

# Digital Transformation in Accounting

Richard Busulwa and Nina Evans

# Contents

<i>List of figures</i>	x
<i>List of tables</i>	xii
<i>Acknowledgments</i>	xiv

## PART I

<b>Digital technology advancements, digital disruption, and digital business transformation</b>	1
<b>1 Introduction and need for this book</b>	3
<i>Introduction</i>	3
<i>Need for this book</i>	4
<i>Research for this book</i>	5
<i>How to use this book</i>	7
<b>2 IT, information systems, strategic information systems, and digital technologies</b>	10
<i>Introduction</i>	10
<i>Information systems</i>	10
<i>Information technology and information communications technology</i>	14
<i>Strategic information systems and digital technologies</i>	15
<i>Implications for accountants</i>	16
<b>3 Digital technology advancements and digital disruption: game-changing opportunities and existential threats</b>	19
<i>Introduction</i>	19
<i>Digital technology advancements and digital disruption</i>	19
<i>Unpacking digital disruption</i>	21
<i>Existential threats and game-changing opportunities</i>	23
<i>Implications for accountants</i>	26

<b>4 Digital business, the digital business imperative, and digital business transformation</b>	29
<i>Introduction</i>	29
<i>Digital business</i>	29
<i>The digital business imperative</i>	33
<i>Digital business transformation</i>	33
<i>Implications for accountants</i>	35
<b>PART II</b>	
<b>Digital disruption and digital transformation of accounting</b>	41
<b>5 Digital disruption and digital transformation of accounting</b>	43
<i>Introduction</i>	43
<i>Digital disruption of accounting</i>	43
<i>Disruption and transformation of the accounting value proposition</i>	50
<i>Disruption and transformation of accounting functions</i>	52
<i>Digital technology advancements anticipated to have a profound direct impact on accounting</i>	63
<i>Implications for accountants</i>	72
<b>6 Impact of digital disruption and digital transformation on accountants</b>	77
<i>Introduction</i>	77
<i>Impact of digital disruption and digital transformation on accountants</i>	77
<i>New or enhanced roles and activities required of accountants</i>	78
<i>IFAC future-fit accounting roles</i>	81
<i>ACCA future career zones</i>	85
<i>New or enhanced digital technology competencies required of accountants</i>	87
<i>An organizing framework for accounting technology competencies</i>	96
<b>PART III</b>	
<b>Leveraging digital technologies to thrive in the digital era: roles of accountants in organization digital business capabilities</b>	109
<b>7 The role of accountants in digital transformation strategy, digital business strategy, digital innovation, digital learning, adaptability, and agility</b>	111
<i>Introduction</i>	111
<i>The role of accountants in digital business strategy and digital transformation strategy</i>	111
<i>The role of accountants in digital innovation</i>	115
<i>The role of accountants in organizational digital learning</i>	117
<i>The role of accountants in organizational adaptability, agility, and ambidexterity</i>	119

<b>8 The role of accountants in digital customer engagement, digital stakeholder engagement, and digital customer experience</b>	125
<i>Introduction</i> 125	
<i>Required accounting roles and competencies for digital customer engagement and digital stakeholder engagement</i> 125	
<i>Required accounting roles and competencies for digital customer experience</i> 129	
<b>9 The role of accountants in enterprise architecture, technology sourcing, data analytics, data science, and data management</b>	133
<i>Introduction</i> 133	
<i>Required accounting roles and competencies for enterprise architecture management</i> 133	
<i>Required accounting roles and competencies for technology sourcing</i> 138	
<i>Required accounting roles and competencies for data management, data science, and data analytics</i> 139	
<b>10 The role of accountants in cybersecurity, information privacy, and digital ethics</b>	144
<i>Introduction</i> 144	
<i>Required accounting roles and competencies for cybersecurity</i> 144	
<i>Required accounting roles and competencies for information privacy and other digital ethics issues</i> 148	
<b>11 The role of accountants in digital leadership, accelerated change and transformation, digital risk management, and digital governance</b>	154
<i>Introduction</i> 154	
<i>Required accounting roles and competencies for digital leadership</i> 154	
<i>Required accounting roles and competencies for accelerated change and transformation</i> 158	
<i>Required accounting roles and competencies for digital risk management and governance</i> 159	
<b>PART IV</b>	
<b>Keeping up with digital technology advancements</b>	165
<b>12 Keeping up with digital technologies</b>	167
<i>Introduction</i> 167	
<i>Importance and challenge of keeping up with digital technologies</i> 167	
<i>Common strategies and practices for keeping up with digital technologies</i> 168	
<i>Strategies and practices from the research on technological knowledge renewal effectiveness</i> 168	
<i>Strategies and practices from practitioners</i> 170	
<i>Implications for accountants</i> 177	

**PART V**

**Digital technologies deep dive** 181

**13 Data, data management, data analytics, and data science technologies** 183

*Introduction* 183

*Data* 184

*Big data* 186

*Data management* 188

*Business intelligence and business analytics* 188

*Data analytics and data science* 189

*Data visualization* 191

**14 Internet of things (IoT) technologies** 197

*Introduction* 197

*The internet of things and the internet of everything* 198

*Smart buildings, smart workspaces, and smart homes* 203

*Smart infrastructure, smart cities, and smart government* 205

*Risks and other issues* 207

**15 Artificial intelligence technologies** 211

*Introduction* 211

*Artificial intelligence and machine learning* 212

*Knowledge graphs, neural networks, and deep learning* 214

*Natural language processing, speech recognition, and computer vision* 216

*Common AI issues and risks* 218

**16 Video analytics, computer vision, and virtual reality technologies** 221

*Introduction* 221

*Video analytics and computer vision* 221

*Virtual reality, augmented reality, and mixed reality* 224

*Business value of VR, AR, and MR* 226

**17 Robotics, drones, and 3D / 4D printing technologies** 232

*Introduction* 232

*Robots and robotics* 232

*Drones* 236

*3D and 4D printing* 240

*Issues and challenges* 243

**18 Network and connectivity technologies** 251

*Introduction* 251

*6G, 5G, 4G, LTE, and other cellular networks* 251

<i>GPS III, GPS Block III, and low earth orbit (LEO) satellites</i>	254
<i>NB-IoT, LTE Cat-M1, LoRaWAN and other low-power wide-area network technologies</i>	256
<i>NFC, Smart Bluetooth, iBeacon, and other communication protocols</i>	258

**19 Blockchain and other distributed ledger technologies** 265

<i>Introduction</i>	265
<i>Distributed ledger technology (DLT)</i>	266
<i>Blockchain</i>	267
<i>Types of blockchain</i>	269
<i>Blockchain applications and use cases</i>	270
<i>Blockchain use cases in accounting</i>	273
<i>Risks and issues</i>	275

<i>Index</i>	279
--------------	-----