

<b>INTRODUCTION</b>	<b>14</b>
<b>CHAPTER 1: WHY DATA IS IMPORTANT TO YOUR BUSINESS</b>	<b>17</b>
DATA SOURCES	19
HOW DATA CAN IMPROVE YOUR BUSINESS	20
<b>CHAPTER 2: BIG DATA</b>	<b>27</b>
BIG DATA – A NEW ADVANTAGE	28
BIG DATA CREATES VALUE	30
BIG DATA IS A BIG DEAL	35
<b>CHAPTER 3: DEVELOPMENT OF BIG DATA</b>	<b>44</b>
<b>CHAPTER 4: CONSIDERING THE PROS AND CONS OF BIG DATA</b>	<b>47</b>
THE PROS	48
NEW METHODS OF GENERATING PROFIT	48
IMPROVING PUBLIC HEALTH	48
IMPROVING OUR DAILY ENVIRONMENT	49
IMPROVING DECISIONS: SPEED AND ACCURACY	50
PERSONALIZED PRODUCTS AND SERVICES	50
THE CONS	51
PRIVACY	51
BIG BROTHER	52



STIFLING ENTREPRENEURSHIP	54
DATA SAFEKEEPING	55
ERRONEOUS DATA SETS AND FLAWED ANALYSES	55
CONCLUSIONS	56

## **CHAPTER 5: BIG DATA FOR SMALL BUSINESSES? WHY NOT? 58**

THE COST EFFECTIVENESS OF DATA ANALYTICS	58
BIG DATA CAN BE FOR SMALL BUSINESSES TOO	59
WHERE CAN BIG DATA IMPROVE THE COST EFFECTIVENESS OF SMALL BUSINESSES?	60
WHAT TO CONSIDER WHEN PREPARING FOR A NEW BIG DATA SOLUTION	61

## **CHAPTER 6: IMPORTANT TRAINING FOR THE MANAGEMENT OF BIG DATA 65**

PRESENT LEVEL OF SKILL IN MANAGING DATA	67
WHERE BIG DATA TRAINING IS NECESSARY	68
THE FINANCE DEPARTMENT	70
THE HUMAN RESOURCES DEPARTMENT	72
THE SUPPLY AND LOGISTICS DEPARTMENT	73
THE OPERATIONS DEPARTMENT	74
THE MARKETING DEPARTMENT	74
THE DATA INTEGRITY, INTEGRATION AND DATA WAREHOUSE DEPARTMENT	76
THE LEGAL AND COMPLIANCE DEPARTMENT	76

## **CHAPTER 7: STEPS TAKEN IN DATA ANALYSIS 78**

DEFINING DATA ANALYSIS	78
------------------------	----



<b>ACTIONS TAKEN IN THE DATA ANALYSIS PROCESS</b>	<b>78</b>
<b>PHASE 1: SETTING OF GOALS</b>	<b>79</b>
<b>PHASE 2: CLEARLY SETTING PRIORITIES FOR MEASUREMENT</b>	<b>80</b>
<b>DETERMINE WHAT YOU'RE GOING TO BE MEASURING</b>	<b>80</b>
<b>CHOOSE A MEASUREMENT METHOD</b>	<b>81</b>
<b>PHASE 3: DATA GATHERING</b>	<b>82</b>
<b>PHASE 4: DATA SCRUBBING</b>	<b>83</b>
<b>PHASE 5: ANALYSIS OF DATA</b>	<b>85</b>
<b>PHASE 6: RESULT INTERPRETATION</b>	<b>87</b>
<b>INTERPRET THE DATA PRECISELY</b>	<b>87</b>
<b><u>CHAPTER 8: DESCRIPTIVE ANALYTICS</u></b>	<b><u>90</u></b>
<b>DESCRIPTIVE ANALYTICS- WHAT IS IT?</b>	<b>90</b>
<b>HOW CAN DESCRIPTIVE ANALYSIS BE USED?</b>	<b>92</b>
<b>MEASURES IN DESCRIPTIVE STATISTICS</b>	<b>93</b>
<b>INFERENCEAL STATISTICS</b>	<b>94</b>
<b><u>CHAPTER 9: PREDICTIVE ANALYTICS</u></b>	<b><u>97</u></b>
<b>DEFINING PREDICTIVE ANALYTICS</b>	<b>97</b>
<b>DIFFERENT KINDS OF PREDICTIVE ANALYTICS</b>	<b>98</b>
<b>PREDICTIVE MODELS</b>	<b>98</b>
<b>DESCRIPTIVE MODELING</b>	<b>99</b>
<b>DECISION MODELING</b>	<b>100</b>
<b><u>CHAPTER 10: PREDICTIVE ANALYSIS METHODS</u></b>	<b><u>102</u></b>
<b>MACHINE LEARNING TECHNIQUES</b>	<b>102</b>
<b>REGRESSION TECHNIQUES</b>	<b>103</b>
<b>LINEAR REGRESSION</b>	<b>103</b>



LOGISTIC REGRESSION	104
THE PROBIT MODEL	104
NEURAL NETWORKS	105
RADIAL BASIS FUNCTION NETWORKS	106
SUPPORT VECTOR MACHINES	106
NAIVE BAYES	107
INSTANCE-BASED LEARNING	107
GEOSPATIAL PREDICTIVE MODELING	108
HITACHI'S PREDICTIVE ANALYTIC MODEL	109
PREDICTIVE ANALYTICS IN THE INSURANCE INDUSTRY	110

## **CHAPTER 11: R - THE FUTURE IN DATA ANALYSIS SOFTWARE**

**112**

IS R A GOOD CHOICE?	113
TYPES OF DATA ANALYSIS AVAILABLE WITH R	114
IS THERE OTHER PROGRAMMING LANGUAGE AVAILABLE?	115

## **CHAPTER 12: PREDICTIVE ANALYTICS & WHO USES IT**

**116**

ANALYTICAL CUSTOMER RELATIONSHIP MANAGEMENT (CRM)	116
THE USE OF PREDICTIVE ANALYTICS IN HEALTHCARE	117
THE USE OF PREDICTIVE ANALYTICS IN THE FINANCIAL SECTOR	120
PREDICTIVE ANALYTICS & BUSINESS	121
KEEPING CUSTOMERS HAPPY	121
MARKETING STRATEGIES	125
*FRAUD DETECTION	127
PROCESSES	129
INSURANCE INDUSTRY	130
SHIPPING BUSINESS	132
CONTROLLING RISK FACTORS	133
STAFF RISK	134



UNDERWRITING AND ACCEPTING LIABILITY	136
FREEDOM SPECIALTY INSURANCE: AN OBSERVATION OF PREDICTIVE ANALYTICS USED IN UNDERWRITING	138
POSITIVE RESULTS FROM THE MODEL	143
THE EFFECTS OF PREDICTIVE ANALYTICS ON REAL ESTATE	144
THE NATIONAL ASSOCIATION OF REALTORS (NAR) AND ITS USE OF PREDICTIVE ANALYTICS	144
THE REVOLUTION OF PREDICTIVE ANALYSIS ACROSS A VARIETY OF INDUSTRIES	147
<b><u>CHAPTER 13: DESCRIPTIVE AND PREDICTIVE ANALYSIS</u></b>	<b>150</b>
<b><u>CHAPTER 14: CRUCIAL FACTORS FOR DATA ANALYSIS</u></b>	<b>153</b>
SUPPORT BY TOP MANAGEMENT	154
RESOURCES AND FLEXIBLE TECHNICAL STRUCTURE	155
CHANGE MANAGEMENT AND EFFECTIVE INVOLVEMENT	157
STRONG IT AND BI GOVERNANCE	158
ALIGNMENT OF BI WITH BUSINESS STRATEGY	159
<b><u>CHAPTER 15: EXPECTATIONS OF BUSINESS INTELLIGENCE</u></b>	<b>161</b>
ADVANCES IN TECHNOLOGIES	161
HYPER TARGETING	162
THE POSSIBILITY OF BIG DATA GETTING OUT OF HAND	163
MAKING FORECASTS WITHOUT ENOUGH INFORMATION	164
SOURCES OF INFORMATION FOR DATA MANAGEMENT	165
<b><u>CHAPTER 16: WHAT IS DATA SCIENCE?</u></b>	<b>168</b>
SKILLS REQUIRED FOR DATA SCIENCE	169



<b>MATHEMATICS</b>	<b>169</b>
<b>TECHNOLOGY AND HACKING</b>	<b>170</b>
<b>BUSINESS ACUMEN</b>	<b>170</b>
<b>WHAT DOES IT TAKE TO BE A DATA SCIENTIST?</b>	<b>171</b>
<b>DATA SCIENCE, ANALYTICS, AND MACHINE LEARNING</b>	<b>171</b>
<b>DATA MUNGING</b>	<b>173</b>

## **CHAPTER 17: DEEPER INSIGHTS ABOUT A DATA SCIENTIST'S SKILLS** **174**

<b>DEMYSTIFYING DATA SCIENCE</b>	<b>178</b>
<b>DATA SCIENTISTS IN THE FUTURE</b>	<b>181</b>

## **CHAPTER 18: BIG DATA AND THE FUTURE** **183**

<b>ONLINE ACTIVITIES AND BIG DATA</b>	<b>183</b>
<b>THE VALUE OF BIG DATA</b>	<b>185</b>
<b>SECURITY RISKS TODAY</b>	<b>185</b>
<b>BIG DATA AND IMPACTS ON EVERYDAY LIFE</b>	<b>185</b>

## **CHAPTER 19: FINANCE AND BIG DATA** **190**

<b>HOW A DATA SCIENTIST WORKS</b>	<b>190</b>
<b>UNDERSTANDING MORE THAN NUMBERS</b>	<b>191</b>
<b>APPLYING SENTIMENT ANALYSIS</b>	<b>191</b>
<b>RISK EVALUATION AND THE DATA SCIENTIST</b>	<b>192</b>
<b>REDUCED ONLINE LENDING RISK</b>	<b>193</b>
<b>THE FINANCE INDUSTRY AND REAL-TIME ANALYTICS</b>	<b>194</b>
<b>HOW BIG DATA IS BENEFICIAL TO THE CUSTOMER</b>	<b>196</b>
<b>CUSTOMER SEGMENTATION IS GOOD FOR BUSINESS</b>	<b>197</b>



## **CHAPTER 20: MARKETERS PROFIT BY USING DATA SCIENCE 198**

REDUCING COSTS TO INCREASING REVENUE	199
--------------------------------------	-----

## **CHAPTER 21: USE OF BIG DATA BENEFITS IN MARKETING 202**

GOOGLE TRENDS DOES ALL THE HARD WORK	203
THE PROFILE OF A PERFECT CUSTOMER	204
ASCERTAINING CORRECT BIG DATA CONTENT	206
LEAD SCORING IN PREDICTIVE ANALYSIS	207
GEOLOCATIONS ARE NO LONGER AN ISSUE	208
EVALUATING THE WORTH OF LIFETIME VALUE	209
BIG DATA ADVANTAGES AND DISADVANTAGES	210
MAKING COMPARISONS WITH COMPETITORS	211
PATIENCE IS IMPORTANT WHEN USING BIG DATA	212

## **CHAPTER 22: THE WAY THAT DATA SCIENCE IMPROVES**

<b><u>TRAVEL</u></b>	<b>213</b>
----------------------	------------

DATA SCIENCE IN THE TRAVEL SECTOR	213
TRAVEL OFFERS CAN BE PERSONALIZED BECAUSE OF BIG DATA	215
SAFETY ENHANCEMENTS THANKS TO BIG DATA	217
HOW UP-SELLING AND CROSS-SELLING USE BIG DATA	219

## **CHAPTER 23: HOW BIG DATA AND AGRICULTURE FEED PEOPLE**

	<b>221</b>
--	------------

HOW TO IMPROVE THE VALUE OF EVERY ACRE	221
ONE OF THE BEST USES OF BIG DATA	222
HOW TRUSTWORTHY IS BIG DATA?	223
CAN THE COLOMBIAN RICE FIELDS BE SAVED BY BIG DATA?	223



**CHAPTER 24: BIG DATA AND LAW ENFORCEMENT 226**

**DATA ANALYTICS, SOFTWARE COMPANIES, AND POLICE DEPARTMENTS: A SOLUTION? 228**

**ANALYTICS DECRYPTING CRIMINAL ACTIVITIES 229**

**ENABLING RAPID POLICE RESPONSE TO TERRORIST ATTACKS 230**

**CHAPTER 25: THE USE OF BIG DATA IN THE PUBLIC SECTOR 231**

**UNITED STATES GOVERNMENT APPLICATIONS OF BIG DATA 233**

**DATA SECURITY ISSUES 233**

**THE DATA PROBLEMS OF THE PUBLIC SECTOR 234**

**CHAPTER 26: BIG DATA AND GAMING 236**

**BIG DATA AND IMPROVING GAMING EXPERIENCE 236**

**BIG DATA IN THE GAMBLING INDUSTRY 238**

**GAMING THE SYSTEM 239**

**THE EXPANSION OF GAMING 241**

**CHAPTER 27: PRESCRIPTIVE ANALYTICS 243**

**PRESCRIPTIVE ANALYTICS- WHAT IS IT? 243**

**WHAT ARE ITS BENEFITS? 244**

**WHAT IS ITS FUTURE? 245**

**GOOGLE'S "SELF-DRIVING CAR" 246**

**PRESCRIPTIVE ANALYTICS IN THE OIL AND GAS INDUSTRY 247**

**PRESCRIPTIVE ANALYTICS AND THE TRAVEL INDUSTRY 249**

**PRESCRIPTIVE ANALYTICS IN THE HEALTHCARE INDUSTRY 250**



<b>A</b>	<b>253</b>
<b>B</b>	<b>255</b>
<b>C</b>	<b>256</b>
<b>D</b>	<b>259</b>
<b>E</b>	<b>266</b>
<b>F</b>	<b>267</b>
<b>G</b>	<b>267</b>
<b>H</b>	<b>268</b>
<b>I</b>	<b>269</b>
<b>K</b>	<b>270</b>
<b>L</b>	<b>270</b>
<b>M</b>	<b>271</b>
<b>N</b>	<b>272</b>
<b>O</b>	<b>273</b>
<b>P</b>	<b>273</b>
<b>Q</b>	<b>275</b>
<b>R</b>	<b>275</b>
<b>S</b>	<b>276</b>
<b>T</b>	<b>277</b>
<b>U</b>	<b>277</b>
<b>V</b>	<b>277</b>
<b>CONCLUSION</b>	<b>278</b>