what to do after you've

developed everything and need to maintain the business intelligence solution! By the time you've completed this book, you will be comfortable implementing and administering any type of Microsoft business intelligence solution.

## **How This Book Is Organized**

---

This book contains four different sections. The first section provides an overview of business intelligence solutions and a discussion of some of the tools you may need. The next two sections focus on the two halves of business intelligence: reporting and analysis. And the final section takes you through the administration and maintenance of business intelligence solutions.

In Part I, *Overview of the Microsoft Business Intelligence Toolset*, you learn about business intelligence tools available from Microsoft and how those tools fit into an effective and useful data and business intelligence architecture. Chapter 1, "Which Analysis and Reporting Tools Do You Need?" introduces each of the business intelligence tools, some of which have been around for many years and some of which are new to the Microsoft business intelligence stack. You will also learn what development tool to use with each of the tools.

Next, Chapter 2, "Designing an Effective Business Intelligence Architecture," takes you to the architecture level of business intelligence solutions. Designing a business intelligence architecture involves knowing your audience, defining the goals for the solution, and understanding where your information resides. You then align that information with the delivery strengths and limitations of your organization to decide on the best business intelligence architecture for your needs.

The final chapter in Part I, Chapter 3, "Selecting the Data Architecture that Fits Your Organization," completes out the architecture discussion by covering data architecture. Because a huge part of business intelligence depends on the underlying data, you will learn the available structures and when to use each one.

In Part II, *Business Intelligence for Analysis*, you learn about the business intelligence tools meant for analyzing and gathering insights about your data. Chapter 4, "Searching and Combining Data with Power Query," introduces the self-service data integration tool, Power Query, which allows you to combine data from a variety of sources for analysis.

Chapters 5 to 8 cover the semantic modeling tools within the Microsoft stack: Power Pivot, Analysis Services multidimensional, and Analysis Services tabular. Chapter 5, "Choosing the Right Business Intelligence Semantic Model," discusses the difference between the three products and when you would use one over the others. Chapter 6, "Discovering and Analyzing Data with Power Pivot,"

explains how to design and use a Power Pivot model. Chapter 7, “Developing a Flexible and Scalable Tabular Model,” discusses the Analysis Services tabular model, and Chapter 8, “Developing a Flexible and Scalable Multidimensional Model,” discusses the Analysis Services multidimensional model.

Chapter 9, “Discovering Knowledge with Data Mining,” which is the final chapter in the analysis section, explains Analysis Services data mining. You will learn about the different mining structures and models available within the tool and the best practices for populating the datasets. Finally, you will learn how to integrate your results from the mining into the rest of the business intelligence solution.

Part III, Business Intelligence for Reporting, discusses how to use the different Microsoft business intelligence tools for reporting. Chapter 10, “Choosing the Right Business Intelligence Visualization Tool,” opens this section by discussing which reporting visualization tool you should pick. You will learn a little about each of the Microsoft reporting tools, and then learn how to complete an evaluation matrix and process to pick the right tool for your organization.

Chapters 11 to 14 conclude the business intelligence for reporting section by covering each of the reporting tools in the Microsoft business intelligence stack. Chapter 11, “Designing Operational Reports with Reporting Services,” teaches you about Reporting Services, specifically how to design operational reports and the best practices associated with using this tool. Chapter 12, “Visualizing Your Data Interactively with Power View,” moves onto this newer reporting tool. You will learn what the requirements are to create a report in Power View and then walk through the report creation. Power Map is the focus of Chapter 13, “Exploring Geographic and Temporal Data with Power Map,” which discusses how to display your geographical and temporal data. Finally, Chapter 14, “Monitoring Your Business with PerformancePoint Services,” introduces you to PerformancePoint Services within SharePoint and how you can include this tool in your business intelligence solution.

Part IV, Deploying and Managing the Business Intelligence Solution, wraps up the book by covering how to administer and maintain the business intelligence solution that you have created from earlier chapters in this book. Chapter 15, “Implementing a Self-Service Delivery Framework,” kicks off this section by describing data governance within the Microsoft business intelligence framework, and includes a discussion about the Data Quality Services and Master Data Services tools.

Chapter 16, “Designing and Implementing a Deployment Plan,” discusses deployment plans for business intelligence solutions. You learn about ways to deploy the corporate business intelligence tools and the best way to document the plan.

Next, in Chapter 17, “Managing and Maintaining the Business Intelligence Environment,” you learn how to keep your business intelligence up and running

once deployed. You will learn how to monitor your solution to ensure that it performs well and any changes you need to make to keep it running.

Finally, Chapter 18, “Scaling the Business Intelligence Environment,” covers how to handle performance issues by scaling the business intelligence tools. You learn how to scale up and scale out each of the tools.

## Who Should Read This Book

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This book is intended for business intelligence developers and architects, and those who are interested in learning more about the Microsoft business intelligence suite. If you need to create reports for your day-to-day operational work, design business-friendly analytics models for end users, or perform advanced analysis to make big business decisions, this book is for you.

It is assumed that you have some basic programming or SQL knowledge before picking up this book. You should understand query constructs and basic programming principles. You don’t need experience with any of the business intelligence tools discussed here, but if you do have some experience, there is still quite a bit to learn!

If you are new to Microsoft’s business intelligence tools, you would be best served by reading this book from start to finish. However, if you have some background with the business intelligence layout and need to learn about analysis versus reporting, you may want to look at just Part II or Part III, respectively. Finally, if you already have a business intelligence solution, but need to ensure that it is being managed properly, turn to the final section.

## Tools You Will Need

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This book is based on the SQL Server 2014 business intelligence tools, Excel 2013, and the November 2014 edition of the cloud-based software. All examples use the AdventureWorks 2012 databases and projects found on codeplex: <http://msftdbprodsamples.codeplex.com/releases/view/55330>.

## What’s on the Website

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Some of the chapters within this book provide sample code for you to download and use. All information is found on Wiley’s website: <http://www.wiley.com/go/appliedmicrosoftbi>.

## Summary

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Microsoft business intelligence tools provide a lot of power when it comes to your reporting and analysis needs. You must understand each of the tools to ensure you're harnessing that power properly. If so, you will help your organization and your own career move forward!

