

BIG DATA, BIG ANALYTICS

EMERGING BUSINESS INTELLIGENCE AND
ANALYTIC TRENDS FOR TODAY'S BUSINESSES

Michael Minelli
Michele Chambers
Ambiga Dhiraj



WILEY

John Wiley & Sons, Inc.

CONTENTS

FOREWORD xiii

PREFACE xix

ACKNOWLEDGMENTS xxi

CHAPTER 1 What Is Big Data and Why Is It Important? 1

- A Flood of Mythic "Start-Up" Proportions 4
- Big Data Is More Than Merely Big 5
- Why Now? 6
- A Convergence of Key Trends 7
- Relatively Speaking . . . 9
- A Wider Variety of Data 10
- The Expanding Universe of Unstructured Data 11
- Setting the Tone at the Top 15
- Notes 18

CHAPTER 2 Industry Examples of Big Data 19

- Digital Marketing and the Non-line World 19
 - Don't Abdicate Relationships 22
 - Is IT Losing Control of Web Analytics? 23
- Database Marketers, Pioneers of Big Data 24
- Big Data and the New School of Marketing 27
 - Consumers Have Changed. So Must Marketers. 28
 - The Right Approach: Cross-Channel Lifecycle Marketing 28
 - Social and Affiliate Marketing 30
 - Empowering Marketing with Social Intelligence 31
- Fraud and Big Data 34
- Risk and Big Data 37
 - Credit Risk Management 38
- Big Data and Algorithmic Trading 40
 - Crunching Through Complex Interrelated Data 41
 - Intraday Risk Analytics, a Constant Flow of Big Data 42

v

X CONTENTS

Calculating Risk in Marketing	43
Other Industries Benefit from Financial Services' Risk Experience	43
Big Data and Advances in Health Care	44
"Disruptive Analytics"	46
A Holistic Value Proposition	47
BI Is Not Data Science	49
Pioneering New Frontiers in Medicine	50
Advertising and Big Data: From Papyrus to Seeing Somebody	51
Big Data Feeds the Modern-Day Donald Draper	52
Reach, Resonance, and Reaction	53
The Need to Act Quickly (Real-Time When Possible)	54
Measurement Can Be Tricky	55
Content Delivery Matters Too	56
Optimization and Marketing Mixed Modeling	56
Beard's Take on the Three Big Data Vs in Advertising	57
Using Consumer Products as a Doorway	58
Notes	59
CHAPTER 3 Big Data Technology	61
The Elephant in the Room: Hadoop's Parallel World	61
Old vs. New Approaches	64
Data Discovery: Work the Way People's Minds Work	65
Open-Source Technology for Big Data Analytics	67
The Cloud and Big Data	69
Predictive Analytics Moves into the Limelight	70
Software as a Service BI	72
Mobile Business Intelligence is Going Mainstream	73
Ease of Mobile Application Deployment	75
Crowdsourcing Analytics	76
Inter- and Trans-Firewall Analytics	77
R&D Approach Helps Adopt New Technology	80
Adding Big Data Technology into the Mix	81
Big Data Technology Terms	83
Data Size 101	86
Notes	88

CHAPTER 4 Information Management 89

- The Big Data Foundation 89
- Big Data Computing Platforms (or Computing Platforms That Handle the Big Data Analytics Tsunami) 92
- Big Data Computation 93
- More on Big Data Storage 96
- Big Data Computational Limitations 96
- Big Data Emerging Technologies 97

CHAPTER 5 Business Analytics 99

- The Last Mile in Data Analysis 101
- Geospatial Intelligence Will Make Your Life Better 103
- Listening: Is It Signal or Noise? 106
- Consumption of Analytics 108
- From Creation to Consumption 110
- Visualizing: How to Make It Consumable? 110
- Organizations Are Using Data Visualization as a Way to Take Immediate Action 116
- Moving from Sampling to Using All the Data 121
- Thinking Outside the Box 122
- 360° Modeling 122
- Need for Speed 122
- Let's Get Scrappy 123
- What Technology Is Available? 124
- Moving from Beyond the Tools to Analytic Applications 125
- Notes 125

CHAPTER 6 The People Part of the Equation 127

- Rise of the Data Scientist 128
 - Learning over Knowing 130
 - Agility 131
 - Scale and Convergence 131
 - Multidisciplinary Talent 131
 - Innovation 132
 - Cost Effectiveness 132

Using Deep Math, Science, and Computer Science	133
The 90/10 Rule and Critical Thinking	136
Analytic Talent and Executive Buy-in	137
Developing Decision Sciences Talent	139
Holistic View of Analytics	140
Creating Talent for Decision Sciences	142
Creating a Culture That Nurtures Decision Sciences Talent	144
Setting Up the Right Organizational Structure for Institutionalizing Analytics	146
CHAPTER 7 Data Privacy and Ethics	151
The Privacy Landscape	152
The Great Data Grab Isn't New	152
Preferences, Personalization, and Relationships	153
Rights and Responsibility	154
Playing in a Global Sandbox	159
Conscientious and Conscious Responsibility	161
Privacy May Be the Wrong Focus	162
Can Data Be Anonymized?	164
Balancing for Counterintelligence	165
Now What?	165
Notes	167
CONCLUSION	169
RECOMMENDED RESOURCES	175
ABOUT THE AUTHORS	177
INDEX	179