

Management for Professionals

Steven M. Stone

Digitally Deaf

Why Organizations Struggle with
Digital Transformation

 Springer

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*To my family and friends for all their support
and to all of the men and women I have been
privileged to work with throughout my
career.*

Preface

What would possess someone to write a book? More specifically, what would possess someone to write a book on a topic such as Digital Transformation?

I will be honest; I have asked myself those questions more than a couple of times while writing this book. To better understand “why” I am writing it, I think you need to know a little more about “who” I am.

My dad always seemed to have a couple of side-jobs in addition to the one he held at Carolina Mirror Corporation for over 35 years (which he fondly called “the shop”). One of these side-jobs was doing tax returns for the “boys in the shop.” As the majority of the people that worked at the shop were paid hourly wages, the tax returns were generally straightforward. Dad would do 40–50 returns, all by hand, every year during tax season.

When I was in the fifth grade, dad brought home our family’s first electronic calculator. He was very skeptical of it, and he gave me the job of working it to help with his math on the tax returns. We had a small, four-room house (a kitchen, living room, and two bedrooms). We would spread the tax returns all over the kitchen table and dad would add on his paper pad, I would click away on the calculator. After proving him wrong most of one tax season, dad decided perhaps the calculator wasn’t such a bad thing after all.

That calculator, brought home in 1972, was what began my interest in the field of technology. I became fascinated with what technology could do to help people process information. I carried this fascination to my alma mater, Appalachian State University, where I majored in both business and information systems.

I enjoyed a remarkable 34-year career in information technology following my graduation in 1983. I progressed from being COBOL programmer to eventually serving nearly 15 years as a Chief Information Officer. I was very fortunate to work with very talented people at some great companies. But that journey is another story unto itself.

Looking back on my career, I recall so many stories and experiences. Experiences that still bring a smile to my face, and experiences that will keep me up at night if I let them. Consequently, I have developed a viewpoint on what to do and what not to do on most aspects of information technology.

So many fantastic books have been written on digital technologies and digital transformation. I have read many of these books and even used elements of these books in proposals and discussions with my business partners at L Brands.

However, none of these books addressed the growing list of digital transformation failures. Digital transformation failure rates, as high as 84%, have been quoted in various articles over the past two years. Working as a CIO in the retail industry for over 13 years, I developed a definitive viewpoint on the challenges organizations face when transforming business process through enabling technology.

Thus, I believe what differentiates this book from others is the viewpoint. Working inside major corporations afforded me the opportunity to see, firsthand, the negotiations, the arguments, the subtle (and sometimes not so subtle) politics, and the rationale behind critical decisions driving business strategy. It isn't that an internal perspective is better than the viewpoints from consultants, academics, or industry pundits. It is merely that my viewpoint is different. Call it a deep view versus a broad view of the way digital technologies are being considered and adopted.

The idea for this book grew from a series of events during my years at L Brands. L Brands leaders were discussing the potential benefits and impacts of a number of digital technologies. Many challenges of digital adoption became readily apparent as we moved through the planning and evaluation processes.

I had the good fortune of spending 11 of my 34 years in the services (software and consulting) sector. I very much respect and understand the advantages of taking a step back and assimilating best practices to come up with a vision, strategy, or both.

However, there is a distinct difference from recommending a course of action and having full responsibility for executing it. As I read through books on digital transformation, I didn't find advice for navigating corporate governance, aligning critics, dealing with corporate politics, combatting unreasonable expectations, and maintaining focus when things weren't going as planned.

In the world of industry IT, these are items we face every day. As I talked to other technology leaders, it became apparent that many of us were struggling with the same issues regarding digital technologies. There is a good deal of excitement and confusion on the topic of digital transformation. Our business leaders continue to talk about digital technologies remaking their respective industries, but in many cases the words seem to be out of step with the leader's actions.

As I finally came to peace with the idea of retiring, these challenges were fresh on my mind. I decided that perhaps the best way I could call attention to the confusion surrounding digital technologies and transformation would be to write a book.

The name of the book came to me after a board meeting. As we tried to move into a broader discussion on technology it became readily apparent that no one on the board understood or could relate with our challenges. The board members were highly intelligent and knowledgeable in their chosen fields. However, none of them had any significant background in technology. I left the meeting and went back to my office and wrote on a small pad the words "digitally deaf."

I don't blame the board members at all. Asking board members with no technology background to provide guidance on technical topics is like asking me to decide on the appropriate bond credit rating for the company.

Shortly after my retirement, I began to work on the book. After structuring the chapters, I started to think about events that had shaped my viewpoints. It was these viewpoints, applied to modern digital technology challenges, that formed the basis of the book. I then began research on a number of the topics looking for supporting or refuting data.

To this end, I worked with Cathy Hotka & Associates to produce a survey to better understand digital adoption in the retail industry. This comprehensive survey was sent to a wide variety of technology leaders in retail. I served as the curator of the survey and produced a report that was widely distributed.

While this survey focused specifically on retail, the key elements and findings of the survey can be applied across all industries. Many of the themes that emerged from the survey are incorporated in *Digitally Deaf: Why Organizations Struggle with Digital Transformation*.

Ultimately, *Digitally Deaf* is about experiences and applying those experiences to the challenges of today's digital ecosystem. The book is an accumulation of my observations and experiences, augmented with months of research to come up with advice for organizations attempting digital transformation.

Throughout my career, my teams and I have experienced tremendous success. However, I will be the first to admit that I made my fair share of mistakes. I have worked hard to learn from those mistakes and believe elements of these lessons can be used to help others facing similar challenges. Said another way, this isn't a vanity book about Steve Stone. It is about the challenges technology leaders and business leaders face in a tumultuous time of transformation.

As I wrote this book, I tried to eliminate bias. I found this is very difficult. As you tell a story, you have a distinct viewpoint. Try as you might, it is hard to keep your opinion from coming out in a story. While I believe my stories are factually accurate, I am sure there are other sides to the same story.

As you read the book, I hope you can draw corollaries between my stories and some of your own experiences. Above all else, I hope the book helps spark conversation between business and technology leaders on the topic of digital technologies and transformation.

There are so many people I want to thank for their help in writing this book. My wife and daughters have stood by me for years as my career required longer and longer hours and more time away from home. They were all very supportive when I told them of my plans to write a book. My brother and sisters graciously volunteered to act as reviewers of the initial composition. I received the same help from my closest friends and former coworkers. To each of you, I can't say "thank you" enough. I kept waiting for someone to tell me this was stupid and to stop writing. Instead, I received support and encouragement. That meant the world to me.

Finally, I have to thank my mother and father. My dad passed away when I was 22. In those 22 years, he showed me how to laugh, how to enjoy life, and how to be a true friend. My mom has always been there for me. No matter how high or how low I have been in my life, I know I can count on her to be there to listen. She is my rock.

Denver, NC, USA

Steven M. Stone

Contents

1	Can You Hear Digital?	1
	References.	9
2	The Great Digital Homonym	11
2.1	What Is Digital?	11
2.2	Digital’s Impact on Customer Relationships	12
2.3	Digital’s Impact on Organization Data	15
2.4	Digital’s Impact on Roles and Responsibilities	18
2.5	The Importance of a Digital Platform	18
2.6	Defining Digital Transformation	21
	References.	22
3	Align vs. A Line	23
3.1	Can We All Just Align?	23
3.2	The Role of Governance in Alignment	28
3.3	Fundamentals of Funding	30
3.4	Aligned, Governed, Funded and Ready to Go.	32
	References.	32
4	A Bored Board?	33
4.1	The Board and Technology: An Uncomfortable Pairing	33
4.2	Board Composition in the US	34
4.3	Why the Board Is Important to Digital Transformation.	36
4.4	The Role of the Board in Establishing the Transformation Message	38
4.5	Building Technology Knowledge on the Board.	39
	References.	40
5	Alphabet Soup	41
5.1	Background on the Role of the CIO	41
5.2	Emerging “Chief” Technology Roles.	42
5.3	Fractured Technology Leadership	44
5.4	Leadership in Transformation	46

- 5.5 Choosing the Right Leader for Technology..... 49
- References..... 51
- 6 Puzzled by Projects?**..... 53
 - 6.1 Why Projects Fail..... 53
 - 6.2 Understanding Project Goals..... 56
 - 6.3 Project Sponsorship and Ownership..... 57
 - 6.4 The Right Project Talent..... 59
 - 6.5 The Right Partner and Right Solution..... 62
 - 6.6 Positioning for Transformation Execution..... 65
 - References..... 66
- 7 IT Equals “It’s Tough”**..... 67
 - 7.1 The Changing Role of Corporate IT..... 67
 - 7.2 Balancing IT Demand and Capacity..... 71
 - 7.3 It Only Gets Tougher from Here..... 73
 - 7.4 Changing How We Think About Technology Talent..... 74
 - 7.5 Adopting DevOps..... 76
 - 7.6 Continuous Improvement Opportunities..... 79
 - 7.7 Changing the Approach to Development..... 81
 - 7.7.1 Agile Methodology..... 82
 - 7.7.2 Social Collaboration..... 84
 - 7.7.3 API Architecture..... 84
 - 7.7.4 Lightweight Deployment..... 86
 - 7.7.5 Built-In Security and Audit..... 86
 - 7.7.6 Cloud Leveraged..... 87
 - 7.7.7 End User Self-Service..... 88
 - 7.8 Building the Data Backbone..... 88
 - References..... 92
- 8 Tangled Talent**..... 93
 - 8.1 The Importance of the Right Talent..... 93
 - 8.2 Leadership Talent..... 94
 - 8.3 Transformation Execution Talent..... 96
 - 8.4 Transformed Organization Talent..... 100
 - 8.5 The Role of Culture in Transformation..... 101
 - References..... 103
- 9 Deciphering Diagnostics**..... 105
 - 9.1 Digital DNA..... 106
 - 9.2 Leadership Commitment..... 107
 - 9.3 Customer Intimacy..... 107
 - 9.4 Board Composition..... 108
 - 9.5 Clearly Defined Governance..... 109
 - 9.6 Transformation Messaging..... 109
 - 9.7 Talent Management..... 110
 - 9.8 Technology Leadership..... 110

- 9.9 Technology Demand Management 111
- 9.10 Analytics Capability..... 112
- 9.11 Platform Mindset..... 112
- 9.12 Global Technology Talent 113
- 9.13 Federated Technology 114
- 9.14 Modernizing IT 114
- 9.15 IT Efficiency 115
- 9.16 Digitized Information Consumption 115
- 10 Hearing Aids 117**
 - 10.1 The Framework for Hearing 117
 - 10.2 Setting the Table..... 120
 - 10.3 Achieving Common Ground Between IT and the Business 121
 - 10.4 The Loop 123
 - 10.5 Final Thoughts 124
 - Reference 125
- References 127**
- Index..... 129**

Chapter 1

Can You Hear Digital?



Abstract Stone introduces the reader to the disruption being wrought by digital technologies across all industries. He provides an imperative for organizations to change in order to remain relevant in the marketplace. To highlight specific organization inhibitors to digital transformation Stone introduces the concept of a “Deaf Diagnostic”. The Deaf Diagnostic is an organization behavior, process, or culture that impedes or halts the digital transformation process. Finally, Stone positions the reader for what to expect by providing a short synopsis of the remaining chapters.

I have to admit; I love movies. For me, it is simply an escape: a way to let my mind wander into the realm of the possible or sometimes the realm of absurdity. Movies that I enjoy I can watch time and time again. As anyone who has ever worked with me can attest, I will quote and reference movies on a relatively regular basis. Sometimes to emphasize a point, sometimes to get a laugh, and other times just to change the flow of thought.

When I think about all of the discourse over the past few years on digital transformation my mind quickly recalls a “cinematic classic” *White Men Can’t Jump*. Billy (Woody Harrelson), Sidney (Wesley Snipes), and Gloria (Rosie Perez) are in Billy’s car. Billy slides in a cassette tape and begins to play *Purple Haze* by Jimi Hendrix. Sidney, with a puzzled look on his face, says, “Hey, what is this?”

Billy replies, “Jimi Hendrix.”

Sidney, still perplexed, states, “I know who it is, but why are you playing Jimi?”

Billy, in a casual manner, says, “Well because I like to listen to him.”

Sidney, now looking a bit angry, says, “Oh, you like to listen to him. Now that’s what the f##### problem is. Y’all listen.”

Billy, now looking confused, asks, “What am I supposed to do, eat it?”

Sidney, in an animated fashion, says, “No, no, no. You’re supposed to hear it.”

Billy retorts, “I just said I like to listen to him.”

Sidney explains, “No, no, no. There is a difference between hearing and listening.”

OK, so you may be asking yourself, where is he headed with this? In today’s world full of digital innovation, our business leaders are similar to Billy. They are “listening” but they aren’t “hearing.” They read articles, and perhaps books discussing the power of digital technologies and how adopting these technologies can

remake businesses and industries. They attend seminars or conferences that espouse the benefits of “going digital.” Understandably, these leaders want in on the digital action.

However, many of these leaders don’t understand how digital technologies can remake their organizations. They assume because others are adopting digital technologies, they should be doing the same. They listen, but they aren’t really “hearing.” In other words, they are “Digitally Deaf.”

Despite all of the well-deserved publicity on the topic of digital technologies, the failure rate for digital projects has been alarming. Forbes noted in a March 2018 article that companies would spend over \$1.3 trillion (USD) on digital transformation initiatives and over 70% of these efforts will fail to reach their stated goals (Zobell, 2018). Couchbase, in its 2017 survey stated, “84 percent of respondents reported projects being canceled, delayed, or reduced in scope” (Couchbase, 2017). Finally, in its 2017 survey, Wipro noted “only 50% of companies are successfully executing on their digital transformation strategies despite demonstrated efforts and investments.” In fact in the Wipro study, one in five senior executives secretly believe their digital transformation initiative was a “waste of time” (Wipro Digital, 2017).

Why do organizations fail at digital adoption? What are the consequences of being digitally deaf?

I believe in our current business climate, being digitally deaf is a recipe for disaster. But, don’t take my word for it. Consider the following list of companies: Blackberry, Blockbuster, Borders, Circuit City, Dell, Eastman, Motorola, My Space, Nokia, Sun Microsystems, Toys ‘R Us, and the USPS. These companies were industry leaders and considered at or near the top of their respective peer groups. Many of these companies are out of business, and the remaining ones are struggling to achieve relevancy again.

What happened to these companies? In the simplest terms, they didn’t innovate. They didn’t anticipate changes in their customer’s tastes and needs, resulting in erosion of their customer base. They didn’t see new competitors emerging from outside their usual competitive landscape. They didn’t anticipate technology changes disrupting their industry. Moreover, in some cases, they didn’t react in an appropriate amount of time to opportunities sitting directly in front of them (inside their organization).

Many articles and books have been written about these companies. A quick Google search will reveal the stories. I am not going to spend time rehashing their troubles. However, I will point out that these once rare “falls from power” are becoming much more frequent. Why? In one word: Digital. Digital technologies are the great equalizer and disrupter in today’s business environment.

Many years ago, industry leaders were protected by their sheer size. They could keep competitors at bay because the price of entry to compete head-to-head was too high.

The price of entry is no longer an obstacle. Digital technologies are opening the door to new competitors at an unprecedented rate. Simply consider Cloud technology. Years ago a start-up technology venture had to raise tens of thousands of dollars

(or more) just to establish the technical infrastructure to start building on their ideas. Now there is easy access to immense computing power at incredibly attractive prices. Cloud technology is largely responsible for the massive start-up booms in areas such as the US and India. In India alone, from Q1, 2015 to the end of 2016, over 13 billion (US) dollars were invested in the start-up ecosystem.

Data generation and collection has risen at unbelievable rates. Companies are harnessing this information and tailoring solutions to meet the needs of consumers better. Other companies leverage social networks to gain insights and personalize their customer touch. Still, others have exploited new capabilities afforded by mobile technology to win customer mindshare.

In 1975 if you looked at the Fortune 500 list, 80% of the companies would still be on the list in 1985. Today, the 10-year turnover for the Fortune 500 is nearly 50%.

In the United States, business-to-consumer (B2C) e-commerce has exploded over the past 6 years as consumer perceptions and preferences changed. From 2010 to 2016 B2C e-commerce sales nearly doubled. In that time, e-commerce sales rose by almost \$250B, a 12% CAGR. A growth rate over three times that of the total US retail revenues (excluding food services)!

Times have changed. Thanks to digital technologies, an incumbent no longer holds an inherent business advantage. New competitors are emerging skilled in leveraging the digital technologies at their disposal such as mobile, social, big data, machine learning/artificial intelligence, blockchain, 3D printing, robotic process automation, voice, and virtual/augmented reality.

Think of the disruptive nature of companies such as Apple, Google, Facebook, Netflix, Uber, Amazon, Alibaba, and Helix. These are companies that have used digital technologies as the basis for driving significant change in their respective industries and in how they interact with their customers. Can you think of a single day in the past few years where you haven't used a search engine from your smartphone or tablet to look up an answer to a question? Maybe when you were on a cruise and had no service? We have fundamentally shifted how we use technology in our everyday lives.

The fascinating thing is that most of us don't even think about it. We just do it. The "it" factor that comes from the effective use of digital technologies makes a product or service seem indispensable to the customer. The companies that have figured "it" out are blowing away the competition and are finding new adjacencies (related products and services) to expand their market influence.

In our 2018 survey of retailers, the findings strongly supported the importance of digital adoption to company performance. As we reviewed the survey results, two distinct groups began to emerge. Digital Leaders represent those companies that are much more active in applying digital technologies to business problems. Digital Explorers are those companies that are exploring digital but have not fully committed to broad implementation.

Reviewing the financial performance of the publically traded companies in these groups, we found Digital Leaders enjoyed a 6% CAGR in revenues the past three years. Digital Explorers revenue growth was relatively flat over the same period. In

addition, the average price-to-earnings ratio for a Digital Leader was over 80% higher than Digital Explorers (Stone, 2018).

However, remember, this book isn't about the companies that are doing it well. We are here to talk about why companies often struggle with understanding how they can apply technology in a manner that would provide competitive parity or even advantage.

Many companies are just beginning to think about what "being digital" means to them. Others have embarked on ambitious technology-led projects only to be disappointed in the results. Others are hoping this is just a fad and will go away. Regardless of where companies are in their journey, it is a safe bet they will all be impacted by the latest wave of technological advances.

What makes an organization digitally deaf? Why would an organization ignore what is happening around them or not put their best foot forward to take advantage of the changes in the technology and business landscape? It is a perplexing question that has kept me up many a night. That question is the one that drove me to write this book.

As I planned this book, I knew I wanted to pull from my experience and write the book in a way that would be meaningful for both business and technical professionals. I always believe pictures and stories work better than lectures. In addition to loving movies, I love to tell stories. Working in technology for 34 years afforded me the opportunity to see massive change. I started my career in the era of large (size) mainframes and progressed through today's mobile, big data, cognitive, service-oriented complexity. Throughout that span of time, I have had the opportunity to observe change from both sides of the technology spectrum. Eleven years on the software and services side of IT and 23 years on the industry or customer side. I have witnessed beautifully constructed strategies leading to massive growth and have been bewildered by insanely poor decisions costing companies hundreds of millions of dollars. While no one can ever say they have "seen it all," I have many stories that should help illustrate pertinent points. We will kick-off each chapter with one of these stories and maybe sprinkle a few others in as well.

Here is a great story to kick things off. I had a meeting with an executive at one of my previous companies to catch up on the status of technology projects. He walked up just as I arrived at his office carrying a massive 5-6" thick binder. I asked what was in the binder.

"Daily and weekly reports" he replied.

Now, few things get my blood boiling as much as paper-based reporting. Even today, many executives swear by a bevy of printed reports and are very slow to change. "Damn, that is a ton of reports. Do you carry that to a bunch of meetings?" I asked.

"All of our Monday performance meetings. You never know what will be asked, so I have to be prepared," he replied.

As I looked at his stack of paper, nicely organized into sections within a three-ring binder, I asked, "Do you read all of those reports?"

He replied, "No. I have a few I look at regularly, but most of these are for reference."

At this juncture, I took a deep breath and pulled out my iPad mini. “Let me show you a tool that might make this easier for you,” I said.

“Oh, don’t bother. You can’t get the level of detail we need on those. Plus, I need to make notes for referencing later” was the executive’s retort.

“Indulge me for five minutes” I requested.

I pulled up an app on my iPad that we had written using an industry leading BI tool. I showed category level sales, clicked on a graph to drill into region level data, clicked again to go to the district level, and clicked one more time to show store sales for the category. I sorted the list in a myriad of ways to indicate which stores drove the most sales with the least amount of foot traffic. Once I completed this exercise, I clicked on an annotate button, circled the top stores and wrote a note. I then emailed the screen print (with the circle and note) to the now incredulous Executive Vice President.

“Wow!” he exclaimed. “We need that tool. What would it take to get it?”

I smiled and said “We have owned it for years. I have tried for the past few months to get your staff to consider how we could use it to get rid of the paper reports in the company.”

“I have never seen anything like this,” he said. “Can we get some people to try it out?”

“Sure. I will have it on your iPad by tomorrow” I replied.

Now before you believe this story has a happy ending, let me tell you what happened after the conversation. Even though we had a solution that would allow the Executive to get to virtually all of his information with a click of a button, he was reluctant to use it. He didn’t know it as well and eventually decided he would stick with his three-ring binder. By the way, the three-ring binder required a group of five to six analysts to build on a weekly basis and a couple of analysts to update it on a daily basis. By the way, these are the same analysts we had pitched the idea of the iPad applications to initially. As we eventually learned, the analysts viewed the app as “competition” and something that would disrupt what they did on a day-to-day, week-to-week basis, so they essentially “buried” the idea.

The executive was eventually fired. What was one of the reasons? He was always “too late” in making decisions. In other words, the opportunities were slipping by before he would react to them.

This executive was not unique. I have seen many executives who refuse to use digital tools to help with managing information. I remember chuckling to myself at a corporate board meeting where all members of the Audit Committee had company-supplied iPads. Only one of the six members used the iPad. The other five used the provided paper version.

Why is that? Before you say the executive and the board members weren’t “tech-savvy,” understand these applications (BI reporting and board documents) are not complicated. It is as simple as a touch or a click and then read. The real problem is reports. Specifically, paper reports serve as a security blanket to many leaders. We produce mountains of paper each year. While some of the reports are used for decision-making, the vast majority of it goes into a recycle container unread.

Why is this story pertinent to digital transformation? As we will discuss, digital technologies enable businesses to move in real time. Digital companies have their finger on the pulse of their business at all times. Paper reporting on the other hand, by its very nature, is obsolete by the time it rolls off the printer.

An analogy I use quite often is one comparing reporting to maps. The gist of this analogy is simple. In 1980, if you were going on a trip, you grabbed your map and planned your route. If you were driving solo, you would make multiple stops to check the map to make sure you were on the right track. By 1995 you had the option of using MapQuest to get turn-by-turn directions. While MapQuest was a considerable improvement, it still relied on paper during your drive and couldn't account for changing road conditions (such as accidents and construction). Today, we all take directions almost for granted. We have powerful GPS systems built into our cars and our phones. These systems not only provide both visual and verbal directions but they also adjust to changing road conditions and reroute us as needed. Also, the GPS systems offer other relevant information such as the location of restaurants and gas stations as we are driving. This technology is so pervasive now that no one uses maps anymore.

Think about it. Most company executives are using reports (maps) to make decisions. This is crazy!

This discussion leads us to our first “Deaf Diagnostic.” Throughout the book, when we encounter a situation where organization behavior or culture stops the digital transformation process, we highlight a Deaf Diagnostic. At the end of the book, we will recap these Deaf Diagnostics and talk about ways to eliminate or mitigate the impact.

Deaf Diagnostic

Organizations can no longer rely on paper-based reports as the primary mechanism for executive information and decision-making. Interactive dashboards, data visualizations, and automated alerts provide more timely and efficient means to consume organization performance information.

For the first Deaf Diagnostic, I feel I should provide some explanation. You may be thinking that I am over reacting to organizations that still use paper reporting as their primary method to convey and consume information. Unfortunately, I am not.

Remember, in a Digital world, business moves in real time. Think about a simple digital transaction that occurs on a website. Since every click and web page searched is digitally recorded we have near perfect information about each customer visit. As a result, we know the customer and what products they are browsing. This knowledge allows us to instantly recommend things to the customer such as alternative products, accessories, and promotions. We know immediately if we have inventory to fulfill their order and where the inventory is located. This allows us to give the customer expected delivery times. In other words, we have immediate access to all information needed to make decisions.

Now imagine how that scenario would work if the decision-making process required someone to read and interpret a printed report. A single report on a customer visit could be many pages long. If an employee needed to read a report to make a decision on promotion or shipment date, the customer would likely have already left the website. Reporting (paper-based or electronic) doesn't work in this scenario. As we become more digitally connected our core decision-making processes must change. In this scenario, decision-making must be performed systemically leveraging either a rules engine or some form of machine learning or artificial intelligence. Paper reports may provide some value for looking at past performance, but they are useless in driving real-time decisions.

Reporting is just one small example of behavior changes that must occur along an organization's digital journey. Digital will require us to think and act differently. Acting differently may be uncomfortable for many people as we referenced in the story about iPad reporting. However, as we will continue to discuss, change is a necessary element of digital transformation. I will repeat, on many occasions, digital transformation is not an IT problem or a project.

In this book, we will address the primary challenges, and obstacles organizations face when trying to adopt digital technologies. In some cases, these same obstacles exist for any larger scale technology effort (such as the implementation of an Enterprise Resource Planning or ERP solution). However, there are elements of digital transformation that are different and require organizations to rethink not only their processes but their structure as well. In other words, it isn't just about installing and using technology. It is about finding new markets, opportunities, and efficiencies.

Transforming the core business processes of an organization through the adoption of digital technologies is a complex and challenging journey. Nevertheless, many organizations attempt to undertake this journey without understanding and addressing the issues that prevent them from consistently executing the basics today. To put it bluntly, if you can't implement a new software application without significant challenges, why would you expect to be successful in changing the core of your business through technology?

Let's stop at that point for a moment. As we will discuss in Chap. 2, digitalization of business goes well beyond any traditional technology or business process improvement effort. There are elements of technology, business process design/change, organization change management, organizational design, performance management, culture, and leadership needed to turn technology deployments into true transformations. However, if organizations struggle with these notions on a smaller scale, how do they prepare for such a massive undertaking as true transformation?

This notion is at the heart of Digitally Deaf. To transform, we need to understand and address why we struggle on a smaller scale. Throughout the book, we will seek to identify and tackle the issues in organizations that prevent or limit the effectiveness of digital efforts. We need to understand how to take small successes and build scale that will enable enterprise level transformation.

We will start in Chap. 2 by trying to add some “flesh” to the topic of digital transformation. As we will discuss, there are many interpretations of the word “digital.” There are also many stages in the transformation process, some of which may or may not apply to a particular organization.

Digital technologies tend to build on themselves. They possess high degrees of interoperability and require forethought on the sequencing and execution of each segment of work. This forethought is the genesis for Chap. 3 in which we discuss the role of the business in “setting the table” for success. We will reiterate throughout the book that digital transformation is not an “IT” project or program. Digital transformation touches everyone in an organization: from the C-suite to the knowledge workers. This impact is especially relevant in those companies where technology is not the core business.

Chapter 4 talks about the composition of corporate boards (Board of Directors) and their role in driving digital transformation. We will discuss the role of specific committees (such as the Audit Committee) in the digital journey. Also, we will examine the tone to be established at the Board level to best position companies for digital success.

In Chap. 5 we will talk about the changing role of the leader of the technology function within an organization. In most cases, this role is the Chief Information Officer (CIO), but this can vary. We will cover the emergence of new roles within the organization such as the Chief Digital Officer, Chief Data Officer, and Chief Innovation Officer, among others. We will discuss how these emerging roles should mesh with the current IT structure to position the organization for success.

Have you ever thought about the issues you have witnessed in technology projects? Issues such as schedule misses, excessive cost, missing requirements, and poor quality. These are just a few of the issues we will cover in Chap. 6. As much as I want to stress that digital transformation is not an IT project, there will be technology projects needed to make it all work. As such, we need to understand the obstacles, challenges, and pitfalls of technology projects and how transformational efforts amplify them. We will discuss how to overcome these challenges and build an execution plan that allows your business to implement and scale new processes and technologies quickly.

Digital transformation significantly increases the pressure on IT organizations to deliver. Traditional IT approaches and organizations will struggle to deliver innovation and solutions at the pace needed to ensure success. In Chap. 7 we will discuss the pressures facing IT and the changes necessary to position the organization for success.

Transformation efforts rely on a common component: people. In Chap. 8 we will talk about the roles we all play in transformation. We will cover leadership dos and don'ts as well as how structure within the organization is essential.

Chapter 9 recaps all of our Deaf Diagnostics and discusses options to address the challenges inherent in cultural shifts.

We will wrap everything up in Chap. 10 with how to improve the communications across all parts of the organization to increase the chances of success in your digital transformation effort.

I frequently use the term “journey” to describe digital transformation. Make no mistake about it; digital transformation is indeed a journey. Let’s explore that analogy in a little more depth.

As with a journey, you begin with a destination. The destination dictates your direction and the potential paths you can take. In preparation for our journey, we research our destination. For example, if our destination is a different country we want to know of any particular entry requirements, what languages are spoken, and what currencies are accepted.

We also rely on our experience to help plan our journey. We may remember our last journey and recall the issues when we didn’t proactively place our phone on an international dialing. We also take precautions, like packing an extra set of clothes in our carryon in case our luggage is lost. In other words, we research, we plan, and we prepare. Taking these preemptive actions allow us to respond to issues quickly when they arise and still enjoy our journey.

Digital transformation should be treated in the same manner. You will research, plan, and prepare. Issues will occur along your digital journey. If you have adequately prepared, you can overcome these issues and quickly move on. I am hopeful this book will provide information and ideas that will help you better prepare yourself and your organization for the digital journey.

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Chapter 2

The Great Digital Homonym



Abstract Stone defines the core issues in reaching a consistent definition of the term “digital transformation.” He creates a definition and understanding of digital technologies and digital transformation by examining how digital impacts customer relationships, data, roles and responsibilities in an organization. Stone advocates for the need for digital platforms to enable the speed and agility needed to effectively compete in the new competitive landscape. Leveraging this information, Stone develops a definition of digital transformation to establish context for the remainder of the book.

2.1 What Is Digital?

We learned in elementary school that a homonym is two or more words with the same spelling or pronunciation but with different meanings. Honestly, I never thought about the words “digital” being a homonym until a discussion with one of my business leaders. It went something like this:

“Our CEO wants to go after Digital in a much bigger way” was the start of the conversation.

“Great” I exclaimed. “But where does the CEO want to focus our digital efforts?”

“That is the problem. He talks about needing a Chief Digital Officer to lead the efforts. However, when we talk he seems to be saying he wants to go after digital marketing” the business leader explained.

“Well there is a big difference between digital marketing and digital transformation” I responded. “When you say digital transformation, what are your thoughts?” I asked.

“Oh, you know, really changing our focus to the online channel. Like omnichannel retail, where the customer experience is truly seamless. That is what you believe too isn’t it?” he asked.

“It is part of it,” I said. “But I think we have three different views of what the word digital means. Our CEO limits it to digital marketing, you see it as our omnichannel initiative, and I see it potentially encompassing the majority of our business processes. Perhaps we should classify discussions as little “d” digital and

big “D” digital. Little “d” is focused around the online, e-commerce, customer experience space. Big “D” is talking about how we change our culture, our business models, processes and associated technology to transform the company.”

This conversation illustrates one of the biggest issues companies face in digital transformation. The word “digital” means different things to different people. This example was a conversation expressing views of three C level executives in a Fortune 250 company. Most people would expect these executives to be of like-mind on the definition of “digital.”

I suspect this same conversation happens on a more frequent basis than any of us would like to admit. Digital is a great industry buzzword, and there are hundreds of books and articles (not counting this one) written on the subject. However, even if we all read the same book our understanding of “digital” would often be shaped by our place (and perspective) within the organization.

Make no mistake; digital technology will touch all parts of the organization. Those companies that develop a cohesive vision for the end state will be the ones that succeed. Stephen Covey’s second habit is vital here. If you want to succeed, you must “begin with the end in mind.”

To envision the “end,” you must first understand the potential impacts of digital technologies in your organization. At its core, digital technologies will impact our relationship(s) with our customers, how we use data, and the jobs/roles that exist within our companies. Let’s discuss each one of these impacts in more detail.

2.2 Digital’s Impact on Customer Relationships

Plain and simple, businesses don’t exist if they don’t have customers. It is incredible to see how many businesses don’t evolve to the changing desires of the customer. I vividly remember discussions in the late 1990s with our business leaders on the pros and cons of having online sales. Our business leaders at the time were more concerned about what the impact online commerce would have on our retail stores and less about the way our customers would use it.

Still, we are all customers. Sometimes the easiest way to think about how things should be is to just take a walk in the customer’s shoes. What do they expect? Are you providing it? If not, what is preventing you from providing it? Are you allowing old habits or sacred cows to get in the way of how the customer wants to work with you?

When was the last time you opened an encyclopedia? When was the last time you pulled out a map on the side of the road to determine how to get to your destination? Digital disruption in music, maps, knowledge, movies, photography, and books has changed the way we consume content. In each of these industries, the core content has not changed, but the consumption model did. What if Rand McNally, Encyclopedia Britannica, Borders, Blockbuster, Eastman Kodak, and Camelot Music had been first movers to the new way customers wanted to consume their content? Would they be leaders now? Can you imagine the discussions in their

corporate offices and boardrooms when these changes began emerging in their respective markets?

This entire process is described extraordinarily well in Clayton Christensen's book, *The Innovator's Dilemma*. To this point, Dr. Christensen asserts that innovation is on an "S-Curve." In other words, until a customer base is established, innovation will provide a minimal return. Once the customer base is built, subsequent innovation yields increasing value. However, this reaches a point of diminishing return at some point as the most valuable product extensions are exhausted (Christensen, 1997).

Dr. Christensen further illustrates that incumbent companies have shareholders and large customer bases they must appease. Shareholders want to see increased sales and profits while customers continue to buy the company's familiar products. New competitors often emerge on the fringes of the product. These new competitors aren't encumbered with sales or customer expectations. Not burdened with these expectations, the new competitors can focus their attention on growing their niche through increasing innovation. Incumbent companies, faced with decreasing value in innovation in their product set and customer demands for improvements in their existing products, do not pursue new products. Once the incumbent begins losing market share to the new competitor it is generally too late to stop customer shifts, as the new company and incumbent would be at opposite points on the innovation S-curve (Christensen, 1997).

Of course, it isn't just about providing the customer with what they want; it is also about providing them what they value. Sometimes this means providing it even before they know they value it. Consider laptops, tablets, and voice integration. Customers weren't screaming for these, yet now we find them indispensable. Innovation is a critical ingredient in understanding the constant evolution of customer habits.

Before imparting on a digital transformation journey, it is critical for the organization to have a deep understanding of their customer. This understanding is not limited to past transactions and relationships. Do we understand the core value we provide to customers? How do the services and products we provide help or enhance the customer's life? Are these services or products relevant in the future?

Often companies can shape these questions based on their current product sets or services. For example, Kodak introduced the first digital camera to the market in the mid-1970s. However, Kodak did little to further this new technology, and other companies overtook them in the minds and wallets of the customers. Was Kodak's slow adoption of digital photography due to the fact they absolutely dominated the film marketplace? Did they merely reshape the question of relevancy to their biased view of the market?

Organizations must be open to having discussions that will challenge the core of their product and service offerings. Having the courage to admit what got us to this point won't take us forward is difficult for any leadership team. However, organization leaders must have this courage and take a candid look at their business through the eyes of the customer. This step requires considering every customer interaction that occurs today and those interactions should occur in the future.

When you consider your customer interactions do you feel you have all the information needed to affect a positive outcome? Are old habits of doing business interfering with how your customer connects with your organization? For example, consider the fundamental problem of out-of-stocks in retail brick-and-mortar stores. If a customer goes into a store and the product they want isn't there, what does the customer do? What does the store do? Can the retailer reserve product at another nearby store to fulfill the customer's need? Can they order the product for the customer and have it shipped to the customer's home? If the store has one or both of these capabilities is it easy for a store associate to execute? Do sales associates follow up on the sale after the fact to make sure the customer was satisfied?

These are the types of services that are expected in today's environment. If a retailer can't offer these services, they run the risk of losing market share at an alarming rate. Why? Because it is all too easy for the customer to walk out of the store click on the Amazon, Alibaba, or FlipKart shopping cart on their phone and place an order.

Even fashion-forward brands are not insulated from this behavior. Amazon and other pure-plays are rapidly building design capabilities to allow them to offer comparable fashion-forward products. In fact, industry analysts predict Amazon will surpass \$20B in private brand sales by 2022. For a given shopper, will brand name win or will convenience win?

For retailers the question has to be when does customer experience win over product?

Deaf Diagnostic

Successful digital transformation centers on providing new and improved customer experiences. Organizations must continuously monitor and analyze customer preferences and trends. In-depth customer knowledge is essential for the design and implementation of digital products and services.

Of course, it is nearly impossible to talk about customer relationships without discussing the concept of customer experience. A broad definition of customer experience is the sum of all customer responses to interactions with an organization. This definition extends over the full customer lifecycle with the organization.

With this in mind, can we have strong customer relationships without having a great customer experience? Numerous studies have been conducted on customer experience. These studies concluded those organizations that have the best customer experience maintain the highest degrees of customer loyalty and increased revenues.

As described, customer experience is a sum. For example, an organization can have great products, a great website to buy from, and quick shipping. All of these capabilities result in a positive experience for the customer. However, the same organization could have complicated and frustrating return policies. In this example, a customer who buys and has never returned a product would likely have a

different viewpoint of the organization than a customer who has attempted to process a return. The organizations with the best customer experience continuously monitor customer sentiment at all points of interaction (direct and indirect).

If your organization is in touch with your customer's needs and you are actively engaged in building relationships on their (the customer's) terms, you have the guiding light for your digital journey. Absent this knowledge, your journey will struggle to gain traction and direction.

2.3 Digital's Impact on Organization Data

Nothing underscores the significant changes of digital more than data. In 2013 there were 4.4 zettabytes of data in the world. That number is projected to rise to 44 zettabytes by the year 2020. Now, unless you happen to be in IT, that statement probably doesn't mean that much to you. Let's put it into perspective. More data was created in 2015 and 2016 than in the previous 5000 years of humanity. By the end of 2016, we were producing 2.5 exabytes of data *each day*. This amount of data equates to 250,000 copies of the United States Libraries of Congress! In short, the amount of data generated every second is exploding (Kanellos, 2016).

What is driving this? Quite simply it is the number of devices producing data. Smartphones and their associated apps generate tremendous amounts of data. The number of Smartphones has grown nearly 50% in the past 3 years. However, other connected devices are growing at an even higher rate. Connected sensors exist in everything from watches, clothing, sporting goods, cars, and appliances. We live in hyper-connected times, and this level of growth will continue at an accelerated rate for the foreseeable future.

Consider a tennis racquet manufacturer embedding sensors in their racquet. These sensors provide information to the player such as how often the ball is hit in the middle of the strings versus the side. Alternatively, consider a retailer offering special promotions to customers to encourage the use of the retailer's mobile application in their brick-and-mortar store. In these scenarios, the organizations are finding ways to learn more about their customers and in return are giving something of value to the customer.

The sensors in the tennis racquet are a great example of the pervasive nature of digital technologies. Without changing our behavior, we are suddenly able to collect information from basic activities. Another such technology is radio frequency identification (RFID). You may be seeing these tags on apparel and other items you are purchasing. These tags allow tracking of lifecycle activities for a product such as manufacturing, shipping, receiving in store, and customer purchase.

Let's look at distributors and retailers that choose to use RFID tags to manage their inventory. We, as consumers, are accustomed to seeing the Universal Product Code (UPC) barcode as a way to identify a product. When we check out in a convenience store, the cashier scans the barcode, and the price is associated automatically with the product. Behind the scenes, the barcode is used to manage inventory.

Assume we are buying a Diet Coke. The store scans the barcode and rings up the sale which decrements inventory. The store can look at their inventory system and see they have 100 Diet Cokes still in inventory. The UPC Code identifies the specific type of product, and the convenience store maintains an inventory record for each UPC code. If the store stocked 400 different products, this means they would have 400 inventory records in their system.

When we add RFID to this equation, we add much more capability. An RFID tag not only identifies the specific type of product but also identifies the *specific product itself*. In other words, I am not buying a Diet Coke; I am buying this one, unique Diet Coke. In addition, RFID codes can be read using technology that does not require a direct line of sight. In other words, we can scan all of the products passing a particular point in the store. We can also write to the tag as part of a scan process, allowing us to record when the product is sold. With these innovations we can now track the age of our inventory, we can track its location, and we can determine if a product has been purchased or shoplifted. However, this comes with a price. RFID tags are much more expensive than a UPC tag. Also, the infrastructure needed to manage RFID is much more costly than UPC scanners. Finally, our inventory system must handle unique identifiers. If the convenience store had an average of 30 of each product on hand, it would mean the store would now have 12,000 inventory records as opposed to 400 in the UPC world. If the convenience store were part of a chain of 1000 stores, it would result in 11,600,000 more inventory records to manage for the entire chain.

We have established digital technologies generate more data. Organizations must determine how to use this data to differentiate their products and services. Digitally astute companies understand the data at their disposal. They are active in the collection and cultivation of the data to improve their business outcomes. These companies also look for ways to use digital technologies to get more information from their customers. Essentially, these companies are excellent at connecting the “data dots” at their disposal.

Take a typical home improvement project, carpeting, as an example. An average customer will make over five visits to various stores during the initial shopping (or “incubation”) cycle. A typical retailer probably doesn’t know if the customer is in their store unless they buy something. As such, it is tough for the retailer to understand how to best reach and influence the customer. What if the retailer had a way to capture these initial interactions? Even something as simple as offering free (small) carpet samples in exchange for information (email or mailing address) would give the retailer a chance to connect with the customer after they have left the store. Of course, this would require consent from the customer. However, customers will often provide information if they perceive they receive something of value in return.

Assuming the retailer captures the customer’s interest it can begin providing education, incentives, and related products/services to influence the customer’s purchase decision.

Now let’s take it to the digital level. Again, let’s assume the customer opts-in for receiving communication from the retailer. Using interactive technologies on the customer’s mobile phone the retailer can collect pre-purchase information about the

customer's intent. Let's assume the retailer offers a mobile application that helps the customer measure how much carpet and pad is needed for their project. The retailer now knows not only the customer is interested, but also the size of the project.

The retailer can use the mobile app to ensure their pricing and promotions are competitive with their competition. The retailer can also provide helpful information on services like home décor design and installation. The retailer can offer augmented reality experiences so the customer can see what the carpet would look like in their house. The retailer can provide bundled deals including such items as carpet, carpet pad, light fixtures, and paint as most carpeting projects lead to other changes in a room.

Once the customer purchases the carpet, the retailer can continue to provide information such as warranty, stain resistance treatments and other care options for the carpet. Since the lifespan of most carpets is about 5 years, the retailer can provide pre-emptive information to the customer on carpet "deals" as the 5-year mark approaches. The retailer can also use industry trends in carpeting, known customer preferences, and their product information to personalize messaging to the customer.

To quickly recap, in this digital example, the retailer was involved with the customer from ideation of the project, purchase, installation, post-project care, and retirement/replacement. The retailer is viewed as knowledgeable and helpful by the customer and will likely be the choice for repeat business. Providing this level of seamless, integrated service is what we mean by "connecting the data dots."

It is not a stretch to say that all companies that hope to succeed in today's economy must be "data companies." Technologies such as sensors, beacons, e-commerce, mobile, and social media create vast sums of information. The companies that understand how to use this information to improve business outcomes will be the companies that win.

As I referenced in the preface, I served as the curator for the *2018 Retail Digital Adoption Survey*, performed in conjunction with Cathy Hotka & Associates. This comprehensive survey measured, not only the adoption of digital technologies across retail but also the steps retailers were taking to prepare for and execute digital efforts. As I analyzed the survey results, a group of companies emerged that were far ahead of their peers in their adoption of digital technologies. These companies were labeled "Digital Leaders." The peer group, labeled "Digital Explorers," was still in the exploratory stages of their digital journey.

The Digital Leaders achieved a 6% CAGR in revenues from 2016–2018. Digital Explorers revenue growth was relatively flat over the same period. In addition, the average price-to-earnings ratio for a Digital Leader was more than 80% higher than Digital Explorers.

In the *2018 Retail Digital Adoption Survey*, the Digital Leaders were much more active than their counterparts in the use of big data and advanced analytics. Eighty percent of Digital Leaders had completed at least a portion of their implementation of new analytics capabilities compared to only 38% of their peers. Digital Leaders clearly understood the importance and power of analytics to shape and drive their business (Stone, 2018).

2.4 Digital's Impact on Roles and Responsibilities

Any time we talk “transformation” we know there will be impacts on the roles and responsibilities within our respective organizations. Digital Transformation is no exception to the rule. Digital Transformation will impact everyone within an organization.

In its 2014 study *The Digital Tipping Point*, the strategic consulting firm McKinsey, cited the top two impediments to meeting digital goals at larger companies were (1) difficulty finding talent, and (2) organization structure not designed appropriately for digital (Willmott, 2014).

We will cover talent issues in more depth in Chap. 8. Regarding item (2), many companies heavily invest in their command and control, hierarchical structures. These companies have many layers of management and decision-making. I recall dealing with a very large company (revenues in the hundreds of billions of dollars) while working on a cloud service for business intelligence. To move forward with a \$300,000 annual contract the organization required six approvals, including two by Senior and Executive Vice Presidents. Obtaining authorization for this small deal took over 7 months. More telling was the project had an anticipated annual benefit of greater than one million dollars. Obviously, this was not a speed model.

The focus of an organization shifts to speed during digital transformation. Operational speed comes from digitizing information, rationalizing, streamlining, and automating business processes. Enabled by automation, the organization can move to more frequent information event cycles. An event cycle is simply receiving information and taking the appropriate action. Emerging technologies such as machine learning (or AI) allow organizations to automate and optimize processes that have typically required human intervention. While technology plays an important role in enabling this transformation, it is the imagination of the business in rethinking process flows that provide the big unlock. Imagine taking a basic replenishment process from 3 days to minutes. When data is fully digitized, processes reworked to remove unneeded interventions, and computing cycles optimized to run around the clock, this type of radical reduction is attainable. The question then becomes how do we use shortened process cycles to find new avenues for growth.

Understanding the customer impacts, how we use data in driving business results, and how our roles and processes will change, provides an excellent foundation for defining the meaning of digital transformation. However, we do not achieve this level of change and disruption in our organization following traditional methods.

2.5 The Importance of a Digital Platform

In its essence, digital transformation is as much or more about changing organization culture than merely implementing a new set of technology. In fact, technology is merely the enabler or catalyst for the change. With this in mind, organizations

need to have an eye on the bigger picture. Being able to compete in an environment where competitors and challenges emerge at an unprecedented rate. Being able to compete in an environment where business cycles are continuously under pressure and customer preferences, and tastes change on a routine basis.

In a digital world, any number of factors can influence the competitive landscape, including geopolitical changes, societal changes, customer behavior, and technical progression. Said another way, we aren't transforming to a new static state, we must transform to enable change in our organization. The ability to anticipate change, embrace change, and view change as an opportunity, not a hindrance doesn't come from a single technology project. It doesn't come from a set of technology projects. It comes from building a platform that allows the organization to quickly identify and pivot to capture new business.

A digital platform enables speed, agility, and innovation inside the organization. Said another way, digital transformation is not about a technology project to implement a capability or even a set of capabilities. It is not about a singular or collection of "products" to deliver specific outcomes. It is about transforming the business to be able to react quickly to changes and capitalize on emerging opportunities.

Professor Clayton Christensen of the Harvard Business School touched on this at a conference I attended recently. In his address, Dr. Christensen noted there are essentially three types of innovation at play as companies seek to grow. Innovation that targets efficiency seeks to do more with less, eliminate jobs, and increase net cash flow for a business. Innovation that targets sustainability seeks to make great products better, improve product margins and market share. The objectives of disruptive innovation are to make products accessible and affordable, create new jobs, and create new forms of growth. Dr. Christensen went further by saying that short-term pressures often dictate what should be longer-term growth strategies. For example, instead of reinvesting profits to find new growth platforms, more and more companies have opted for stock repurchases and dividend payouts. While popular among shareholders, it does little to position companies for future growth opportunities.

As I reflected on Dr. Christensen's words, I was intrigued by what companies sincerely hoped to achieve as they pursued digital technologies. Were they trying to become more efficient or were they investing in digital to unlock new growth opportunities?

I believe a significant number of companies look at technologies such as artificial intelligence (AI), Internet of things (IoT), and advanced analytics as ways to become more efficient, improve or sustain market parity, or all of the above. As an initial entry into digital transformation, perhaps these are appropriately modest goals. However, the real value of digital transformation comes from the ability to gain more insights into the wants and needs of our customers. These insights provide the ability to develop new products and services that may take us on a different journey than the one we initially envisioned.

Think about Amazon. It started by selling books in 1994. Today it sells a myriad of products and services, all from the same underlying platform. Amazon even learned how to expand its technical capabilities to move into an entirely new business with Amazon Web Services (AWS). AWS is now the industry leader in

Cloud Infrastructure Services, more than three times larger than its closest competitor. Amazon was not concerned about traditional business adjacencies. They had developed a platform of technology and processes that provided tremendous flexibility.

This platform is what sets Amazon apart from many of its competitors. Amazon's platform enables its ability to quickly build and launch new business models.

Consider the Amazon Echo. Amazon launched this product in 2014 essentially creating the voice-activated speaker segment. It now owns over 70% of the new market. Amazon launched this leveraging its B2C network and even used its top customer base (Prime members) in the beta testing.

I recall joining a new IT organization as a CIO shortly after the IT organization had moved to a new shared service function. The leaders and associates in the organization weren't clear how they should move forward. They had a new leader and were in a new function within the company and didn't feel as they had a real identity.

We, as an organization, addressed this identity crisis by spending time reflecting on our purpose. "Why" we existed as an IT organization, "what" services did we provide, and "how" did we measure our success. We developed a single graphic that illustrated this understanding, and it became a fixture on the walls of cubicles, meeting rooms, and the like.

Businesses that hope to transform digitally will need this same type of understanding. Digital can challenge the very fabric of "why" an organization exists. In addition, typical business adjacencies will probably be too restrictive in a digital world. Once the business envisions itself as a digital entity, new adjacencies will likely evolve that had never been imagined before.

As we discussed earlier, organizations must have a solid understanding of their customer's needs and wants before attempting digital transformation. This same understanding extends to employees and business partners. Scanning your environment is essential to preparing for digital change. What are your customers saying and doing? What are your competitors doing? What are your business partners doing? Are there experiments or tests going on in your industry that you should be observing? Are there developments in other industries that could impact your business? This type of environment scan is critical to understand your immediate challenges.

Using the environment scan as a foundation, can you envision what your business will look like in 3 years? Will you still be competitive without change? Asked another way; is what differentiates your products and services today, relevant in 3 years? Each organization will ask and answer these questions in a different fashion. Each organization will arrive at an inflection point that drives their digital journey. Being digital isn't about following others, it is about establishing your own, unique course and vision.

To capitalize on this vision, the adoption of a platform for change is essential. Technically speaking, a platform is a framework of technology, process, guidelines/rules, and supporting business structure that enables an organization to build and deploy multiple business capabilities or models.

Building a platform isn't accomplished with a typical project orientation or mindset. A platform requires business leaders to think about their investments in business process and technology differently. The new digital world it is all about speed and agility. A hierarchical structure that requires numerous levels of reviews and funding just won't work.

We will cover approaches to building a digital platform in Chap. 7. In Chap. 8 we will outline more details on the impact digital transformation will have on individuals within the organization. Suffice to say, the old methods yielding 2–3-year duration program/projects before delivering any tangible value are no longer plausible.

2.6 Defining Digital Transformation

Let's recap. We have talked about the impact digital transformation will have on our relationships with customers, how we use data, and how we structure our companies. We have discussed the importance of considering digital in the context of a "platform" versus a "project."

Before finalizing a definition for digital transformation, it is crucial to consider the second word, transformation. Merriam-Webster defines transformation as "an act, process, or instance of transforming or being transformed." Transform is further described as "to change in composition or structure."

This level of change highlights another key distinction between transformation and a simple technology project. A standalone technology implementation does not require change in business process or structure. When we speak of transformation, we can infer that the composition or structure of the targeted business function and its associated processes will be altered.

Armed with this information, we should be able to agree on a definition for digital transformation. For purposes of this book and discussion we will describe digital transformation as the following:

Digital transformation is the development of a unified platform, consisting of systems and processes exploiting digital technologies in a manner that fundamentally changes how the organization collects and uses data to positively influence customer interactions.

While somewhat broad, this definition establishes essential boundaries for what we mean by digital transformation.

There are some key points to be stressed in this definition. "Fundamentally changes" in the collection and processing of data will obviously mean huge changes to roles and responsibilities in an organization. We will cover these changes later in more detail in Chap. 8. As we discussed earlier, "customer interactions" in this context includes the entirety of "customer experience."

However, remember, this book is called "Digitally Deaf" for a reason. We are going to identify the most common reasons companies struggle with identifying digital opportunities and executing transformation. We will use the digital transformation definition as a benchmark throughout this discussion.

With all of that in mind, let's begin with the most fundamental issue many companies face, getting the executive team and organization to align around the mission.

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Chapter 3

Align vs. A Line



Abstract Stone discusses the starting point for all transformation efforts: the establishment of a common understanding, or alignment, between organization leaders, staff, and information technology. He describes the role of the organization leaders in “setting the table” for success, including the creation and deployment of an agile governance and funding model to enhance organization speed and flexibility.

3.1 Can We All Just Align?

In the world of corporate information technology, no word makes me chuckle more than “alignment.”

One of Merriam-Webster’s definitions of “alignment” is “*an arrangement of groups or forces in relation to one another – new alignments within the political party.*”

Wikipedia provides the following definition “*Business-IT alignment is a dynamic state in which a business organization is able to use information technology (IT) to achieve business objectives - typically improved financial performance or market-place competitiveness.*”

Let’s boil it down to its simplest terms: “IT should work on the things most important to the business.” Wow! How complicated is that?

Judging by the thousands of articles written on the subject, it seems to be quite elusive.

Let’s expound on that with another story. One company I worked with was incredibly dynamic. So dynamic, in fact, they eschewed the creation of a business strategy. Also, the company did not produce a cohesive set of enterprise operating plans for each year. Now before people pass judgment and think this company had to be in dire straits, this was not the case at all. The company used its knowledge of the customer and changing fashion to quickly pivot product and promotion decisions to go after profitable business. However, those decisions often occurred during the year and generally had to work within the boundaries of system and process constraints.

When I joined the company, requests for IT services arrived in a myriad of ways. Prioritizing which efforts to work on was based on which business unit had the funding and yelled the loudest. In fact, in my first year, we saw more than 50% of the projects deemed “must do” on the business portfolio change.

We knew this was unsustainable and needed to change. Thus, absent a strategy or an annual operating plan, we developed a process to collect demand and work with a group of senior executives to assist in prioritization. While not perfect by any means, it did allow IT to build a portfolio of projects for consideration, develop high-level resource estimates, and prepare a capital and expense budget.

Now, anyone that has worked in IT knows if you operate exclusively on a one-year horizon on a consistent basis, you are always going to be behind. Significant IT architecture changes don’t occur overnight. In other words, you can’t just say: “go build a mobile application” if you don’t have the knowledge, talent, infrastructure, and processes to do so.

With this in mind, our IT group developed a set of roadmaps that guided the longer-term vision for application and infrastructure investments. Without a long-range business plan (and associated objectives) or strategy to “align” with, we relied on our relationships within the various business units to understand where their minds were regarding future capabilities. Again, not perfect, but it provided some moniker of guidance for making short and mid-term decisions.

A few years into this process we were told the company wanted to “significantly increase its investment in IT.” This pronouncement came literally out of the blue. “We want to build new technology capabilities to “leapfrog” our competition and drive the next level of growth for the company.”

CIOs generally love hearing stuff like that. IT was finally going to get its moment in the spotlight. I admittedly was somewhat skeptical having heard similar words at various times in my career. Often this type of proclamation results in “dumping” of every business request, regardless of value, into IT.

Our portfolio had some projects in the out years (beyond the one-year planning horizon), but none of them provided capabilities that would catapult us ahead of our competition. As the budget had been somewhat constrained and the planning horizon was limited, the business had not been thinking about game-changing capabilities. To revamp the portfolio, IT had to ascertain what capabilities were actually the game changers and what would be the appropriate sequencing to maximize the company’s return on investment.

I became a bit more concerned when I was approached by our finance organization only two days after the announcement of increased spending and was asked: “what do you expect to spend over the next three years on IT given the new direction.”

I can’t print my reply as it was laced with a few colorful words. But the gist of the reply was “A proclamation of increased technology spending isn’t a direction. We don’t have anything to plan on other than an announcement that we would increase spending. How about we talk about the business capabilities we want to build before we try to associate a number to it?”

In a meeting, a couple of weeks later our CFO again asked what we thought the capital number would be for the next year. My politically correct response was “we have had three weeks since the word came down that we wanted to ramp up. We are working across all the business units to coordinate plans, determine resource needs, and sequence based on priorities and dependencies.” But then I added, “We are working without the benefit of a business strategy. It would be extremely helpful if the senior executives could align on the three or four top business priorities.”

The reply was something along the lines of “yes, we will try to do that. But when do you think we can have your number for next year?”

Hence the name of this chapter; were we “aligned” or simply seeking to find “a line” for the budget?

I would love to say this is an isolated incident and I didn’t see similar issues throughout my career. Unfortunately, this isn’t the case. Making IT prioritize business initiatives is admittedly a pet peeve of mine. The business MUST own prioritization of technology efforts that provide business capabilities. IT should be tasked with executing in order of priority.

When IT is asked to prioritize we are saying IT, and IT alone, knows what is best for the business. This isn’t fair to the other business units, and it is not fair to IT. Let’s review a couple of other examples.

As I was preparing to leave a previous CIO role I met with the CEO as part of the turnover process. The CEO was in the midst of a massive change effort for the company and was extremely interested in how technology could further the change process. He stated, “we are going to replace the XYZ store system in the next couple of years as part of this change process.”

I listened and replied, “While I would agree the store system needs upgrading, there are a lot of things to consider. For one, the store system includes an accounting method quite unique to our company. Changing it would necessitate major changes in the distribution systems and the accounting systems. Besides, the current system was built to ensure consistent execution across the stores. In fact, the store procedure manual reads like a system manual. You won’t find a packaged application that handles our accounting practice or enables the business processes in this type of rigid manner. I would recommend upgrading only the POS component of the store application in the short-term and save the other changes until you complete other aspects of your larger change effort.”

These words weren’t what the CEO wanted to hear. “The store system is our bottleneck for so many of our initiatives. We have to change it now.”

I remember my reply because I still use the gist of it today: “You have a choice to make. If you want store execution to be largely systemically controlled, the system will be rigid. It will never be as flexible as you want. If you want stores to be more nimble, you have to trust the stores to make and execute decisions within a process framework. The more systemic controls, the less flexible the solution.”

I learned that the CEO brought in one of the large consulting organizations to do a study on the store systems after I left the company. After spending over 12 million dollars, the conclusion was that changing the store system would be too disruptive

and they should focus only on upgrading the POS component. Nearly eight years later, the store system remains relatively unchanged.

This story illustrates a common problem. IT executives and business executives see problems in different ways. IT and the business are only truly “aligned” when they are able to get on the same page concerning language and vision.

I don’t mean to imply this is a case of someone being right or wrong. The CEO was seeking ways to gain speed on critical business initiatives. The CIO, in this case, was pointing out that decades of business decisions and rules would need to be unwound to achieve what the CEO was requesting.

It struck me as a very odd conversation to have the week I was leaving. Clearly, it was something that had been on the CEO’s mind, yet we had not discussed it before. I could tell he was looking for ways to increase speed. However, I knew the old adage “go slow to go fast” was at play. To get the speed he desired would require massive technology and business process change. It is difficult to explain that to replace a store system would require changing your 25 plus year accounting practices.

Nevertheless, it is precisely the conversation I should have been having with the CEO months or even years before. Having this type of discussion is not easy. CIOs often flinch at the idea of telling business executives things they don’t want to hear. CIOs don’t like to be perceived as Scott Adam’s Dilbert character “Mordac the preventer of information services.” Or put another way, CIO’s don’t want to be perceived as naysayers.

In retrospect, I believe I should have used a different approach to educate our CEO. While we had discussed architecture and system changes in the context of our steering committee, I am not sure the business executives fully understood it. A one-page picture showing the health and dependencies of the major systems as an anchor point would have been smart. When faced with complexity, a CIO must find ways to simplify and compartmentalize to facilitate understanding.

Let’s take one final example. One of my former companies was in the process of opening new stores in a foreign country. As our IT group worked with the business, we uncovered some interesting facts. The stores were being built assuming a cost of \$x dollars per square foot to be able to reach profitability within a set period. However, the real estate group was building the stores at a cost between one to two times higher than the operating assumption. As we talked more with real estate, we discovered that in our thousands of stores, we had never built one to the operating assumption needed to reach the operating group’s articulated profitability goals. This information forced the operating group to seek new revenue options, such as e-commerce, to make up the shortfall. The only issue was the company had stated e-commerce was off the table in the short-term. Talk about putting IT in an awkward position!

A senior IT leader stepped in to bring together the members of the operating group and real estate to facilitate alignment of performance metrics and refine the go-forward operating assumptions.

As these stories illustrate, the goals of the business are not always well articulated, well understood, well integrated, or well timed. When this occurs obtaining the desired alignment is elusive at best. But let's not entirely rely on stories.

We have facts showing the elusiveness of alignment. The Planview *Project and Portfolio Management Landscape* report for 2017 notes 59% of surveyed organizations have a transformation initiative in place. In the same vein, 55% of these same companies reported their projects and resources are not well aligned to business goals (Planview, 2017).

When IT and the business are not aligned, it makes everyone feel they are on different teams. Have you ever heard some of the following comments?

- “Everything in IT takes too long and cost too much.”
- “We could build it if they could just say what it is they want.”
- “We could do this if we just had the systems in place.”
- “They just don't understand how complex this is.”

Yes, the old “us versus them” is still alive and well in companies today. Now take these stories and the lack of alignment and apply it to our definition of digital transformation. Do you think you can be successful in changing company culture, developing extensible technology platforms, implementing new business models, and making significant changes in business processes and roles when we can't agree on the goals? The answer is obviously no.

Transformation requires everyone to be on the same page. It requires each group to understand their role and how it impacts others. But, more importantly, it needs the proper context set at the top of the organization to be successful. Transformation is not a grassroots occurrence. It changes organization culture, and culture change requires enterprise-wide focus.

Think about what a change in culture will likely require. Some potential change elements would be the mission statement, company values, business models, hiring, on-boarding, incentive compensation, performance metrics/reviews, and workflow processes.

We also must be clear as to why we want to transform and who/what is driving it. Sources of change can be internally driven (current processes are not cost or time effective) or emanate from external sources. The most common external sources would be our customers, and our competitors. Understanding the source of the need to change helps us better articulate what we need regarding outcomes.

Also, it must be stressed; digital transformation can't succeed in silos. The interconnectivity required to build a platform for change is immense. There is no room for silos in our thinking, our communication, our models, our processes, or our technology. Everyone must be on the same team and communicate on a regular basis.

Finally, setting the tone for digital transformation includes establishing clear goals with well defined, expected outcomes. We all know the SMART principle when it comes to creating goals (specific, measurable, achievable, results-focused, and time-bound). This principle applies here as well. The one caveat is time. Transformation is a journey, not a project. As we are on the journey, we will make course corrections. Course corrections are fine. Nothing states we can't refine goals

as we go through the process. The key is to communicate, communicate, and communicate.

With all of this in mind, we need to clearly, emphatically state digital transformation is a corporate-wide initiative, sponsored from the very top of the organization with clearly defined goals and outcomes. These outcomes must be clearly and consistently communicated to manage expectations for all employees.

We have spent a good deal of time discussing the importance of getting the organization on the same page with regards to digital transformation. There is a reason for this. Enterprise alignment is the number one reason why digital transformation efforts fail in companies. In the 2017 Wipro study, 25% of executives noted lack of understanding of what digital transformation actually means as an obstacle to success. In the same study, 35% of executives noted lack of a clear transformation strategy as a critical barrier to success (Wipro Digital, 2017).

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Effective communication is essential to the success of digital transformation. Transformation communication must describe the desired end-state, the impact to the organization, frequency of communication updates, and the role associates will play. Effective communication will make digital transformation a widely discussed topic in the halls and meeting rooms of your organization.

Let's assume that you succeed in appropriately setting the table. You have a clear vision for what you want to accomplish with digital transformation. You have established clear goals and timelines. You have leaders in the organization all on the same page and ready to go. What's next?

The simple answer is to find a way to keep it that way. That is where governance becomes critical in your journey.

3.2 The Role of Governance in Alignment

"Governance," like "alignment" is another one of those words often bantered about in senior executive circles but is often misunderstood. Quite simply, governance defines "how" you will proceed on your journey. It defines the rules you will follow.

A sound definition of corporate governance is found on the website businessdictionary.com. It states that governance is "a framework of rules and practices ... to ensure accountability, fairness, and transparency ... to all stakeholders" (Corporate Governance, 2017).

A good governance structure for digital transformation will consist of a few elements. First, it needs a strong central group that makes decisions that may not be

possible at lower levels of the organization. Call it a “Steering Committee,” “Transformation Oversight Board,” or whatever name fits your needs. However, the composition must, at a minimum, include the following key decision makers: Company head (CEO, Chairman, etc.), head of operations, head of HR, head of Finance, head of corporate communications, and head of technology.

The role of this group is threefold. First, it should approve and drive all communications about the transformation effort to the rest of the organization. Second, it is the final arbitrator in the decision-making process. Thirdly, it owns the prioritization process for the transformation effort.

I have watched the manifestation of “steering committees” throughout my career. Admittedly, it is difficult for a business executive, who is not technically savvy and who is not interested in technology projects, to sit through the three-to-four hour-long meetings and enjoy it. However, it is crucial to have the direction of transformation efforts driven by the business.

I recall the technology steering committee in one of my previous companies well. It was comprised of the CEO/Chairman and his direct reports. I chaired this committee as CIO. We met on a quarterly basis for anywhere from two to four hours. We would cover millions of dollars of technology efforts and ask the group for concurrence on prioritization and investment. Sounds perfect, right? Unfortunately, it is hard for me to recall a single meeting where someone didn’t walk up afterward and say, “Good meeting, but can’t we find a way to shorten this?”

My lessons learned from this process were (1) you must find a way to keep the details to the minimum needed to facilitate decision making, (2) certain decisions are better made at a lower (sub-committee) level, (3) certain personalities just aren’t good steering committee members.

There should be a clear leader(s) at the top of the transformation steering committee. Ideally, there would be a single leader, the CEO/Chairman. However, in some cases, this isn’t possible due to time constraints. If the company has anointed someone as a “Chief Digital Officer” (we will talk more about this role in Chap. 5), this would be a natural leader for the committee. Otherwise, leadership will likely be either a senior business executive, the leader of the technology function, or both.

After forming the leadership of the transformation effort, the leadership must clearly communicate goals and objectives to the balance of the organization. The transformation committee should control the frequency and depth of communications. The communications should provide information in a manner that makes it “real” to the recipient. In some cases, this may require more extensive thought, especially when a company spans multiple countries and cultures. The communication should also act as a “call to action” and encourage participation at all levels.

There may be other committees formed based on the size and scope of the effort. The roles and responsibilities of these committees must be explicitly clear. The same holds true for the employees and contractors participating in the projects to enable the transformation. Role clarity drives accountability. No transformation effort will be successful without strong accountability across the participants.

Governance should also tackle changes and adjustments. The process to request or make a change to the effort should be well understood. Acceptance and exception processes should also be well documented and available to all participants.

At this juncture, we should have a transformation vision, complete with specific goals and objectives. We should have a governance structure and defined processes, roles, and responsibilities. What's next?

3.3 Fundamentals of Funding

Funding. Not to be a Debbie Downer, but funding the effort is not one of those things that anyone ever seems to be excited about doing. Why is that? Part of the reason stems from having to build business cases with less than perfect (or even adequate) information. Part of it stems from a project-oriented process for funding that is pervasive in many companies today.

IT organizations are routinely asked to estimate resources and costs without fully understanding what the business needs. Often you may have only a meeting or two with the business on a particular technology need before you hear “how much do you think this will cost, and how long will it take.”

Think about applying this same concept to more physical engineering requests. For example, if you went to a builder and asked them to give you a quote on building a 5000 square foot house, what do you think they would do? Understandably, they would ask a number of questions around the location of the structure, the preferred materials, the level of finish, the timeline, etc. to give a very high level “cost per foot” estimate. However, the builder would not commit to the cost of the house until they have a full blueprint.

This same concept holds true for technology efforts. IT groups can ask questions on the relative scope of the efforts and try to come up with ballpark estimates. But without going through the design processes, they will find it nearly impossible to provide a solid, reliable estimate.

Perhaps a better way to look at funding efforts, especially transformation journeys, is through tranches. Tranche is a French word meaning: slice, section, series, or portion. Tranches are commonly used in finance as a means to separate investments into a series, grouped by risks, maturities, and rewards.

Applying this concept to technology efforts works well, especially in those cases where the journey is not well known. This approach also works well with the use of Agile or “story-based” methods that group work efforts based on the delivery of business capabilities.

Essentially, tranches are created based on the groupings of capabilities and related benefits. See the example of a tranche below (Fig. 3.1).

In this case, we create a tranche for the first three sprints of an Order Management Automation Program. These three sprints had an estimated cost of \$750,000 and were targeted to develop five key outcomes. Notice we still have estimates for the entire initiative (Digital Transformation) and our Order Management Automation

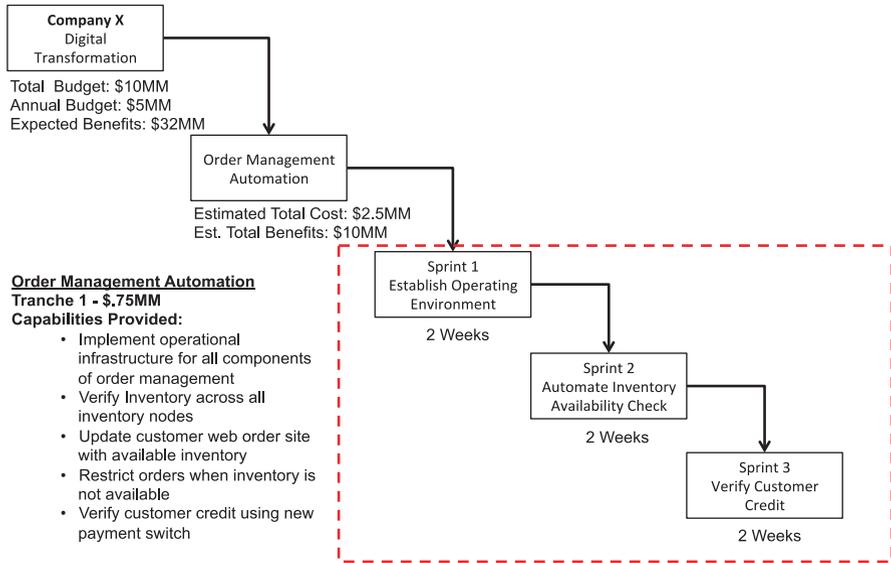


Fig. 3.1 Financial tranche example

Program. We need these high-level estimates for annual operating budgets. But we execute using the tranches. In the example, the team would request funding for Tranche One. At the end of Tranche One, we will evaluate the team against the expected outcomes. If the team remains on track, they would receive the second Tranche and would continue in this manner until completing the project. If Tranche One were off track, the team would have to develop new plans to deliver the capabilities and perhaps even rebase-line the total cost of the program.

By using tranches we keep funding to more discernible chunks of scope, we reduce the threat of scope creep, and we make the team accountable to show the progress we expect in a shorter time horizon. As the example shows, we captured the expected value at a higher level than the individual tranche. As we become more adept at understanding the elements of scope and value we should link the incremental value created to each tranche.

For more technical readers, this concept is very similar to the Agile Release Train (ART) defined within the Scaled Agile Framework (SAFe). In the Agile Release Train, a group of agile teams delivers incremental value through a continuous set of releases, with funding flowing with the delivery of new capabilities.

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A well-structured governance model for digital transformation will clearly define roles, responsibilities, authorization, approval, and funding processes. Lack of clarity in governance will add complexity, cost, and time to all of the components of the transformation.

3.4 Aligned, Governed, Funded and Ready to Go

Now would probably be a good time to recap. First, we must be on the same page regarding strategy, vision, expectations, timelines, and level of commitment. Second, we must have a governance model that ensures the aligned message is delivered and executed as envisioned. And finally, we need to think about finances differently and build a structure that enables agility and accountability.

These items are the prerequisites to begin a digital transformation journey. Absent these essential items no digital transformation effort will be successful. As an organization progresses through these processes, executive leadership and the board of directors will need to be involved. We can now move to the next chapter in our journey as we cover the board of director's role in enabling transformation.

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Chapter 4

A Bored Board?



Abstract For publically traded companies, the board of directors plays an important role in establishing the tone and vision for all major business initiatives. Stone examines the traditional composition of the board of directors for corporations and highlights the skill gaps that hinder the board’s efforts to positively impact digital technologies. Stone explains why the board composition must change to incorporate new technical competencies to enable better support and sponsorship for digital transformation. He provides insights into alternatives for establishing the level of technical competence needed by boards to play a critical role in enterprise digital initiatives.

4.1 The Board and Technology: An Uncomfortable Pairing

I still recall my first time going in front of a board of directors. To say I was nervous would be an understatement. I was among a group of three IT vice-presidents given the “opportunity” to present our Y2K (Year 2000) plans to our board. We built our respective parts of the presentation and rehearsed multiple times before going into the board. We wanted to explain all the steps we were taking to ensure continuity in operations as we approached January 1, 2000. We specifically tried to eliminate technical jargon and focus on the business outcomes we were working to achieve.

We were the second group after an opening executive session to present to the board. We were given 15 min to explain what we were doing for Y2K. We broke the presentation down into applications, operations, and continuity (risk mitigation). I had the operations section. By the time I stepped in front of the board two members were beginning to nod off. By the time we had completed (in roughly 12 min), three board members were completely asleep. One board member even snored a bit. We replied to the one question we received and left the meeting.

I still laugh when I think about that meeting. At the time, no one knew what Y2K would mean in terms of business disruption. IT was center stage and was being tasked to keep all the company systems up and running. In other words, it was a pretty big deal. And we couldn’t keep 25% of the board members awake to gain an understanding of what we were doing.

That was more than 18 years ago. Things have changed, right? Well, paint me skeptical. I reviewed the board composition of the largest 50 companies (excluding technology and telecommunications) in the United States (US). Of those 50 companies, 25 of the boards have zero technology experience. The other 25 have roughly 29 board members with some technical background. I admittedly was generous in getting to this number as in some cases the board member may have simply been CEO of a technology-focused company.

Let's think about this for a moment. Less than 5% of board members in the top 50 companies in the US have a background in technology.

How do we balance this statistic against quotes from recent CEO surveys? The KPMG CEO Outlook for 2016 stated: "CEOs believe technological change will be one of the biggest factors impacting growth over the next three years, second only to economic factors." In the same survey, KPMG noted: "two-thirds of chief executive officers (CEOs) believe that the next three years will be more critical than the last 50 years. The forces creating this inflection point will be rapidly evolving technology and the speed of transformation it unleashes" (KPMG International, 2016).

OK, so it was just one survey, right? Hmm, how about the Gartner 2016 CEO and Senior Business Executive Survey that "shows half of CEOs expect their industries to be substantially or unrecognizably transformed by digital"? Or maybe we should look at the Blog.Datis top five CEO priorities for 2017 that states "Unfortunately, while 90% of business leaders expect their industries to be disrupted by digital trends, only 44% think their businesses are adequately prepared for the changes ahead" (Raskino, 2016).

There are many, many more examples of CEO surveys that put the crosshairs on technology and digital transformation. Nonetheless, the boards of most companies are ill-equipped to provide any semblance of guidance or advice on the topic of technology.

4.2 Board Composition in the US

In fact, let's dig a bit deeper into the board composition of the top 50 largest companies for just a moment. There are no surprises that former CEOs and CFOs dominate the majority of board positions. However, there are more board members from academia than from technology in these large companies. Consider the pace of technology innovation has been rapidly escalating over the past decade. With this in mind, it is still amazing that the average board member in the top 50 companies in the US (excluding technology and telecommunications) is nearly 63 years old. In fact, there are more than 2½ times more board members over the age of 70 than there are board members under the age of 50 in these large companies.

I do not mean to infer the older board members are not providing value. Many of these board members are stalwarts of their respective industries and deliver tremendous value. However, most of these board members served in industry when

technology was considered to only be support for back-office functions and transactional processing.

The role of technology in the modern enterprise has changed dramatically in the past five years alone. The rapid evolution of technology has resulted in a major void for most boards. A quick inspection of the boards of the Top 50 US-based companies reveals a dearth of members with relevant experience to help shape vision and direction regarding digital technologies and digital transformation. Suffice to say, the pace of adoption of digital technologies has caught many boards off guard.

Lack of technology leadership is not limited to the largest company boards. It is widespread across all publically traded companies. Survey respondents to the *2018 Retail Digital Adoption Survey* indicated that only 6% of their board members had technical knowledge. However, the overall 6% is somewhat misleading. Ten percent of the board members of organizations categorized as Digital Leaders possessed technical knowledge. This contrasts sharply with the 3% of other survey respondents (Stone, 2018).

The boards of the Digital Leaders were much more active in establishing the digital direction for the enterprise. Eighty percent of the Digital Leader Boards had conducted special meetings on the topic of digital technologies compared to only 33% of the boards for peer organizations (Stone, 2018).

The board dilemma is not limited to the retail sector. In its excellent document, *Bridging the technology gap in financial services boardrooms*, Accenture highlights the challenges the board of directors faces in the financial services sector. In this document, Accenture notes the “financial services industry has long been the biggest spender on IT... spending more than \$360 billion worldwide in 2016.” As Accenture later notes, less than 6% of the large bank boards have any technical knowledge. Accenture also notes: “Digital has changed that. Technology has become an intrinsic part of the business strategy at financial services firms. Digital not only means new banking channels, it also offers a unique opportunity for banks to drive growth and profitability.” The document goes on to quote Urs Rohner, the Chairman of the Board of Directors at Credit Suisse as “Technology competence on Board level is not only a necessity, it will soon become indispensable for financial institutions” (Lumb, 2016).

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Digital transformation represents a major organizational initiative. As such, the board of directors must provide active support and guidance. Providing active support requires the board to develop technical competencies. In short, technical knowledge on a board is no longer optional

You may be asking by now, “why is the board composition important? Can’t we be successful with the board operating as it always has?” The short answer is “not likely.” Consider the role of the board of directors in a publically traded company. First and foremost, it exists to select and oversee the chief executive that runs the

company on a day-to-day basis. The board mandate often includes oversight of the management team reporting to the chief executive. The board serves the shareholders and should ensure the overall strategy and direction of the business meets the demands of the shareholders. The board often operates three primary committees to accomplish their shareholder directive. These committees and their high-level responsibilities include:

- Corporate Governance & Nomination—assist in the board composition, nomination, selection, and orientation of new board members
- Compensation—approve compensation plans for corporate executives and directors
- Audit—oversight of financial reporting, internal controls, risk management, and internal/external audit

4.3 Why the Board Is Important to Digital Transformation

Let's apply a bit of logic to this equation. CEOs are saying one of their top priorities for the next few years is digital transformation. They are saying this transformation can “substantially” change their business. We also know cybersecurity is at or near the top of almost every board audit committee. Given this, wouldn't it make sense for boards to have more than 5% representation of people knowledgeable of the subject matter?

In fact, many boards augment their lack of knowledge by using third parties to perform periodic audits and studies to determine the soundness of strategy or operational discipline (specifically in cybersecurity). Maybe we can live with that? But, if there isn't a knowledgeable person on the board, how do they fully understand the relevance (and risk) of the information presented by the third-party consultants? In short, in most public companies, the board nominating and selection process isn't working as it pertains to positioning the board to lead a digital agenda.

Let's illustrate another problem with the operation of the board through a story. My IT organization had dealt with a difficult cybersecurity issue. While the company's customers were not impacted, it was a scary moment for management and the board. Understandably, we were asked to discuss this with the audit committee. The issue was complex. The defenses the company had deployed to stop the attack were new, and many of the processes were in their infancy. We were pleased the new solutions and processes had, for the most part, operated as expected. However, some items didn't work as desired and needed further explanation. We were given a 30-min time slot on the audit committee agenda to cover the issue. Fair enough we thought. We defined the threat, outlined our defenses that worked, ones that didn't, what mitigating controls operated successfully, and what we believed we needed to do to improve our defenses for the future.

Two days before the Audit Committee meeting we were asked to reduce our time to 20 min. Once in the session, as we went through the slides, we were encour-

aged to go faster. We finished in roughly 15 min. By the end of the meeting, the head of the Audit committee essentially cut off the conversation to move to the next agenda item.

Absent an expert (which this particular audit committee did not possess) it is impossible to digest the complexity of such an incident and adequately assess the risk to the company in 15 min. From the IT side of the table, it felt very much like a “checked that off the list” agenda item.

We’ve established there are relatively few technology experts on boards today. The previous story illustrates most boards have packed agendas and don’t have time to spend to understand the nuisances and risks associated with digital technology.

Now, let’s compound the problem even further. According to the 2016 Harvey Nash/KPMG CIO survey, only 34% of CIOs report to the CEO. KPMG noted in the survey report that “CIOs are no longer focused solely on delivering the right technology to enable the enterprise, rather they are now the key agent of change for moving enterprise strategy forward” (Harvey Nash/KPMG, 2016).

We will discuss the CIO role in the next chapter. But consider that the 66% of CIOs not reporting to the CEO are often not included in regular board meetings.

So now we have a board with few or no technology experts, compressed time to cover technology issues, and the person responsible for technology in the company not present in board meetings. Given all of this, how does a board properly carry out its mission?

The answer is simple; they can’t. Either the surveys are wrong, and digital transformation is not a top priority for CEOs or the boards for most of these companies are not properly positioned to help.

I would like to think the surveys represent reality in the minds of the CEOs. They see the need to apply digital technologies to their businesses to drive new growth opportunities and better leverage costs. Given that, we would conclude, for the most part, boards are genuinely struggling with this topic.

Please note I did say “most.” Some boards are doing it right. Of the top 50 US companies, five boards had two technology experts in their membership (none had three or more). Not surprising, these boards had a lower average age (60 years versus 63), as their technology representatives were typically a bit younger. Technology comprised, on average, 15% of these boards. In talking with some members of the IT staff in these companies, it was not surprising to see increased direct dialog between the board and the IT leadership team. The annual reports from these companies are sprinkled with references to their transformation efforts such as “transforming personal mobility,” “interconnected experience,” “digital customer experience,” and “speed.”

Deloitte states in their 2017 article, *Bridging the boardroom’s technology gap*, “The percentage of public companies that have appointed technology-focused board members has grown over the last six years from 10 percent to 17 percent. However, this figure almost doubles (32 percent) for high performers—companies that outperformed the Standard & Poor’s 500 Index (S&P 500) by 10 percent or more for the past three years.” In other words, while having a technology-focused board leader may not be the only reason for this level of performance, it is obvious these high performing companies are in touch with their customers and are taking advantage of

their opportunities. Despite overwhelming evidence that necessitates changes in board competencies, Deloitte noted only 3% of public companies appointed a technologist to newly opened board seats in 2016 (Kark, 2017).

Collectively, many organizations and industries are just beginning to start their journey through digital transformation. These organizations need to search for ways to emulate what the aforementioned high-performing companies are doing. It doesn't necessarily have to be changing their board composition (though I would argue this is likely the best solution for the long-term viability of the board). The use of third parties to educate or inform the board could help jump-start digital initiatives and allow the board to take a more active role in helping shape the vision for their respective companies.

Of course, the board could completely delegate the responsibility for technology to company management. While plausible, it would put the board in a position where it is overly reliant on management's opinion and has no real way to provide effective oversight.

Unfortunately, most boards have been slow to react to this new need for digital competencies. In a recent survey by Russell Reynolds Associates, 63% of business executives say that partnership with the board is critical to the success of their digital transformation efforts. However, the same survey shows that only 27% of boards are proving advocacy for transformation efforts (Rickards et al. 2017).

4.4 The Role of the Board in Establishing the Transformation Message

Annually, and sometimes more than annually, the board will review corporate strategy and provide recommendations and guidance on where the strategy could be improved. Having witnessed this process on many occasions, it can prove to be an uncomfortable time for any member of executive management that is not well prepared. The board can probe very deeply into assumptions, projections, plans, and assignments. The board's goal is to ensure management considers all of the potential consequences of its planned actions. Sometimes this is an iterative process, as management needs to do further research to provide information requested by the board.

In the end, the board and management reach agreement on the strategy for the business and set the wheels in motion for execution.

When an organization undertakes a digital transformation effort, the board will play an important role in reviewing the impact of proposed digital technologies in driving business outcomes. As we discussed earlier, digital transformation requires cultural change. Organizations are placing large bets on the benefits of digital transformation. In some cases, the organization's very existence may be at stake. These are clearly issues that require a board mandate.

Specifically, the board will be asked to review and advocate for the digital strategy, ensure the organization is providing the right level of resources to the effort, evaluate operational risks, and drive an innovative spirit within management.

Once the transformation journey begins, the board still has many important roles to play through its normal committee processes. For example, the Audit Committee will likely request periodic updates, specifically on the risk profiles of the transformation effort. An Audit Committee lacking an understanding of digital transformation (people, process, and technology) can potentially inhibit efforts and derail innovation in the organization.

The Compensation Committee will likely be asked to review new roles and salary structures resulting from digital transformation efforts. The Compensation Committee will need to develop a keen understanding of the impact digital is having on the talent marketplace to carry out its mission effectively.

Finally, the Corporate Governance and Nominating Committee will play a critical role in ensuring the appropriate level of technical knowledge exists on the board to allow it to carry out its mission.

4.5 Building Technology Knowledge on the Board

Ultimately, if the board decides to add technology representation, it is essential to find the right candidate(s). They need candidates who can bring the right mix of technical expertise and business to the table. In other words, they need to find people who can contribute to all aspects of the boardroom decision-making process, not just a “one trick pony.”

Board nominating committees would be wise to leverage knowledgeable third-party groups to help determine the right type of expertise needed to augment their existing board members. Boards typically look for one of three types of technology profiles when they seek to add digital/technology expertise.

Technology industry executives are those leaders who have held executive-level roles in the technology (hardware, software, services) sector and understand how a broad set of organizations use technology to solve problems.

Technology entrepreneurs and founders are those leaders who have successfully started one or more ventures. The status quo seldom encumbers these leaders as they look for innovative ways to leverage technology to solve business problems.

Former or active technology executives from industry (generally CIO or CTO) are usually well grounded in the challenges faced by organizations and can offer sage advice on how to best leverage existing organization technology resources.

There are positives and potential blind spots in each of these profiles as defined in the table below. The items in this table are not absolutes but are generalizations of the different backgrounds (Table 4.1). As the old adage goes “your mileage may vary.”

Through collaboration with management, the board nominating committee should select the best profile fit before starting the search process for prospective new members.

Regardless of the profile, the candidate should have at least some relevant experience in your organization’s industry. This experience allows them to easily participate

Table 4.1 Candidate board member profiles

Profile type	Strengths	Potential blind spots
Technology industry executive	<ul style="list-style-type: none"> • Well-rounded understanding of opportunities provided by technology • Industry trends and contacts (who to talk to) • Strong business acumen 	<ul style="list-style-type: none"> • Lack of knowledge of challenges facing internal IT • Breadth or depth of technical expertise
Technology entrepreneur or founder	<ul style="list-style-type: none"> • Idea generator, innovative • Questions status quo • Assertive, not afraid to “push the envelope” 	<ul style="list-style-type: none"> • Ability to contribute across all board topics • Lack of knowledge of challenges facing internal IT • Rules, processes, norms
Former or active CIO, CTO	<ul style="list-style-type: none"> • Understands challenges of working from the inside • Awareness of industry regulations & compliance • Application of technology in a business setting 	<ul style="list-style-type: none"> • Generally more conservative • Creativity • Ability to contribute across all board topics

in the broader board discussions and form a basis for recommendations for potential technological applications. It is also vital for the board to foster a relationship with the leading technology executive in the company. Audit committee meetings do not suffice. If a company is serious about digital transformation, it is imperative the board has a method to touch base with technology leadership on a regular basis.

Having discussed the board’s role we are ready for the next major step in ensuring digital transformation success: having the right leadership in the technology organization.

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Chapter 5

Alphabet Soup



Abstract The role of the technology leader in organizations is rapidly evolving. Stone covers the emergence of new technology roles in organization such as the Chief Digital Officer, Chief Data Officer, and Chief Innovation Officer among others and how these roles should mesh with the current IT structure. He discusses the pitfalls of fractured leadership in technology and the need to build the right organizational structure to enable success. Stone provides insights from previous large transformation efforts and the importance of choosing the right leadership and structure to enable success.

5.1 Background on the Role of the CIO

In the mid-to-late 1960s a new title began to appear in the largest companies in the United States: Chief Executive Officer. Before this title began to emerge, the top title in companies was normally President or Chairman. By 1975, most of the largest US companies had adopted the Chief Executive Officer (CEO) title and with it, launched what is now known as the “C Suite.” The C Suite is the collection of the top executives (often all identified as a “Chief” of some discipline) in a company.

The second major C Suite title to emerge was the Chief Financial Officer (CFO). The CFO title emerged in the early 1970s and grew rapidly in popularity in the late 1970s.

The other common C Suite titles emerged later including Chief Operations Officer (COO), Chief Marketing Officer (CMO), Chief Compliance Officer (CCO), and Chief Human Resources Officer (CHRO).

The leading role in technology emerged in the early 1980s as the Chief Information Officer (CIO). The CIO role has become synonymous with the leadership of company’s technology organization.

The CIO role requires a unique blend of technology and business skills. A good CIO understands the intersection point of the business strategy with that of technology. As such, it is virtually impossible for a CIO to be successful without being very knowledgeable of the business direction (or vision).

Conversely, the CIO must be well versed in technology trends and their relevance to their company's business. Using this combined knowledge, a good CIO can direct efforts to enable business capabilities through the appropriate application of technology.

A good CIO must understand the operational needs of the company and ensure the technology organization meets or exceeds those needs 365 days a year. The CIO ensures the company's digital assets are secure, which is a growing concern given the current environment of sophisticated cyber crimes. The CIO must orchestrate the development, deployment, integration, and upkeep of a myriad of software and hardware solutions to drive profitable business growth.

In all, this is a complex and challenging role. The difficulty of the role is further accentuated as the pace of technology change continues to accelerate. CIOs are constantly forced to rethink what is possible and to purge themselves of biases that may have formed through their years of experience. Admittedly, this is not easy. Consequently, the tenure of a CIO is roughly 4.3 years according to a 2017 Korn Ferry Institute survey (Korn Ferry Institute, 2017).

By now you may be thinking, well this is all good, but why did you call this chapter Alphabet Soup? Ah, we are getting to that.

5.2 Emerging “Chief” Technology Roles

To complicate matters further for the CIO, a number of new roles have recently emerged that blur the lines of responsibilities for technology across the organization. The table below outlines seven new “chief” roles that have emerged with some elements of technology in their duties (Table 5.1).

Hence, we have alphabet soup. Counting the CIO, there are eight prospective roles within the organization with some element of technology responsibility. While few (if any) companies will have all of these roles, most have at least one in addition to a CIO.

So, are these roles a good thing or not? Admittedly, this is a loaded question. It depends entirely on the organization's culture, how the roles are structured, and the people possessing the titles. However, I must confess, after more than 34 years in industry roles, I have first-hand experience in a phenomenon I call “Title-itis.” No, this isn't the golf ball (Titleist). It is something that commonly happens when you give a person an elevated title. My theory of Title-itis states the higher a role within the organization the more that person will work to justify their importance (and the importance of the role). Often, Title-itis leads to bold, unattainable proclamations, silo thinking, and lack of collaboration.

Remember earlier we noted only 34% of CIOs report to the CEO. Can you imagine eight “chiefs” with some form of technology reporting to different functions within the organization? Now can you imagine how this would work effectively?

We don't see other functions inside organizations going through this level of churn today. These roles evolved to meet perceived needs of the organization. When

Table 5.1 Technology C-level titles

Role	Primary focus	Commonly reports to
Chief technology officer (CTO)	<ul style="list-style-type: none"> • Technology direction (R&D) • Commercialization of technology 	CIO CEO
Chief digital officer (CDO)	<ul style="list-style-type: none"> • Drive the adoption of digital technologies across the business • Digital transformation 	CEO CMO CIO
Chief data officer (CDO)	<ul style="list-style-type: none"> • Enterprise data management, strategy, governance, control, policy, and exploitation 	CEO CIO CRO (Risk) COO
Chief data science officer (CDSO)	<ul style="list-style-type: none"> • Data exploration (patterns and trends in structured and unstructured data) • Predictive modeling and data-focused R&D (such as AI) 	CFO CMO CIO CEO
Chief analytics officer (CAO)	<ul style="list-style-type: none"> • Driving enterprise insights through data-focused analysis • Promoting a data-driven culture 	CEO CFO CIO
Chief information security officer (CISO)	<ul style="list-style-type: none"> • Development and implementation of an enterprise data security program to protect corporate assets 	CIO CRO CEO
Chief innovation officer (CINO)	<ul style="list-style-type: none"> • Management and oversight of the Innovation and change management processes for the enterprise 	CEO COO

the roles are created the organization believes there is a need for a senior executive to focus on the particular subject matter. However, creating and filling these roles is only part of the solution. Defining the structure of the organization and the governance of enterprise technology (inclusive of all of the new “chief” titles) is tantamount to success. Make no mistake about it; this is not easy. Which begs the question: why are these roles emerging?”

The first of the titles to emerge was the Chief Technology Officer (CTO). This title grew out of the original technology “labs” and gained popularity in the late 1990s during the dot-com boom period. Many technology companies use a CTO as the person responsible for technologies to be consumed by its customers (external focus), while the CIO is responsible for internally focused solutions. In some cases the CTO title is used to represent the most senior technology executive, replacing the CIO title. And finally, in many companies, the CTO reports to the CIO, with the CIO taking on a broader strategic role and the CTO managing the engineering elements of the organization. As there is no clear-cut standard reporting relationship, the CTO and CIO roles are often confused and used in different ways across companies.

As new technologies emerged, additional roles were created to add increased focus and vision. Let’s take the example of “big data.” Big data is a term meant to describe the collection of large volumes of data used in the analysis of patterns and trends and the discovery of insights that can translate to substantial business value.

As the concept of big data evolved, the respective roles of Chief Data Officer, Chief Analytics Officer, and Chief Data Science Officer emerged. These roles are very closely related, and not even the biggest data zealot would argue that a company would need all three. Some would state a Chief Data Officer is responsible for the collection and efficient storage of data, while the Chief Analytics Officer and Chief Data Science Officers are responsible for the use of the data to drive insights. Others may argue that one of the roles would suffice and would carry with it the overall responsibility for the collection, storage, and use of enterprise data.

The final three roles emerged due to functional focus within the organization. The growing concern over cybersecurity gave rise to the Chief Information Security Officer (CISO). This role represents the importance of having a senior executive focused on the protection of the corporate digital assets. According to a 2017 report by K logix more than 50% of CISO's report to CIOs, while about 15% report to the CEO (Koegler, 2017). However, the report noted that the shift is towards more CISO's reporting to the CEO or a senior risk officer to provide a level of independence from the CIO.

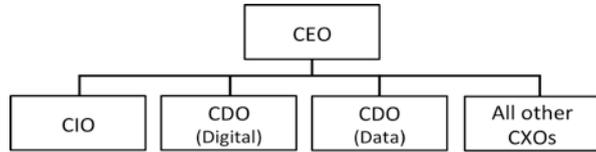
The Chief Innovation Officer (CINO) emerged as companies attempt to drive new levels of innovation in the enterprise. This title doesn't always report to the upper levels of the organization. The person responsible for driving the adoption of formalized idea generation and development capabilities across the organization is often given this title. An offshoot of this title is the Chief Technology Innovation Officer (CTIO), which focuses solely on innovation through the application of technology. While the CINO reports to different parts of the organization, the CTIO typically reports to the head of technology (CIO or CTO).

Finally, the Chief Digital Officer (CDO) has emerged as companies across all industries embark on digital transformation. Of all the roles, the Chief Digital Officer seems to have the widest degree of variability in responsibilities and reporting structure company-to-company. Only 6% of companies had a CDO position at the end of 2015 according to a PWC study. The percentage of companies with CDO's is slightly higher (5–9%) in larger companies and shrinks to 1–3% in smaller companies (Friedrich, 2015).

5.3 Fractured Technology Leadership

Now comes the part of the book where I must admit my own bias. I served as a CIO for 14 of my 34 years in the technology industry. In my first two CIO roles, I reported to the CEO of the company and attended CEO staff meetings. In my last CIO role, I did not report directly to the CEO but had regular meetings with the CEO on all things technology (and retail). My bias is not for any specific title; it is for a role within the organization with ultimate responsibility for technology. Readers need to understand this bias as it shapes my arguments for the remainder of this chapter.

Fig. 5.1 Example organization structure



As we look at the list of titles and review their focus, it is interesting to note many of the roles commonly report to either the CEO or the CIO. No other role is even close in mentions for prospective reporting relationships.

As you will recall, we discussed in Chap. 3 the concept of alignment. When you add additional structures and players to the alignment problem, it becomes increasingly difficult. Let's take the following example (Fig. 5.1).

In the structure shown in Fig. 5.1, the Chief Information Officer, Chief Digital Officer, and Chief Data Officer all report to the CEO. I chose this structure as it represents the conventional structure that prevails when all three of these roles exist in a large company.

Using this structure, let's create a scenario where the CIO and the two CDO's are not in agreement. The Chief Data Officer wants to leverage a set of open system tools to deliver a new set of performance dashboards to the company. The CIO is wary of the tools as they are somewhat unproven and there is no good security benchmark for the products. The CIO prefers to go with a more proven enterprise-class dashboard solution. The Chief Digital Officer disagrees with both the CIO and Chief Data Officer. The Chief Digital Officer wants to completely eliminate the dashboards by embedding artificial intelligence into the data workflow to automate decisions.

Now, assume our three senior-level executives can't reach a decision. Who breaks the deadlock? The CEO or a committee appointed by the CEO would have to step in and try to decipher the technical/business merits of the issue. While this may sound a little far-fetched, I have supreme confidence there would ultimately be issues that could not be resolved by the three technical executives requiring a tiebreaker.

We trust a CFO to make the final recommendations on financial topics, we trust CMO's to make final recommendations on promotions and marketing plans, we trust our General Counsel to make the final recommendation on legal issues, and we trust our COOs to make final recommendations on critical operational decisions. In other words, we defined clear lines of decision-making based on functional expertise. However, The finer the line is drawn in defining functional expertise, the more likely there will be confusion over roles and responsibilities. Confusion can lead to emergence of fiefdoms and silos.

The purpose of this chapter isn't to disparage emerging titles, but to cast the light on the fact that structure plays a vital role in digital transformation. As we stated earlier, having an aligned view of transformation is the most significant critical success factor. Alignment is enabled and bolstered by the structure.

In Altimeter’s 2017 State of Digital Transformation, the digital transformation ownership was primarily with the CIO or CTO (28%), followed by the CMO at 23%, the CEO at 20%, and the Chief Digital Officer at 13%. Interestingly, this study noted that this was a shift from prior studies where the CMO had a much more substantial leadership role. Altimeter theorized the shift towards the CIO and CTO could be due to the maturing of digital transformation efforts that ultimately results in technologies to be managed by the IT organization. This belief is further supported by the survey results showing the IT department was leading digital transformation efforts in 33.7% of cases, ahead of marketing at 30.1%. No other department surpassed 14% in the survey (Solis, 2017).

5.4 Leadership in Transformation

What we learn from the Altimeter survey has been observed before in many companies. A transformational effort latent in technology often begins in a business unit, but as the project progresses responsibility inevitably shifts back to IT.

Let’s use a story to help illustrate this phenomenon. I was CIO at a large retailer. Our company was at an inflection point following the economic downturn in 2008. They decided a major transformational effort was needed. Several large “think tank” consultancies were brought in along with a consultancy known for its prowess in helping companies through transformation efforts. Journey maps were drawn in a multitude of meetings to illustrate the new “envisioned future” and to identify potential obstacles along the way. Interestingly, as the journey maps were drawn, technology capabilities, or more appropriately, lack of technology capabilities were identified as obstacles.

Sometimes we can identify the first sign of trouble in an effort merely by understanding the context in which the opportunity is presented. At the time of this work effort, our company was approximately six years into an IT portfolio governance process that placed the responsibility for what programs and projects to pursue in the hands of a technology steering committee. The CIO (me) chaired the technology steering committee. The membership included the CEO and his direct reports. In other words, the senior leadership of the company had sole authority in the prioritization and funding of all technology efforts. In the six years of this process, the IT organization had completed over 300 major technology initiatives, while dramatically improving on-time delivery.

Therefore, I was somewhat surprised that as our senior leadership team drew journey maps we classified technology capabilities as “obstacles” as opposed to “opportunities.” I understand it is purely semantics. However, that fine line of distinction immediately cast the IT organization as an impediment to growth.

As the transformation effort began to evolve, an extensive initiative formed. I volunteered to step away from my CIO role and lead the overall initiative. However, our CEO wanted the effort to be led by a non-technical leader.

The business selected a senior vice president from one of the company's operational units to oversee the effort. We worked with the selected executive to verify and refine the scope of the overall effort.

The senior business leader for the initiative quickly assembled a group of business leaders to help oversee the effort. This included the creation of a senior management role to oversee the day-to-day activities of the effort. A member of the corporate strategy function was selected to fill this role. The business team drafted a high-level business case for the initiative enumerating the potential to add billions to the bottom line of the company.

The business case definition was my second warning sign. By establishing the business case at the initiative level, each program defined under the initiative did not have to stand the scrutiny of value. As such, we quickly began to see the corporate version of "pork barrel" spending evolve. As the business case was expansive and was already "baked in" at the highest level, soon every group was throwing their "pet" projects into the effort. The business team was quick to accept these efforts and continued to expand the overall scope of the effort. Consequently, the price tag quickly rose into the hundreds of millions of dollars.

I approached the CEO on multiple occasions and expressed my concerns that scope continued to expand, and much of the new scope did nothing to achieve or augment the original business case. While we had an open dialog, the CEO chose to continue with the path chartered by the business leader.

The proposed technology efforts crossed every major retail business process in the company. Having been with the company for over 18 years at the time, I had a solid understanding of how much change the organization could absorb. I felt the proposed effort was well beyond what the business could absorb in the defined implementation timeline.

The final straw for me in this puzzle came in a meeting regarding store technology. There were several disparate systems in the store that were used to build and process orders for customized products or products not available in the store's inventory. We were presented with a couple of options. One would be to enable these systems to work with a new order management backbone, the other to eliminate these systems and replace them with a single, unified interface.

It is an odd position for the CIO to argue against technology projects, but that was the case in this instance. The initiative level business case was predicated on improving the overall close rate for customers who visited our stores and better execution of complex orders. The disparate systems, while not optimal, were well known by the store associates and worked adequately. The cost to connect them to the backbone was small in relation to replacement and would allow the company to begin achieving the business case in much quicker order (less than a year versus multiple years).

It seemed like an easy decision. Connect the systems and look to replace the older systems in a future wave of work. The senior business leader was adamant the systems needed replacing, and without doing so, we would not achieve the desired business results. I argued, to the contrary, that we would be placing the business value at risk for functionality that would add only marginal value at best.

For those of you expecting a hero story, I am sorry to disappoint you. I lost the argument. The steering committee voted (with two dissenting votes) to move forward with the riskier, unified option. To this day, it is the single moment of my career that still keeps me up at night. I was convinced I was right and thought my points were relevant, valid, and succinct. But while I had the hard facts right, I failed to grasp the nuisances and politics behind the decision.

As I mentioned earlier, the perception of IT was as an “obstacle,” not an enabler. Therefore, my arguments against the business direction were perceived as being reluctant to, or opposed to change. Also, the business leader for the initiative had lobbied other members of the steering committee before the meeting spelling out why he believed his approach was the only one that would work. I went into the meeting assuming it would be an open discussion. However, in fact, the decision was already made in many of the member’s minds. Finally, as I watched the way the meeting was going, I allowed my emotions to come out. My emotion distorted the facts in my message and came across as defensive. Consequently, much of my argument fell on deaf ears.

To this day, I still feel a strong sense of responsibility for the committee’s decision. An executive can’t rely solely on facts. The art of influence is a critical capability for any executive. In this regard, I didn’t use those skills appropriately to lead the committee down what I perceived to be the correct path.

This particular decision required political finesse, and I didn’t deliver it. It required pre-meetings and lab visits to educate steering committee members. We did not conduct these meetings or visits. I was so confident in the power of the facts that I didn’t consider the softer side of influence, coaching, and education.

Finally, when I saw how the meeting was turning, I allowed my emotions to get to me. I was incredulous that the company would consider a decision that put hundreds of millions of dollars at risk and my emotions overshadowed the facts I was trying to present. It was a very tough lesson to learn, but I learned it on that day.

Shortly after this meeting the company and I decided to part ways. The last week I was in the office I spoke to the CEO again on a variety of topics. You will recall one of the topics from Chapter 3 regarding the store system. The other big topic I covered with him and the incoming CIO (appointed from the business) was the state of the large transformation initiative. My most significant concerns were the ever-expanding scope, especially on efforts not adding value, the ability of IT and the business to scale to the number of resources needed effectively, and the ability of the business to absorb the proposed level of change. The CEO and the new CIO politely listened to my concerns, but it was obvious they were going to choose a different path.

My last statement to them was one I still recall. “I have had my foot on the brake, not the gas for this effort. Much of what is coming out of the business does not add to the benefit case. If you don’t throttle some of the unneeded scope, this effort will cost more than double what you expect.”

You may be wondering how this turned out. Not good. Shortly after I left the new CIO opened the floodgates and the level of spend for external labor on the initiative skyrocketed by more than 500% per week. The company overspent the original budget for the effort by more than one billion dollars. That is not a misprint, one

billion dollars. The company never achieved the anticipated business case. The store system I argued against was never deployed chain-wide. The store system component was eventually abandoned with the cost well into the hundreds of millions of dollars.

The senior business leader for the effort, being the astute politician, moved off the initiative before the associated projects began to slide and fail. IT went through three CIOs and over 30 new IT vice presidents in the 5 years after I left. The leadership for the initiative eventually fell under IT, but by then, the damage had been done.

Recounting this story is extremely painful for me. However, I am hopeful this story illustrates some of the points we have been discussing in this chapter. First, the right leadership for a transformation effort is essential. Two, aligning the business and IT on the true drivers of business value is critical. Leaders need to understand what are “non-negotiable” requirements and which are optional. This may require joint education for all leaders. Ideally, the leadership for the transformation efforts will be educated similarly as a means to produce common grounding and alignment. Finally, if technology is central to the transformational effort, the eventual turnover to the IT for on-going support should be part of any up-front planning. This transition to IT can’t simply “happen.” The transition must be planned and executed in an orderly fashion.

Having discussed leadership, we are now ready to discuss structure. As I mentioned previously, it is highly doubtful any company would have all eight of the CXO positions that have elements of technology as part of their responsibility. However, it is highly likely a company would have 2–4 of these titles. As the previous story highlighted, alignment and directional disagreements can (and will likely) occur in any effort.

In the story, we had a single leader, a single governing organization, and a single head of IT. I.E., the structure seemed right. The core problem was overzealous expectations without understanding organizational capabilities or the inherent risks of certain types of technology. The massive cost overrun and the resulting failure to achieve the business value were not due to technology. This was a leadership failure.

5.5 Choosing the Right Leader for Technology

As I mentioned before, I am an advocate for a single technology leader within the company. It doesn’t have to be a CIO or any other specific title. I have seen organizational structures with a Chief Digital Officer leading all technology, with a CIO and CTO reporting to them. I have seen the CIO play the role of Chief Digital Officer and have a CTO, Chief Data Officer, and CISO report to them. There is a myriad of reporting relationships with a single leader at the top that can work. However, the person at the top of the technology pyramid must be part of the executive committee of the company. In other words, they should report to the CEO.

Technology is remaking companies across all industries. The Altimeter study states: “Faster and faster, all types of businesses are becoming technology companies”

(Solis, 2017). If digital transformation is a real business priority and technology is altering the landscape, the time has come for the technology leaders of companies to be at the table (if they aren't already).

Saying that, the spot at the table must be earned. If you don't have the right person at the helm of your technology function, then you need to begin recruiting.

Your technology leader should be well versed in your business and understand trends and challenges impacting your organization and your competitors. The leader should be technically broad, able to understand and speak on a variety of technical topics and their relevance to your organization. They must be curious on many levels and willing to address and shun biases as technology changes occur. The leader should be an excellent communicator, able to speak about technical problems and opportunities in a manner understandable to a layperson. The leader must be a skilled influencer with the capability to lead others to an envisioned future state.

The leader must be an excellent recruiter and developer of talent. The fight for top technical talent is becoming more pronounced and having access to this top talent is essential for success. And finally, your technology leader must be able to articulate a vision and rally a team around this vision. If your technology leader can't do these things, you probably don't have the right person in charge. Though digital transformation isn't only about technology, technology is a crucial element. Having the wrong person in the technology leadership role will significantly increase the risk of failure on your digital journey.

Deaf Diagnostic

While digital transformation is not a technology project, technology plays a significant role in its success. Having the right leader and the right structure for your technology organization are critical enablers for success. Fragmentation of technology responsibilities will make it more difficult to align and coordinate execution. The right leader for IT should earn a seat at the CEO's table.

This focus of this book is for all leaders, not just technology leaders. Business leaders must grasp the importance of their role and influence in establishing the correct organizational tone to prepare for a digital journey in the appropriate manner. These leaders must also be open to listen and to learn, as there are significant risks associated with digital adoption.

Technology leaders should understand they are under pressure to become more than just the "tech guy or gal." They must become progressive thought partners for the business. They must work tirelessly to achieve the vision of the company, but must also have the courage to speak up when things are not working.

As the earlier story illustrated, structure is not the answer by itself. Having the governance, the right structure, the right talent (be it internal or external), and an aligned vision and expectations will get you on the path to success. However, even with all of those elements in place efforts can fail.

Why do they fail? Ah, we get to discuss that in more depth in Chapter 6.

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Chapter 6

Puzzled by Projects?



Abstract At the core of digital transformation is an intertwined series of technology and business projects. Stone examines why projects fail and the steps needed to mitigate the risk of failure. He addresses the need for strong project ownership, staffing for success, selecting the right partners and solutions, and positioning each project for successful execution. Stone completes this discussion by stressing the importance of changing from traditional project mindsets to building digital platforms to enable agility and extensibility.

6.1 Why Projects Fail

You will recall I have stated that digital transformation is not a technology project. So you may be asking why I have an entire chapter dedicated to projects.

In Chap. 1, I highlighted recent studies that indicated failure rates for digital transformation were as high as 84%. A failure rate this high signifies a multi-faceted problem. We have already discussed the need for a standard definition for digital transformation, the need to align organization leadership on the goals and objectives of digital transformation, the need for guidance and support at the board level, and the need for the appropriate governance processes and structure. Anyone of these, if not adequately addressed, could derail digital transformation efforts.

However, even if we accomplish all of these items, we still need the ability to execute. Ultimately, digital transformation efforts are executed as a series of projects. The projects could exist for a variety of reasons such as technology, business process, organizational structure, training, or communications. Understanding your organization's natural tendencies and issues regarding projects is essential when undertaking an effort as complex as digital transformation.

We have all likely worked on a project that didn't go the way we expected. It doesn't have to be technology-related. It could be a home improvement project, a hobby project, a school project, or any other form of a project. When the project didn't go right, did you analyze what didn't work as expected or just accept it and move on?

Understanding why projects fail and how to prevent failure is the principal focus of this chapter. Now, before we go too far, I realize a multitude of books have been written on project management and how to execute successful projects. I am not going to try to emulate these books or prescribe a specific method to drive success. I am merely going to point out the most critical factors you need to consider when putting together complex transformational efforts and how to best position these efforts for success.

The building block for transformation efforts is the project. Projects, regardless of type, all possess the same three primary characteristics: scope, resource, and time.

In a perfect world, these are the only three variables we need to consider when planning a project. The scope defines the work to be done and the desired outcomes. Resources are the people and tools necessary to execute the project. Time is simply the time (usually a duration or a specified end date) we have to complete the project. A project plan is built factoring in each of these variables and is balanced. X amount of resources delivers the scope (desired outcome) within y amount of time.

Sounds simple, doesn't it? Nonetheless, projects fail in companies at an alarming rate. The Planview *2017 Project and Portfolio Landscape* report stated nearly 50% of survey respondents had a project fail in the prior 12 months (Planview, 2017).

According to the 2017 Pulse of the Professional report published by the Project Management Institute (PMI) project success rates were on the rise. Companies in this survey stated that 69% of projects in the past 12 months had successfully met their original business goals. This success rate was encouraging news, but a deeper dive into this excellent report showed only 57% of the projects were completed within their original budget and only 51% finished within their planned timelines. Further, the report broke the respondents down into groups on both ends of the project execution spectrum. Champions are described as those organizations completing 80% or more of their projects on time and on budget and achieving high benefits realization maturity. Champions comprised 7% of all survey respondents. The Underperformers are described as organizations with less than 60% of projects completed on time and on budget and had low benefit realization maturity. These organizations comprised 12% of all respondents (Project Management Institute (PMI), 2017).

The difference between the performances of Champions to Underperformers was dramatic. Champions completed projects on time 88% of the time versus 24% for Underperformers. Champions completed their projects on budget 90% of the time compared to just 25% for Underperformers. Most importantly, Champions met their original goals on 92% of projects compared to 33% of Underperformers (Project Management Institute (PMI), 2017).

There are many reasons behind the stark differences in project performance. We'll cover a few of them in this chapter.

For now, let's go back and use a simple example of a project you have likely done at home: putting together a piece of furniture described on the box as "some assembly required."

With three daughters through college, I have had my share of sitting down with a box of components, a cryptic set of instructions, and a set of tools to build an

assortment of desks, shelving units, entertainment centers, chairs, beds, and dressers.

I developed a process to do this. Get all the parts of the box, arrange them by type and place them around a central area where I am planning to work. I read the instructions to get the right tools in place and only then will I begin to work. I follow the instructions word-by-word and do not skip ahead. My brother observed this one time and commented, “I didn’t realize you were so anal about this stuff.” I prefer to take that as a compliment.

However, we have all seen the result when we don’t do this. We end up with gaps in components, drawers that won’t close, parts left over, busted knuckles, and a lot more time invested than we had planned.

I use this simple example to explain the most common reasons why projects tend to fail. I group these reasons into four basic categories:

- Clear understanding of the end goal
- Ownership and sponsorship
- Skills and talent
- Wrong solution, wrong partner, or both

Using our simple example of putting together a piece of furniture let’s examine some of the things that can go wrong.

You begin assembling the furniture without observing the picture on the instructions (or on the outside of the box). You don’t have a clear picture of what it will look like when completed. As a result, the pieces of the puzzle don’t make much sense to you, and you begin putting parts together that just don’t belong with one another. When you finally look at the picture, you realize your mistakes and have to disassemble and reassemble the furniture.

You read the instructions and realize it takes two people to assemble parts of the project. You don’t solicit any help, get to the part of the project requiring the assistance and have to stop until you can find another person.

The assembly of the furniture requires the use of specialty tools with which you are unfamiliar. As a result, you are using a power drill and over tighten a connection, stripping the screws and making completion of the assembly nearly impossible.

You work through the entire assembly process only to realize the table you assembled can’t support the weight of the TV you want to put on it.

These are examples of things that could go wrong with a simple home assembly project. In the worst case, a complete failure would cost you the purchase price of the furniture. More than likely if these errors occur you will work through them with a great sense of frustration costing yourself more time than you originally planned. Now imagine these same types of errors occurring on a sophisticated, multi-million dollar technology project.

Surely these basic errors don’t occur with corporate technology projects? Wrong! These are the most common problems plaguing business and technology projects alike. There are varying degrees of misses in each category, but make no mistake, almost all project failures stem from one of these four categories.

As luck (or perhaps lack of luck) would have it, I have experienced these issues at various times in my career. Each time a setback would occur my team and I would take the lessons to heart and work to improve our processes and approach to ensure we didn't encounter the same problem again. Let's cover four real-world examples of projects that didn't go as planned (one for each of the categories). At the end of each example, I will tell you what we did to correct the issue and how we tried to prevent it from happening again.

6.2 Understanding Project Goals

Often, the most fundamental concept can prove to be the most elusive. Achieving a shared, firm understanding of an effort is a prerequisite for success. However, it is often elusive. At one of my previous companies, we were working on entering a new foreign market. It was unlike any market we had entered before, and we knew our existing systems would not function in the new country.

The challenge for this effort was all in finalizing the business model. In the beginning, we wanted to own the entire process and systems. We established an architecture model and prescreened many of the applications we thought might fit our business needs. The business then decided we would use a third-party partner and leverage all of their systems and processes. Our job shifted to simply integrating the solutions. A few months later, the negotiations with the partner fell through, and the vision turned to a secondary partner who had some, but not all of the systems needed. This new model required us to understand what systems we would need to bring to the table and how we would integrate those systems with the business partner. Then, two months into this process the business decided it would go back to the original plan and own all of the systems and processes. The catch to all of this back and forth on the model was that the end date for the solution never changed. In essence, the business spent over 10 months finalizing the fundamental model to follow and then looked to IT to find a way to make the dates.

In this instance, our IT group was able to deliver. Within five months we had stood up a very vanilla version of an ERP instance in a third-party data center in the new country. We had selected and integrated a new point of sale (POS) system to the ERP and established integration to a third-party logistics provider. To achieve this outcome, we had to streamline choices and keep options to an absolute minimum. We paid more than we had initially anticipated, but it was the only way to be operational in five months.

I recall a discussion with one of our senior executives who lamented the high cost. I quoted an old IT adage in a slightly different way. "We chose to spend 10 months debating the business model. The business model was foundational for entering the country. IT could not move forward with system work without a decision on the model. As a result, we had little flexibility regarding time. I also heard, repeatedly, from the business that we needed the solution to be of high quality and handle all of the issues we would be facing in the country. That left us with cost. We

chose a single solution, a single integrator, and a single hosting provider. We just didn't have the luxury of time to send the effort out for bid. In other words, we had chosen good and fast. We could not get cheap too."

In this instance, our IT group sat down and discussed what we could have done to influence this effort to push the decision timeframe forward. In the end, we decided there was little we could do in this instance to change the decision cadence. We did determine we could use our new solution as the basis to build a more flexible/adaptable framework that could be applied to other countries when the time was right.

You will recall in Chap. 5 we discussed a major transformation project that spiraled out of control in terms of cost and time. The core issue in this effort was not technology. It was solidifying scope, agreeing on priorities, and committing resources (people and time) to the initiative elements that would bring the most value to the company. Scope creep was rampant in this effort, and much of it was not critical to delivering the core of the business case. As I was not there at the end, I am not sure what, if any, changes were made. However, I would hope the executives looked at their decision-making processes and ensured future decisions were tightly linked to the delivery of business value.

As these two stories illustrate, getting to a shared understanding of the problem or opportunity is not as easy as it might sound. We spent an entire chapter earlier talking about alignment and for good reason. Aligning all groups on a shared understanding of scope, priorities, and commitments is essential.

In the *2018 Retail Digital Adoption Survey*, 53% of those organizations that had experienced issues with their deployment of various digital technologies cited "lack of complete or well understood requirements" as the root cause (Stone, 2018).

When an organization undertakes a significant transformation effort, all other projects and requests often suffer. Delaying or canceling non-critical projects is not a bad thing. However, often the groups not getting their requests serviced will become outspoken and work behind the scenes to obtain resources (people, money) to get what they want. This behavior is counterproductive and often results in "one-off" solutions that require significant rework later. These requests also distract business and IT from their priorities. It is for this reason alignment must be across all parts of the organization, even those areas not immediately impacted. Alignment is achieved by establishing the governance rules for transformation up front across the entire organization. The message from the CEO should state the transformation is the priority and all other efforts should be de-emphasized or delayed. The Program Management Office (PMO) or other governing bodies for the effort should reinforce this during status updates to the business.

6.3 Project Sponsorship and Ownership

The next story speaks to issues with ownership and sponsorship. Executives are often quite busy. Good executives have their finger on the pulse of their function and understand the importance of changes to their supporting processes and technology.

These executives must be visible and outspoken in their support of any effort. Lacking executive support is often a recipe for lack of focus and attention from project participants.

Executives should also have a finger on the pulse of their talent. As the executive will likely not be on a project day-to-day, they need to be thoughtful about whom they appoint to represent them. The right person should be highly knowledgeable of the business function, empowered to make decisions for the project, pragmatic in their decision-making (they understand what is needed and just as importantly, what is not needed), and accessible.

We had undertaken a significant program to implement new technology and processes to support the lifecycle of private brand sourcing. The technology had been proven in a few other retailers, though none quite as large as our company. We put together a project team, and the business appointed a director to the effort to run the day-to-day activities. Project status reports showed all aspects (scope management, time, and budget) on the project on-track throughout much of the design and development phases. In fact, the effort stayed on track until we entered user acceptance testing. We sent a team to our foreign buying office to walk through the new screens and processes. As most of the technology targeted the foreign buying office, we wanted to get their buy-in and ensure they received adequate training before moving forward. To our surprise, the associates in the foreign buying office were not acutely aware of the project. When they started going through the screens, it became very apparent the new technology-enabled processes were going to add many hours (perhaps days) to the process of establishing new vendors in our system.

When our team returned, we assembled and reviewed what they had found. In essence, the initial screens had over 100 data elements to be entered to set up a new vendor, with the majority (of the elements) configured as “required.” The executive sponsor and I were both shocked. The entire focus of the project was to streamline the existing processes while adding a degree of rigor to ensure the correct information was available to all parties. It became readily apparent the first goal (streamlining) had been pushed aside in favor of a very rigid set of system-enforced rules that added significant time to all processes.

As we unearthed more details, it became apparent we had two issues on our hands. The director from the business assigned to the project was not as knowledgeable on the business processes as had been thought initially. Worse, he had not communicated with the foreign buying office to get their inputs. Thus, the business sign-off on the design of the system was virtually useless. The other big issue was the IT program manager. The IT program manager was aware the end users had not reviewed the design in detail. The program manager chose not to disclose the issues in their status reports, as they didn’t want to “call out” the business leader and move the project to an unfavorable status.

As a result, we missed the original due date by over 8 months. The first phase of the project exceeded initial cost estimates by more than 40%, and the subsequent phases of the project were canceled resulting in a loss of a good portion of the business benefit.

From the IT standpoint, we took action on the program manager and spent a substantial amount of time reiterating to our program leadership team that it was their specific responsibility to bring all issues to the surface. The business, surprisingly, left the director on the project but augmented with a vice president level to help push the effort over the finish line. In our post-mortem process, we uncovered many other items that could have alerted us earlier to the trajectory of the project and allowed us to course correct. These were communicated across the program management team and added to our quality review process.

As we discussed earlier, the right level of sponsorship and the right talent to oversee an effort is vitally important. Having the right talent is especially vital for decision-making roles on the project team. While all participants should work effectively together as a team, there must be checks-and-balances in the project governance structure to promote and support the unearthing of issues. Also, project roles and responsibilities must be clearly defined. If the project team understands what is needed and their role in delivering it, you have a significantly better chance of success.

6.4 The Right Project Talent

Of course, when we establish project roles and responsibilities, we have to find a way to fill them with the right talent. While that may sound simple, the most common problem plaguing projects is talent. Specifically, we are talking about the lack of available talent to ensure successful delivery of the project. Talent issues pop up in a variety of ways. Mostly it boils down to a simple question. Do we have people with the right skills, in the right quantities, available at the right time to do the job needed?

While this may sound basic, it is surprising how many organizations take on technology demand without understanding if they have sufficient resources to fulfill the demand. In the Planview Project and Portfolio Management Landscape report for 2017, 73% of survey respondents reported they don't have enough resources to meet incoming demand (Planview, 2017). Wow! The business expects the work to be performed, but there is not sufficient capacity to do the work. Not being able to meet expectations is any easy recipe for disappointing the business.

Let's return to the premise of the simple resource question. There are three essential parts to the question. First, you must establish if you have all the skills needed to deliver a project. While we immediately jump to questioning the availability of technical skills, this can also mean such items as a business process, leadership, and organizational change management. Without the right skills on the team, the other two parts of the question are moot.

If we establish we have the right skills, the next part of the question is do we have them in the quantities needed to satisfy project demands. This capacity question pertains to all groups, including those outside of IT, that will be working on the project. For example, we have three experts in the business process we will be modifying

on the project. We need at least one full-time person to do the job. In this instance, we would say we are covered (at least for now). What if we needed five experts to do the job? In that case, we don't do the project; or we find ways to add additional capacity (augmentation).

Finally, we talk about timing. In other words, do we have the right skills, in the right quantities, available at the right time? Accounting for these factors is where the talent equation often breaks down. We may have the first two parts of the question covered (skill and number), but at the moment of execution, we struggle to get our resources focused on the tasks needed to deliver. Lack of availability and focus may be because the resources are working on more pressing items, poor planning, or attrition. However, the result is often the same. The project misses dates, the timeline is elongated, and costs begin to increase.

I have observed various IT functions spread their resources like peanut butter across projects. Highly sought after technical experts may be assigned to eight to ten projects at once. Each project is vying for a fraction of the expert's time to meet their project timelines. Assume the expert was superhuman and could establish the focus needed to deliver on all ten projects. If just one of the projects missed a deadline or had a poor estimate, it would potentially have an adverse cascading effect across all of the other projects vying for the expert's time.

I have observed project plans built on the assumption of 45 hours per week for critical resources for over a year. What happens if someone is sick? What happens if they decide to take a vacation? Do we expect the key resources will not participate in other functions like team or organization meetings?

It is vital to have dedicated technical and business resources to work on critical, highly prioritized efforts. This is especially true of efforts such as digital transformation. Leaders should compile a critical resource list before beginning digital transformation work. These leaders should then be held accountable for freeing the critical resources time to participate at the appropriate level.

We have an entire chapter (Chap. 8) devoted to talent so I won't delve too deeply into the subject here. However, as I scanned my brain for stories to illustrate the problem of talent, I came upon the realization I could choose almost any project I had observed suffering and find an element of talent issues at play.

As a result, instead of trying to tell a story on talent issues, let's bullet the talent issues I have seen most commonly occur across a multitude of projects.

- Beginning a project without understanding and accounting for the skills needed to be successful.
- Not having the right skills and personal attributes at crucial execution roles such as project manager
- Not having a dedicated business sponsor or technology sponsor
- Not understanding the talent dependencies with other projects running at the same time
- Trying to run a project with "part-time" resources in critical roles
- Over-reliance on external contractors

The first bullet is one I see quite often in companies without a means to understand their project demands and resource capacity. I relate this to “flying blind” for organizations. You commit to an effort without understanding if you have the resources needed to execute. In the same vein, I have seen companies commit to projects knowing they had a resource deficiency and assumed they would “figure it out” when the time comes. The problem with that approach is frequently specialty skills may require going outside the organization for help. These searches may take longer than expected and delay critical parts of the project. Companies must have an idea of their talent sourcing plans before undertaking significant projects.

Project management is often a thankless job. Quite often project issues are attributed to project managers, but upon inspection, we find the project manager was never set up to be successful. A true project manager needs to be skilled in project management disciplines including risk management, issue management, task management, estimation, project quality, change control, and resource management. They need to be appropriately empowered to provide unfettered status reports to project sponsor(s). They must also have the right personal behavior characteristics to succeed including communication skills, leadership, organization, collaboration, and be courageous in their decision-making. The larger and more complex the effort the more vital it is to have the right people leading.

The importance of project sponsorship can often be overlooked. We assume a “group” or “committee” can oversee an effort and it isn’t necessary to put a single person in charge. Not having an involved leader is the best recipe I know for scope creep, delays in decision-making, and inconsistent execution. I recall a significant (greater than \$40 M US) project delivered on time and under budget. While many of the other large projects in the portfolio suffered from delays, this project was executed crisply and the resulting deployment was flawless. The difference? The business sponsor was top notch. She had a deep understanding of what scope was needed to achieve the business case. Just as important, she had a keen understanding of what was not needed and used this knowledge to keep the team focused. She devoted the majority of her time to the effort and it paid off in a big way.

Frequently we put together excellent plans for a project only to find out that one of our essential resources has been pulled into another effort at the same time. Accounting for other project dependencies, especially those sharing critical resources, is a must. Building contingency plans upfront based on these dependencies can help head-off potential issues that delay or stop a project dead in its tracks.

Honestly, in my career, I have witnessed project plans with more than 50 people assigned, none giving more than 25% of their time. You might ask, “how could this happen?” “How” can be explained by understanding the IT demand versus capacity problem. The business is screaming for a project to start. IT tries to appease the business by starting the project even though there are no available resources. IT project planners will “steal” enough time from various projects and operations efforts to get the new project started.

Does this work? No. Projects will always have some form of part-time resources. However, there needs to be a core of resources you can count on to be there to drive

execution. Without that core, projects tend to drift and often never make it to implementation.

Just as there will be part-time resources, in the majority of cases you will need external resources. These resources may provide expertise that doesn't exist inside the organization in sufficient quantities to execute the project. The resources could be required to provide additional, short-term, capacity to push through a project. While these are valid reasons use of external resources should always be done in context, with an eye towards production cutover. For example, if we bring in an expert to help with a new technology, it is incumbent for IT to allocate resources to work with the expert to learn. Otherwise, IT will be unable to support the technology when the external expert leaves. Finally, staffing a project with heavy concentrations of external resources can rob the project of tribal knowledge that is so important in ensuring a solution meets the needs of the business.

As mentioned before, we will cover the talent equation in more depth in Chap. 8. However, being mindful of these five issues will help ensure a smooth start to your transformational efforts.

6.5 The Right Partner and Right Solution

The final category of project issue we will cover is selecting the wrong product or the wrong partner. When I think about this particular issue, I can't help but recall an old joke.

A salesperson met his untimely demise and was given a choice between Heaven and Hell. He attended a tour of both places before making his choice. He toured Heaven first. It was very peaceful and serene. Angels were playing harps and conversing in their flowing robes. While quite nice, the salesman wanted to see Hell as well. He was shocked when his tour of Hell was amazing. Everyone was partying and having a great time in Hell's various nightclubs.

When asked for his decision, he replied: "While Heaven was very nice, Hell seems more like how I would like to spend the rest of my eternity. So I choose Hell."

After making his decision, the salesman descending into Hell. He was cast into a pit of fire, chained to the wall, and tortured. He screamed: "Wait a minute when I did my tour, Hell was nothing like this! Where are all the parties and nightclubs?" To which one of Satan's followers replied: "Oh, that was just the sales demo."

Like the joke, I have observed dozens of technical solution demos that looked great but had nothing of substance behind them. In many cases IT was asked to evaluate a product based on a "great demo" given to a business executive or team. Often, our IT team uncovered the same issue, the demo was great, but the solution would not work for the problem we were trying to solve.

Choosing the right solution or right partner is more than a single demo or even multiple demos. It is about the appropriate amount of due diligence from the right people inside an organization. Due diligence should include line-of-business functional experts, technology experts, and procurement experts. Even when you do all

of this, things can happen that you didn't foresee. Critical resources can leave your selected partner, a new software release from a vendor could be plagued with defects, or a complex business requirement doesn't function in the manner needed.

None of these issues has to result in project failure. However, not addressing these issues quickly with likely cause disruption to any project. Selecting the right solution and partner is a critical element to mitigate project impacts.

During the "honeymoon" stage when you are envisioning what the new solution will provide you, everything is rosy. All solutions/partners look good during this stage. The question is will your partner go the extra mile when things get tough. Rest assured, on transformational efforts, things WILL get tough.

A common problem I have seen in selecting a software provider or integration partner is what is often called the "halo effect." It goes something like this: "We had success with this solution or vendor; therefore, all other efforts will be successful as well." This is a dangerous assumption. Incumbent solutions and providers deserve an opportunity for new business, but it should not be an absolute given that they will win. Eliminating bias is difficult, but it is required to get the right answer.

Conversely, there is the "Pitchfork effect." It goes something like this: "We tried them for xyz project five years ago, and it didn't work. Don't waste your time." Changes occur in technology at an accelerated pace. Ruling out a provider over a past failure could mean you are eliminating the best solution without ever giving it a chance. At the very least, re-examine the reasons why the previous attempt didn't work and determine if there has been sufficient change to warrant another look.

Finally, remember that "square pegs fit best in square holes." In other words, a solution built in a specific manner, for a specific purpose, doesn't always flex or extend into additional business use cases. Assuming a purpose-built solution can be easily extended is a common mistake I have observed many times in the past. It can be something as simple as a vendor has a long list of successful implementations using database provider X. You don't use database X, you use database Y. You challenge the vendor to migrate their solution to database Y. The vendor agrees, and then you are shocked when the solution has numerous issues due to the vendor's lack of familiarity with database Y.

By now hopefully we have established that (a) choosing the correct partner and the correct product/solution is critical, (b) eliminating bias (positive and negative) is vital to ensure you make the right selection, and (c) don't force a solution or partner into unfamiliar territory unless you are willing to sign up for all the associated risks.

I can recall a few times we violated the above tenants, and paid the price. One such story illustrates the importance of a number of these points. We had implemented a software solution to manage task workflow from the corporate office to our stores. The solution was from a smaller vendor and we implemented it under time and under budget. In case you were wondering, that (under time and under budget) does happen from time-to-time. The solution worked well, and the business was thrilled with it.

A few months later the company decided it wanted to extend task management to third-party vendors doing services in our stores. The business and IT quickly agreed the existing solution could be extended to handle the new scope of work.

While it seemed logical the existing solution could be extended to handle vendors the scope quickly began to escalate. Within 6 months, the “extension” was beginning to look nothing like the previous solution. Three missed deadlines later and nearly 2× the original cost, the system went into production. The system had its share of issues and stabilization took nearly three more months. As we conducted our post-mortem, we found numerous incidents where scope was added unnecessarily as minor changes in the business process would have nullified the need for a system change. In the end, we had a true one-off system that the vendor struggled to maintain for years until it was ultimately retired. In other words, it was a “lose-lose” proposition for both the vendor and our company.

Clearly, our IT team made some mistakes on this project. We quickly anointed the vendor without fully understanding the scope. We didn’t have the right sponsorship or leadership from the IT side to stop unneeded changes. The vendor, being small, was ill prepared to build what amounted to a “custom” solution and struggled to meet deadlines.

One other story represents the danger of taking a solution down the wrong path. Our company was beginning to open stores in Canada. Many of our retail systems were developed in-house, so we were forced to create Canadian versions of these solutions. Our company leveraged an actual cost solution for managing inventory. We were one of only a handful (at most) of retailers in the country using such a costing method. As we looked at our options for Canada, our CFO decided we should try a different approach for Canada. Instead of rebuilding the systems we had in the US to operate with different currencies we would use a third party application and modify our business processes to work with the new application.

As the Canadian project progressed, we were pleasantly surprised at how we were able to seamlessly migrate the custom developed applications to Canadian constructs. However, red flags begin to emerge on the new inventory costing solution. Our business unit in the US was also handling Canada inventory costing. They decided they did not want to use two different processes, as it would cost them too much time. They began processing massive change requests to effectively make the new packaged application operate in the manner they were accustomed. I called the result “Frankenstein.” The new system and associated integrations were overly complicated and left us with a solution that would prove to be an absolute nightmare to upgrade. The project exceeded its original budget by several million dollars and missed multiple deadlines.

In this case, we did our due diligence and selected a reasonable solution based on a mutually agreed upon scope. However, as the project progressed change requests completely altered the scope. Unfortunately, the business sponsor approved the changes, and it led us down a terrible path. In other words, we tried to make a square peg fit into a round hole. We would have been much better served to have just migrated our existing systems.

After this, we strengthened our policy on software package selection to try to curtail future “Frankensteins.” We explicitly stated any software package, to be considered for deployment, must provide at least 90% of core functionality. We expressly noted the CIO and Project Sponsor must approve all customizations.

Finally, we entirely excluded all customizations that directly accessed package databases (requiring a level of data extrapolation).

6.6 Positioning for Transformation Execution

As our stories illustrate, lots of things can go wrong with projects. Now imagine the challenge inherent in a large enterprise transformation. These large-scale transformations are not for the faint of heart. In order to be successful, organizations must be very thoughtful and deliberate in their direction, as frequent changes in direction will quickly derail efforts. They need strong leadership and sponsorship to make the tough decisions necessary to keep the effort on track. They need to ensure they select the right solutions and the right partners to build their “envisioned future.” Most importantly, they must have the right skills available, at the right time, and in the right quantities to meet the demands of the project(s).

Checking all of these boxes is daunting, even for smaller projects. Adding the elements of shrinking business cycles, accelerated technology adoption cycles, and an extremely competitive landscape for top talent and it may seem impossible.

Needless to say, it is not impossible. However, we can’t approach these types of efforts in the same manner we approached projects in the past. To be successful, IT must change, the business must change, and our expectations of our partners must evolve.

As we discussed in Chap. 2, it is best to think about digital transformation in terms of building a platform versus executing a single project. Whereas a project has a definitive start and stop, platforms are built with extensibility in mind. Now, before I go any further on this topic, projects are still the building blocks for establishing a platform. However, the projects to create a platform are often tighter in scope and time duration. Managing scope through short cycle project execution is reflective of the evolving nature of the platform. Large and long-running projects need to be avoided as they negate much of the flexibility of a platform.

A platform offers easy integration and “plug-in” points for new capabilities. In fact, a platform encourages external groups (partners, customers) to use it. The mark of a good platform strategy is one that reduces the complexity (or “friction”) between an organization and its consumers. In simple terms, a platform makes it easier for people to do business with an organization.

A single project or program does not build a platform. Platforms evolve. While platforms clearly begin with an end-state in mind, their inherent extensibility allows the end-state to morph as business conditions dictate.

Deaf Diagnostic

Attempting to operate an initiative as complicated and comprehensive as digital transformation in traditional manners will marginalize opportunities for success. Old approaches and methods will struggle to adapt to the level of speed and agility needed to transform successfully.

This diagnostic underlies the importance of change in digital transformation. Challenging the status quo, even on project execution processes is critical to success. As one of my favorite sayings goes “the definition of insanity is doing the same thing over and over again and expecting a different outcome.” Change is incumbent to win in the digital age. The next two chapters cover the types of changes needed in more detail. We will begin with the structure and process changes required and wrap up with a chapter on talent.

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Chapter 7

IT Equals “It’s Tough”



Abstract Digital transformation significantly increases the pressure of IT organizations to deliver. Traditional IT approaches and organizations will struggle to deliver at the pace needed to ensure success in digital transformation. Stone discusses the pressures facing IT organizations and the relevant changes needed to enable the agility and responsiveness demanded by businesses. Stone reviews how modern technology tools, techniques, processes, and methods must be deployed to enable the speed and agility of IT organizations. He wraps up this discussion by emphasizing the importance of developing strong analytics and data competencies to form the core of a digital technology strategy.

7.1 The Changing Role of Corporate IT

By this point in the book, I am hoping you have realized (if you hadn't beforehand) that digital transformation is complicated and challenging. At the same time, I want to continue to stress; it is attainable given the right level of support and focus. For those that succeed, the rewards are greater productivity, speed, agility, continued or elevated profitability, and improved connections (and relationships) with customers.

I have continually stressed digital transformation requires substantial work from business organizations and IT alike. As we said on multiple occasions in this book, the path to digital transformation is not accomplished merely with technology. It requires, among other things, cultural change, organizational alignment, structural modifications, role restructuring, process re-invention, and revamping customer interactions. To my brethren in the IT organization, this is the good part of the story. You won't be alone on this journey. All parts of the organization must be committed for digital transformation to be a success.

However, this is where the good news ends for IT. The journey to digital transformation will not follow familiar paths for the IT organization. In fact, I will argue that the transformation that must occur to IT processes and controls is a more significant effort than deploying the technologies supporting the core of the business digital transformation.

Why would that be? What changes do IT organizations need to implement in a digitally transformed organization? To understand this, we need to start by understanding the structure and challenges of existing IT organizations.

Throughout the two and a half decades beginning with 1990, we have seen various evolutions within the IT organization. We have seen engineering and operations migrate from multi-purpose engineers (from the monolithic platform days) to specialists in areas such as networking, storage, middleware, and operating systems. We have seen this same divergence of skills begin to come back together as we preach the power of “converged” infrastructures.

We have seen the emergence of standardization driven by the Information Technology Infrastructure Library (ITIL) detailing the standardized services and associated best practices/processes to be delivered by an IT organization. We have seen elevated levels of control driven by the Sarbanes Oxley (SOX) Act, Payment Card Industry (PCI), Health Insurance Portability & Accountability (HIPPA), Federal Information Security Management Act (FISMA), National Institute of Standards & Technology (NIST), FedRAMP, General Data Protection Regulation (GDPR) and many others.

We have seen the emergence of client-server computing, that was replaced by web-based architectures, which were supported by object-oriented, and later evolved into services-oriented architectures.

As we mention web-based, the world-wide-web (WWW) was born in 1989. In 1990, very few companies even knew what the acronym meant, let alone the promise of WWW technology. The growth of the Internet drove more and more demand for faster and faster networks. In the early 1990s the standard network capacity was 10 Mbps. Today, many large organizations have network capacity of 10,000 Mbps (also known as 10 Gigabit Ethernet).

The new networks provide speed and capacity enabling an entirely new form of computing known as the Cloud. It no longer matters where processing takes place. With high-speed networks and the Cloud, users can achieve similar performance whether they are in the same building as the servers or another location across the country.

We have seen database technologies evolve from purely transactional to repositories for unimaginable quantities of data. We have seen basic queries against these databases migrate to advanced analytics and ultimately to cognitive computing and machine learning.

We have watched in amazement as immense computing power shrunk in size to the point that a device in our pocket today has more power than massive, room-sized, computers only 20 years prior.

We have watched the emergence of an unbelievably powerful wireless network that has propelled a new wave of mobile devices and applications unimaginable only 10–12 years ago.

Finally, we have observed innovative companies such as Google, Amazon, and Facebook rewrite what is possible in terms of high availability in data centers.

Each of these advances led to changes within the traditional IT organization. Specialty groups emerged as we searched for new ways to support business demands for the new technology.

However, for many companies, the changes haven't been enough. Technology life cycles have become much shorter requiring constant technology refreshes by IT organizations. In addition, company business cycles are also shrinking putting immense pressure on IT to deliver new capabilities in shorter time windows than ever before.

IT organizations have struggled to keep pace with rising levels of demand from the business and to adapt to new, more complex technology architectures. Consequently, project backlogs have grown, as have backlogs for maintenance and smaller enhancements. The daunting backlogs often leave IT organizations feeling somewhat helpless against a rising tide of demand. Unfortunately, this erodes the business' confidence in the IT organization's ability to deliver.

IT is not blameless in this equation. In many cases, IT's insistence to maintain a high degree of control over all technology requests heightens the backlog volume. In this scenario, an increasing number of demand requests funnel into IT. IT must review the request, determine the extent of the change, and then place it in a queue based on a priority assigned (hopefully) by the business. Predictably, a change that could be performed in a few hours waits in the queue for weeks or months before being addressed.

As a result, the business begins to look for ways to avoid using IT. This avoidance may come in the form of the business building ad-hoc applications using Excel, Access, or some other desktop productivity tool. In other cases, the business may choose to procure a cloud service or even consider leveraging a third-party service provider for their technology needs.

I can recall numerous discussions with business executives from companies over the years. When the subject turned to their IT organization, they would scow or frown and say something like "Our IT group just doesn't get it. They take forever to deliver even small changes. But I am sure it is nothing like that at your company is it?"

While I would love to believe the last part of that statement, I am supremely confident, the business executives at any of my former companies said similar things. In fact, in my 34 years, I have never heard a single business executive exclaim: "My IT group is too fast and doesn't spend enough money."

Part of the problem lies in the nature of the relationship between the business and IT. IT is tasked with providing technology solutions for the business. To accomplish this task, IT must balance organization priorities, regulatory requirements, operational risk, security, and scarce resources. The business doesn't always see or appreciate this balancing act.

Taking a step back, it is easy to see both sides of this argument. As a result, in most organizations today, there is a growing set of applications that were not built and are not supported by IT. While this is not optimal by any means, it is manageable given the right set of guidelines and policies. However, when the relationship between the business and IT becomes more strained, it gives rise to users

circumventing IT policies and processes. The worst of these users I have come to call "back seat technologists."

I have encountered my share of back seat technologists at various stages of my career. These are very outspoken critics of IT and are skilled at getting technology solutions completed outside of the IT organization. While their intentions may be good (support the business), their methods are often contradictory to IT controls. As a result, in many cases, the solutions they build or sponsor do not adhere to a supported IT architecture or security standards. To bring these "one-off" solutions under IT control typically requires significant rework.

Many of the back seat technologists believe that technology is as simple as the desktop tools that they work with on a day-to-day basis. They berate IT for making things "too complicated." When things go wrong on a technology project, they are quick to point the finger at IT.

Unfortunately, often these back seat technologists carry a substantial amount of influence in their respective organizations. As they have a reputation inside their respective functions for "getting things done," executives often listen when back seat technologists complain of issues in IT. Is it any wonder the tenure of a typical CIO in 2017 is still less than 4 years?

In some companies the business functions begin building pseudo-technology capabilities, often referred to as "Shadow IT." These groups typically use desktop tools to build out an array of solutions to support business processes. In many cases, the tools are quite amazing. I have seen Excel and Access solutions coming out of these groups that would rival technology companies.

I worked in retail technology for over 23 years. During that time I recall a multitude of times where I encountered these types of solutions. One that still sticks in my mind is watching a demo from one of our business groups on a new set of analytics they were producing to help plan inventory flow across the supply chain. The application was quite impressive for something built in Access. After the demo, they opened the meeting for questions. I possessed a decent understanding of our organization's data. However, I couldn't determine where they were getting certain information about the retail items (stock keeping units or SKU's). I asked, quite innocently, "Where are you pulling information about the items?"

The reply was not what I wanted to hear. "Oh, the corporate item master doesn't have everything we need, so we pull it down and add information to it. Also, sometimes the item master is wrong, so we change it to be correct on our system."

I bit my lip quite hard and asked a follow-up question. "OK, when you update errors on the item master on your system, do you go back and update it on the true corporate item master?" I knew the answer before the question had left my lips.

"No. That would take too much time."

For those of you reading that aren't familiar with retail technology, the absolute core of retail is the item, specifically the item master. If the information about the products you buy, move, and sell is incorrect, well, then you have issues. Needless to say, this conversation spurred much discussion between the business function owner and me.

Another problem with applications developed and supported by Shadow IT is when attrition or reorganization occurs in the business. The Shadow IT applications are often assimilated by IT, in a not so graceful manner.

Even though I have had my share of awkward encounters with backseat technologists and Shadow IT, I understand why they exist. They exist because IT has not been able to keep up. Think about it. If IT delivered everything needed by the business in the timeframes needed, there would be no need for Shadow IT.

7.2 Balancing IT Demand and Capacity

At the core of the problem is there is always more demand from the business than capacity in IT. Demand comes in many forms. Some of it comes from innovations and changes in the business model and the need for technology to support the changes. Some come from changes in regulatory controls. Some come from compliance issues that occur when technologies become unsupported or out of date. Some come from the continual changes in technology and the demand to take advantage of new advances. Of course, some of it is just unplanned; emanating from unforeseen problems, issues, and opportunities.

Deaf Diagnostic

Your IT organization must have mechanisms to collect, categorize, prioritize, and fund demand systemically. Absent these mechanisms it will be challenging to focus resources and align the organization on the effort needed to support digital transformation.

Regardless of the source of demand, it requires IT resources to be able to address the requirements. I am a big proponent of IT resource management. In other words, I want to understand the aggregate demand for IT services and leverage tools to develop resourcing plans. Let me illustrate this point. At one juncture in my career as a CIO, our business had approved demand (approved by the CEO and Steering Committee) that was three times the size of the staff we had in IT to apply to it. We leveraged a structured sourcing plan to try to address this need, but it was challenging to maintain continuity of staffing and project deadlines slipped.

In this instance, the leaders of the organization felt there were driving business needs for the technology requests. IT had to determine the best way to address them. As I used to tell my staff, “Our job is not to stop progress by saying ‘no.’ While ‘no’ may be the right answer, our job is present the business with options. If they accept the cost and risk of a particular option, then it becomes our job to execute.”

It was during this time I realized the old ways just wouldn’t work. Traditional projects, taking 2–3 years to deliver, were virtually out of date before they could be

implemented. Change orders on the larger efforts were causing too much disruption and delaying the delivery of business value.

My staff and I looked deeply into how we were operating. We had already reduced the amount of staff working on IT operations (keeping the lights on and systems available) from 65 to 70% to about 40%. However, we still did not have anywhere near the capacity needed to meet business demands.

The chart below illustrates a common problem in organizations with demand exceeding IT Capacity (Fig. 7.1).

The opportunity gap is aptly named. It represents the unrealized opportunity to innovate or optimize due to lack of resources. IT has taken a number of steps over the years to address this gap including:

- Operations automation and optimization
- Outsourcing
- Staff Augmentation
- Strategic Sourcing
- Off-shoring (both external staff and internal)

Even using a combination of all of these efforts and we found we still didn’t have enough capacity to meet all the demand. It was at this time the realization began to sink in. IT was doing everything within their sphere of control to meet demands and wasn’t succeeding. In fact, we found that every time we satisfied demand, we would create more demand. We found that once we delivered a new solution, demand would immediately increase for enhancements and add-ons to the new solution. As a result, as we delivered a steady flow of new solutions, demand did not subside, it actually increased.

In fact, the only exception to this rule that we observed was artificial manipulation of demand. “We just completed a big IT project and do not want to take on another one.” Or, “we are cutting the enterprise budget and not allowing any new requests.” As a result, absent artificial manipulation, IT is faced with ever-growing demand.

It should not come as a surprise that the business usually is not aware of IT capacities, nor are they concerned about it. I recall a somewhat humorous conversation with a former CEO on IT capacity many years ago. I was requesting to hire an

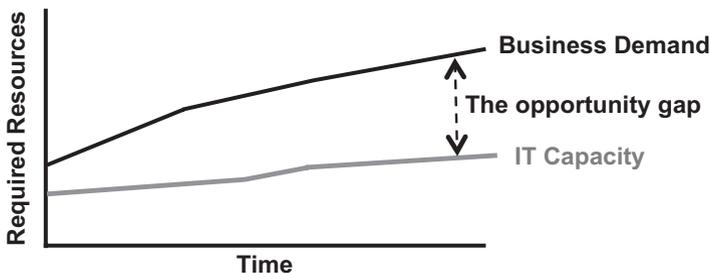


Fig. 7.1 IT demand & capacity

additional 10–15 programmers to improve throughput on some of our more substantial efforts. The CEO listened to my request and then stated, “I don’t understand why we need more people in IT. How many people do you have now?”

“About 720. However, I am only asking for programmers, not any other IT positions.” I replied.

“I don’t understand. I thought all of your people were programmers” was his reply.

After a few moments of explaining the various positions within IT, I was successful in getting the new resources. Nonetheless, this perception is still alive and well in many organizations. Employees outside of IT look at the IT headcount numbers and wonder why activities take so long. You can almost hear the question “can’t they all code?”

7.3 It Only Gets Tougher from Here

To compound matters, it is only going to get worse for IT organizations. Business cycles in all industries are shrinking at an alarming rate. The shorter cycle times result in the business needing quicker solutions to their problems. Technology is also becoming more complicated. Consider the growth of digital tools such as mobile, cloud, social, Internet of Things (IoT), big data, advanced analytics, augmented and virtual reality, and blockchain. These technologies are all relatively new but have already driven tremendous investment in organizations across the globe.

Now consider the even tougher part of this equation. Most IT organizations have a portfolio of aging applications and infrastructure. In some cases, businesses have tightened their budgets over the years, and as a result, application and infrastructure upgrades were delayed or canceled. I often use the analogy of “kicking the can down the road” when it comes to upgrades. Often time the first question from the business is “can we wait another year to do this.” Inevitably, the answer seems to be yes. As a result, what should be a small impact on regular intervals becomes a massive upgrade that is disruptive to IT and the business. To top things off, most of these applications in need of upgrade are tightly integrated with other applications raising the risk of even more disruption.

Let’s recap. IT has traditionally dealt with not having enough capacity to meet demands. Now they are faced with demands coming at an increasing pace, more complexity, and have a collection of applications supporting their respective companies in dire need of being upgraded. Can you think of a bleaker picture?

Neither can I. It is TOUGH (hence the name of the chapter).

So what do we do? The first thing we must do is to look in the mirror and quote the famous philosopher Pogo (the comic strip). “We have met the enemy, and it is us.”

Now, that doesn’t mean everything challenging IT is within IT’s control. However, there are many things IT organizations can be doing to build the capabilities to meet the challenges of today’s business environment. IT organizations must

realize that today’s problems can’t be solved with yesterday’s processes and technology. It is time for IT organizations to change.

Deaf Diagnostic

The IT organization must find ways to enable throughput and satisfy end-user demands. A traditional centralized IT structure will struggle to perform at a level needed to satisfy digital consumers of technology services. Enabling end-user self-service better positions IT for success.

If IT must change, what is the silver bullet to solve all of the problems? Trust me; if I had the one thing IT could do to solve all of these challenges, I would be battling Gates and Bezos for the top of Fortune’s wealthiest list.

However, what I do have is a set of things that will better position IT for its role as a critical enabler of digital transformation. The four steps I propose are as follows:

- Think about talent differently
- Adopt DevOps and continuous improvement principles
- Change your development approach
- Build a data backbone

Sounds simple, right? As the old expression goes “talk is cheap.” Writing or saying what to do isn’t that tough. Each of these changes challenges traditional IT organizations in a myriad of ways. It isn’t simple, it isn’t easy, and unfortunately, it isn’t optional anymore.

I want to provide a word of warning to the reader at this time. The remainder of the chapter speaks specifically to the things that need to be done inside the IT organization to improve speed, agility, and responsiveness to the business. As such, some of the content may become a bit technical. I will strive to keep the discussions at a high level and explain the concepts (and associated acronyms).

7.4 Changing How We Think About Technology Talent

Let’s take the four steps outlined above, one at a time and discuss what IT must change. The first is thinking about talent differently. Traditionally IT has held to the belief we all have to be together working in the same space to make a project work. The problem with that belief is the talent needed to fuel our projects is not all located in the same place. To offset this, IT would use staff augmentation to add to their central staff. In other cases, IT would bring in armies of contractors, managed by contractors to try to meet business demand. IT would also offshore resources or outsource to try to gain throughput.

The problem of relying too heavily on external resources is the system knowledge resides only inside the heads of the contractors. As contractors leave, so does the knowledge. In other words, the knowledge needed to be able to move at speed in the future is no longer inside the company.

The first part of thinking about talent differently is to treat IT talent as a portfolio. In other words, we need to be able to look at our base of talent and answer:

- What skills do we have?
- What skills do we need now?
- What skills will we need in 6 months or a year?
- Where will we find these skills?
- How do we retain our current talent (skills)?
- Are we overweighted in any particular skill?
- How do we reskill existing employees whose current skills may not be relevant in the future?

To build a talent portfolio, IT must take inventory of every person on the payroll and catalog his or her skills. They must take an honest assessment of demand, both current and future. They must look at their attrition rates and attrition reasons to find opportunities to make positive impacts. Most importantly, they must decide who needs to stay on the bus and who needs to get off the bus.

This level of talent management isn't revolutionary. IT talks about talent every year during annual reviews. However, IT must become much more adept at evaluating their talent and assessing what is needed to drive at the speed requested by the business.

The second part of thinking about talent differently requires IT to come to grips with the fact that they are in a global war for talent. Consider the report from the World Economic Forum showing China graduated 4.7 M students in Science, Technology, Engineering, and Mathematics (STEM) in 2016. India was a distant second with 2.6 M graduates. The US was third at 568 K (or only 12% of the total STEM graduates in China) (McCarthy, 2017). In the US, IT organizations must find ways to tap into these pools of talent without requiring the talent to relocate. In fact, IT needs to embrace global talent pools and use the time zone differences to its advantage as opposed to using those differences as an excuse.

IT must also take a long hard look at its internal staff and determine who can be best suited for the organization of the future. We will cover this more in Chap. 8, but suffice to say; there will need to be an investment in re-skilling to modernize the talent in most IT organizations.

Deaf Diagnostic

Technology talent is not limited to a single geography. It is essential for the IT organization to implement a global talent strategy enabling the sourcing and retention of staff to support digital technologies.

Finally, we must look at the talent in other parts of the organization. The days of IT battling Shadow IT needs to end. Instead of battling, IT needs to embrace the concept of Line-of-business or “Citizen” developers. Yes, I find it hard to believe I just typed that as well.

As I looked at the constant increases in demand, I realized IT needs more allies to succeed. Clearly, our business wants to succeed. They go around IT because they don’t get the level of service they need. So what happens if IT embraces this? What if IT starts building tools and capabilities that allow the business to self-serve many of their everyday needs?

I recall seeing a backlog in excess of 5 months long in one of my BI organizations. As I looked through the list of requests, it was easy to see the opportunity. The business could have easily resolved more than 60% of the requests had IT provided a set of easy-to-use self-service tools. Instead, our IT organization clung to “control,” and the business worked around IT.

The concept of enabling business development is likely foreign to some readers. However, as I mentioned before, it is already happening. Look at the Excel and Access applications in your organization. Look at the growing number of “business-led” SaaS applications or “micro websites.” In other words, you don’t have control now. Embrace the business, make them a willing partner, and build capabilities allowing them to assemble components easily to form new solutions. Providing these capabilities requires investment in tools to manage data, application program interfaces (API’s), and workflows.

It also requires rethinking how IT has typically organized teams. We touch on this concept in more detail later in the book. Suffice to say, organizing around functions vs. outcomes (or products) does not yield the agility IT needs to transform the organization successfully.

If IT can succeed in thinking about delivery differently and begins to build a framework of tools to enable business self-service, it opens a plethora of new resources, while at the same time satisfying demand before it ever surfaces to IT.

7.5 Adopting DevOps

When I first heard the phrase DevOps, I admittedly struggled to grasp the gravity of the concept. DevOps, short for Development and IT Operations, seemed like a phrase describing what IT should have been doing all along. Simply stated, all parts of IT should work together, not against one another. This statement describes the essence of DevOps. Bridging the gap between the application development and technology operations groups to enable faster, higher quality, and stable software deployments.

While that sounds extraordinarily simple, it isn’t. Traditional IT functions such as Development and Operations often have very different views when it comes to goals and appetite for risk. Development focuses on completing business requests for new features and functions and getting these into production as quickly as possible.

Operations, on the other hand, is tasked with ensuring systems are highly available and secure. As such, Operations wants to limit changes that could result in production outages. Hence, conflict arises between Development and Operations as both try to accomplish their stated goals.

At its core, DevOps seeks to increase communication between application development and technology operations, standardize development environments, automate delivery and release processes, and strengthen accountability of all parties. This concept is motherhood and apple pie.

The adoption of DevOps requires deep introspection by the application and operations groups within IT. Some sacred cows (and associated roles) need to be sacrificed on both sides. Goals should be aligned, compromises reached, tools agreed upon, and automation embraced. In the end, a set of self-service tools provides greater speed and agility to developers, while enforcing the rigor needed by operations to sustain or improve reliability.

DevOps adopts many of the principles of Lean, which emerged in the 1990s as a means to improve the productivity and throughput of manufacturing operations. As such, DevOps takes on the same focus as Lean, to dramatically reduce or eliminate waste. In IT, waste comes in many forms. These include:

- Rework—work done to fix defects
- No-value Work—working on solutions that do not further the goals of the organization
- Idle Time—time spent waiting for another function or person
- Underutilizing talent—time lost by imbalances in the application of talent to solve problems (too much of one skill, not enough of another)

To eliminate these forms of waste, DevOps improves the quality, speed, and operability of technology deployments by:

- Reducing the size of work deployments (smaller is better)
- Automating wherever possible to decrease work cycles
- Reducing or eliminating passing of defects between build phases
- Developing continuous feedback throughout the build and deploy process
- Building competencies through repetition
- Encouraging innovation and risk-taking

Reducing the size of work is a central concept. Smaller work sizes allow for increased frequency of deployments to production. The smaller deployments also reduce the risk of a major outage or disruption.

We discuss the importance of Agile methods later in this chapter. By combining the short delivery cycles of Agile with DevOps, IT can move towards Continuous Integration and Continuous Delivery (CI/CD). CI/CD is the embodiment of smaller work sizes, highly automated workflows, and dedicated product teams to deliver new technology deployments at previously unattainable rates.

Automation and collapsing of processes is also core to DevOps. New advances in virtualization technologies and new methods to encapsulate infrastructure as software instructions, as opposed to physical hardware, affords many opportunities for

automation. In fact, the phrase “infrastructure as code” is commonly associated with DevOps automation.

DevOps requires the building of highly automated and comprehensive testing capabilities. These capabilities, coupled with smaller units of work, allow for much more frequent testing. This results in more defects identified earlier in the development process.

A key benefit of DevOps comes from the feedback loop from operations into development. By identifying operational issues earlier in the process, teams can prevent defects from being passed to subsequent phases, saving a tremendous amount of rework. Consider that every hour of rework saved can be spent building and deploying new functionality and it is easy to see why the feedback loop is so important.

IT organizations often face a “crises of the moment” that may be the result of a multitude of factors (internal and external). As an example, a significant fiber cut could disrupt telecommunication services for a large geographic area, impacting significant portions of the organization. Lack of IT preparation and situational awareness can result in lengthy response and repair times. DevOps seeks to reduce these times through repetitive practice exercises that build skills and competencies.

DevOps also encourages teams to be innovative in finding ways to improve quality and throughput. In DevOps, work units are smaller, risks are reduced, and experimentation can occur on a frequent basis. This “test and learn” approach is core to developing breakthroughs that lead to dramatic improvements in productivity.

As we will discuss more in Chap. 8, IT organization structures should shift orientation from project to product. With projects, resources are pulled together to complete specific tasks and then disband. I have watched many technology solutions deployed grow stale and unusable over time because no one “owned” the continued health of the solution. Product teams stay together and support all aspects of their assigned product including new features and functions, enhancements, planned maintenance/fixes, and unplanned fixes.

Many people argue that DevOps principles are not applicable to enterprise application environments containing large numbers of third-party packaged solutions. Admittedly, some parts of DevOps must be adapted to work with packaged solutions. However, I do believe the DevOps principles are incredibly relevant to packaged applications.

As you read the six bullet points earlier describing how DevOps seeks to improve technology deployments, it is impossible to argue these don’t apply to packaged software applications.

However, we have to respect the differences between package applications and custom-developed applications. Some of the key differences relevant to DevOps include:

- Deployment size—Subdividing packaged applications into smaller components is frequently not an option.

- Frequency of deployments—Packaged applications deployments are less frequent than custom-built applications and often have deployment schedules dictated by the software vendor.
- Product Owner—Packaged applications can potentially span multiple business processes, resulting in impacts to more than one product owner.
- Risk—Due to the larger size and scope of packaged applications, there is an inherently increased risk associated with their deployment.

Understanding these differences is important as it drives the creation of a different pipeline for releasing packaged applications into production. All the principles of DevOps still apply. The packaged application pipeline just factors in the differences described above.

Make no mistake, DevOps isn't about a single project or tool. It requires a significant cultural shift in the IT organization. As the business and IT begin to erode traditional silos with the adoption of digital technologies, IT must erode its internal silos. DevOps is a critical step in eradicating these internal IT silos.

The DevOps approach is the same as the ones used by such notable technology stalwarts as Facebook, Google, and Netflix. In short, it is proven to be successful at scale. In the *2018 Retail Digital Adoption Survey*, 80% of the Digital Leaders had adopted DevOps in at least a portion of their organization compared to only 27% of their peers. The Digital Leaders indicated they very focused on achieving shortened cycle times through continuous automation. As with the technology stalwarts, the Digital Leaders see DevOps as a way to keep pace with rapidly evolving business models (Stone, 2018).

An excellent book explaining the evolution of DevOps is *The Phoenix Project* by Gene Kim, Kevin Bahr, and George Spafford. An IT person reading this book will see themselves in the characters almost immediately. A layperson might find parts of the book a bit confusing. However, it offers a fairly realistic view of the dysfunction that can occur within IT organizations. During critical technology projects, this type of dysfunction is significantly amplified. The central project described in the book, Phoenix, shares many of the characteristics of digital transformation. To understand the importance and relevance of DevOps, I can't think of a better source than *The Phoenix Project*.

7.6 Continuous Improvement Opportunities

DevOps isn't the only way IT can improve throughput and increase agility. Applying Lean principles to all processes can help IT identify and remediate inefficiencies that inhibit speed to value.

Understandably, it is critical to match the speed of the business. However, equally important is providing a return on investment. A technology effort in progress, with nothing in production, is not providing any value. In fact, it is tying up organization capital. In simple terms, it is a drain on cash flow.

To illustrate the importance of looking across all IT processes, let’s discuss the workflow of a typical request for new technology functionality from the business. Assuming the new functionality is significant enough, IT reviews the option of building in-house versus buying a service or a software application.

If the choice was to buy, corporate policies often dictate a request for proposal (RFP) to be constructed and issued. Vendors are given a specific period of time to respond to the RFP. The organization receives and scores the RFP’s. Based on vendor responses and scoring, finalists are selected.

Finalists are scheduled to come onsite to conduct demonstrations and answer more detailed questions from the business and IT. This process could require multiple iterations.

Completion of the onsite demonstrations often triggers the conducting of reference checks with other users of the application. These reference checks require the business and IT to conduct calls or visit other organizations.

After references are checked a vendor finalist is selected, and contract negotiations begin. Negotiations, in nearly all cases, are an iterative process between sponsors and lawyers on both sides. Parallel to this process, teams are formed, and plans created to prepared for the eventual implementation.

Once the contract is signed, implementation activities can begin. Implementation often starts with business meetings to confirm requirements and walk through the package configuration options. Only when requirements are firm does the building or configuring of the system begin.

Before we go any further, how much elapsed time has passed to get to the point to start configuring the application? The best organizations might accomplish this in 2–3 months. Most organizations would be more than double that.

The other point to consider is how much elapsed time we lose in this process through waiting. At each point of this high-level process to begin configuring a new application it is highly likely people are waiting on something. Perhaps it is waiting on a vendor reply, a business sponsor’s calendar to free-up, vendors to schedule travel, a key IT resource to be available for a meeting, a reference customer to be able to meet, procurement to connect with the vendor, or a lawyer to review a contract. In all, I would estimate that at least 60–70% of the elapsed time is spent waiting.

Idle time is an agility killer. To eradicate idle time and increase throughput requires work across the organization, not just IT. Business sponsors, Procurement, and Legal all have roles to play to reduce this cycle time. Recall, our goal is seeking to identify and eliminate waste across all IT processes. The above example is just one of many ripe for streamlining and automation.

Another form of optimization is found in Cloud computing. If an application is owned by IT and housed on internal servers & networks, there are a myriad of resources needed just to keep it operational. Changes to items such as operating systems, database management systems, middleware, network firewalls, often require regression-testing (and sometimes fixing) applications. Periodically hardware has to be replaced, which once again requires a round of testing and certification. When an application migrates to the cloud, much of this work goes away. The

Cloud provider handles all of the changes under the covers. IT maintains connectivity and integrations (if any) to other applications.

Other areas that can be disrupted by automation are call centers. Almost all IT organizations have some form of a call center. As AI and voice response technologies improve, machines will be able to handle more and more calls.

The idea is to be as lean as possible in providing day-to-day services in IT while maintaining very high service levels. Why is this important? Let's consider a *very simplistic* example. Assume we have a 15-person group responsible for a Human Resources (HR) application. Each year ten of the associates deal with the day-to-day maintenance of the system (including user support, patches, bug fixes, vendor management). One person does an enhancement, and the remaining four do a project.

Through efficiency gains in DevOps and other automation opportunities, it is not difficult to believe we could improve productivity by over 30% each year (this is a very conservative estimate). This improved productivity would free up five resources. Assuming all other things are unchanged, IT would be able to complete an additional project and enhancement with the same number of people.

Think about that from a business perspective. Assume we paid each associate \$50 K a year (all in). We would be spending \$750 K for the service from IT. Enabled by IT optimization, the business will spend the same amount next year and get double the new value (projects and enhancements) while maintaining service levels. That puts a smile on the face of a businessperson very quickly.

Deaf Diagnostic

IT organizations spending more than 50% of available resources on the support of existing technologies (“keeping the lights on”) must rationalize and optimize their processes. A substantial support burden impairs IT’s ability to respond to change and is an indication of unneeded complexity in the existing IT operation.

It is all about providing more VALUE for each dollar invested in technology. However, to provide increased value to the organization, IT must come to grips with a truism. In most cases, improving how IT works is more important than IT just doing work. This truism is reflected in the way IT invests in tools and capabilities to improve productivity.

7.7 Changing the Approach to Development

Speaking of adding value, what if IT could deliver projects and enhancements faster, with greater predictability, greater reliability, and with less cost? Talk about getting the attention of the business!

Of course, this is a lot easier said than done. However, there are new methods, techniques, tools, and disciplines that are in practice today that will, if done correctly, reduce delivery cycle times, reduce costs, and significantly improve the repeatability of success. The seven main concepts we must consider to achieve these objectives are listed below.

1. Agile or iterative methodology
2. Social collaboration
3. API architecture
4. Lightweight deployment
5. Built-in security and audit
6. Cloud leveraged
7. End-user self-service

Any of these concepts is daunting to an organization that has not adopted them previously. Trying to do all of them together is simply untenable. The order listed is the order I would suggest following. Implementation doesn’t have to be sequential, but it also doesn’t mean to “start all seven tomorrow.” With that, let’s discuss each one in a bit of detail.

7.7.1 Agile Methodology

As we discussed earlier, technology projects struggle or fail at a rate much higher than we would like. A typical step taken by many companies is the adoption of a project methodology. A methodology is essentially a set of processes and techniques used to provide guidance on the appropriate way to execute a project. The two most common types of methodologies used today are Waterfall and Agile. The Waterfall Method emerged in the 1970s as a structured set of phases that cascade (like a waterfall) from one to another. It was, by far, the most commonly used methodology in the 1980s and 1990s.

Agile emerged in the late 1990s and early 2000s. Agile was conceived to combat the common issues plaguing software development. In essence, Agile seeks to provide shorter duration development cycles (often called “sprints”), decreased time to business value, and the ability to accept and adapt to change without significant cost. However, in the PMI 2017 Pulse of the Professional report, we learn only one in five projects used Agile. An additional one in five used some hybrid or blended version of Agile, leaving more than 50% still using traditional methods (Project Management Institute (PMI), 2017).

As we have discussed, IT projects have long suffered from cost and duration overruns. Much of this is due to the concept of “scope creep,” which is the term coined to describe the adding of scope to an effort after it has started. Agile works against scope creep by keeping execution cycles short and iterative. As such, in Agile, change is easily incorporated into the natural flow of an effort. By contrast,

the sequential nature of Waterfall makes change more difficult and often occurs in significant rework.

However, armed with this knowledge, many IT organizations today still cling to the traditional waterfall methodology to deploy new systems. Waterfall is not “bad” per se, especially compared to no methodology at all. However, many studies have shown late cycle changes in Waterfall execution are often quite costly (time and money). Also, the sequential nature of Waterfall results in longer project durations and delays the achievement of business value until completion of the project.

I am not advocating the blind adoption of Agile because it is the latest and greatest approach to building applications. I am advocating for Agile because IT needs to shorten delivery cycles, increase involvement and accountability from business partners, and become more adept at dealing with change. Agile provides the framework to do this. You can try to accomplish the same by creating an “iterative waterfall hybrid,” but in the end, you are asking something inherently sequential to be something else. Agile encompasses the principles we need to be successful in today’s volatile development environment.

However, organizations need to do their homework before adopting Agile. There is a myriad of Agile methods such as Scrum, Adaptive Software Development (ASD), Crystal, Extreme Programming (XP), AgileUP (Unified Process), and Dynamic Systems Development Method (DSDM).

All of these versions follow the 12 principles of the Agile Manifesto, but each approaches it in a slightly different way. In fact, many companies choose to either use different versions of Agile for different projects or meld different concepts from the various approaches to create their unique version.

Regardless of the type of Agile method used, all of them share universal concepts that companies must be willing to adopt. These include more substantial involvement from the business community; iterative/frequent releases, less documentation, creation of minimally viable products, and dedicated technology resources.

While each of these concepts is important, the notion of a minimally viable product (MVP) is a struggle for many organizations. An MVP is a working product with the minimal amount of features to allow collection of user behavior. Consider a website for taking customer orders. The MVP version of the website has the basic capabilities to enter information to create an order. Later iterations may add automated customer lookup, extended inventory searches, customer follow-up via text or email, and the ability to send an order as a gift. While these later features may be important, they are not required to test the basic functionality of order creation. In our 2018 Retail Digital Adoption Survey, 50% of respondents noted the concept of a MVP was the biggest inhibitor to the adoption of Agile in their organizations. Just behind the understanding the concept of the MVP was lack of support (leadership) at 44% (Stone, 2018).

It is often difficult for business leaders to discern the difference between non-negotiable (must have), important, and nice-to-have features. Part of this difficulty stems from past projects and experiences with IT prior to using Agile. In the days of sequential project execution, there was a fixed budget and timeline. As it was often unclear if there would be a second phase to a project, the business became accustomed

to building extensive feature lists. In Agile, the features evolve as users interact with the solution.

For organizations willing to take on Agile and embrace the MVP concept, the results can be quite dramatic. The most common benefits cited for Agile include higher product quality, higher customer satisfaction, increased project control and visibility, reduced risk, and quicker time to value.

As noted before, companies only achieve these benefits through understanding and implementing those constructs needed to make Agile successful.

As discussed earlier, DevOps is a natural extension of Agile. DevOps leverages the smaller work products inherent in Agile as part of the delivery pipeline to provide speed and agility in software deployments.

7.7.2 Social Collaboration

Social collaboration speaks to increasing the level of participation in the development process for IT and business alike. Through the building and deployment of self-service portals and use of collaborative tools such as JIRA, the level of project transparency can be significantly improved. Also, consider if we achieve the global talent pools discussed earlier, there is a real need to improve visibility and transparency across multiple locations. Digitized tools provide the ability to build a virtual “war room” with capabilities for teams to meet, collaborate, and centrally manage project artifacts. It is critical for all project participants (IT, business, contractors) participate in business-critical discussions and decisions. These discussions can be structured (regular stand-up meetings) or ad-hoc. As such, providing tools for a variety of devices, including mobile, is essential.

To some people, I may have placed social collaboration too high on the list. However, I have seen the struggles of aligning schedules, time zones, and teams to facilitate much-needed discussions. Because of this, I can’t overemphasize how important it is to be proactive in creating a platform to facilitate connections between all team members.

7.7.3 API Architecture

Have you ever considered how much simpler our business lives would be if there were a single application that did everything we need? While enterprise resource planning (ERP) systems promised this, none have been able to provide all of the capabilities required of a complex business. As a result, we live in multi-application, multi-vendor world. This realization places high importance on the ability to build and manage integrations between the various applications required to service business demands.

We have dealt with this issue for decades. IT builds a unique application to integrate two applications (known as a point-to-point integration). As we add more applications, we build more point-to-point integrations until we have an intricate spider web of integrations across a typical organization.

In the early 2000s, technology was introduced to assist with integration. Enterprise Application Integration (EAI) provided a middleware model to sit between applications and provide a standardized way to connect and share information. While this improved the way we connected applications, it still proved to be heavyweight and required tight coordination between the EAI releases and those of the software vendors. Many integration projects using the initial EAI processes struggled due to performance bottlenecks in the central hub of the EAI product and with the connectors to the applications becoming out of sync with the EAI middleware.

The natural evolution of this began to emerge in the past few years. The new methods of integration rely on the concept of an enterprise service bus (ESB). These integration methods provide for the building of lightweight application program interfaces (API) that connect applications to the service bus. The best of this new breed of tools leverage open messaging standards to allow for flexibility and “future proofing” (make it easier to add new applications and update existing one with minimal impact).

The resulting API architecture encompasses essential services such as security, routing, platform (or protocol) navigation, and monitoring/administration. These services are inherited by each integration application to provide consistency and reduce the amount of time needed to “code.” The API architecture provides a lightweight, flexible network of integration points that are centrally managed, scalable, distributable, and connectable to other integration types in the organization.

The API Architecture is implemented in a variety of manners. An example of a related architecture style is microservices. Microservices are much finer grained components of an application that can be modified independently without disruption to the larger application. These microservices also operate independently. They receive, process, and respond to requests from other services. They do this without reliance on an underlying messaging system such as an ESB.

In the 2018 Retail Digital Adoption Survey point-to-point integration was identified as the predominant method used by organizations (63%). However, only 19% of respondents cited point-to-point as their only method for integrating applications. This statistic highlights that many retail organizations are in transition to a more flexible integration platform. 75% of respondents indicated they were using a third-party integration platform or had internally developed a services-oriented integration framework. This percentage was 100% for the Digital Leaders (Stone, 2018).

How an organization chooses to implement component-based integration architecture is dependent on their application portfolio, infrastructure, and talent. Regardless, IT organizations must prepare for these integration components being consumed on a broader scale than just IT.

IT should work to build a network of API’s and expose them in a manner that is easy to search and understand. By doing this, IT enables a framework that may be ultimately used by citizen developers to connect various technology applications

and assets to build solutions. Providing access to the citizen developers will likely elicit a degree of skepticism in IT. However, consider the business is already trying to connect disparate applications and data sources using Excel and Access. Wouldn’t it be better to give them the tools to do it in the right way? By coupling API’s with smart workflow tools and analytics, the business suddenly possesses the ability to expand applications in a managed manner, without needing additional assistance from IT. Improved throughput with less IT involvement is indeed a “win-win” scenario.

7.7.4 *Lightweight Deployment*

The adoption of the API architecture allows IT to take the next step in building agility and speed. The push is to get to smaller, less complex deployments that are easier to consume by the business. For IT, these smaller deployments are easier to manage, as they require a smaller technical (CPU, disk, memory) footprint. These smaller deployments represent a trend in the software industry that is beginning to gain traction within industry companies. This concept is known as containers. A container is a totally self-contained execution environment. The container has its own isolated virtual CPU, memory, storage, and network services. It shares the execution with the host server operating system, resulting in a very nimble execution engine that feels like a virtual machine but does not have all the start-up processes and weight.

In the simplest terms, a container application is isolated from its surroundings. This isolation means a containerized application runs the same regardless of its environment.

This explanation may confuse some non-technical readers. Suffice to say; containers offer tremendous flexibility for developers. A well-constructed container is highly portable, can scale as demands/volume grows, and are much more efficient than traditional virtual computing. Containers also insulate organizations from impacts in changing from on-premise computing to the cloud, as well as moving from one cloud provider to another.

In the 2018 Retail Digital Adoption Survey, 50% of respondents were leveraging containers in some form. More telling, 100% of Digital Leaders were leveraging containers to provide additional flexibility and speed (Stone, 2018).

7.7.5 *Built-In Security and Audit*

If you ever sat in a war room when a major application was going into production and things weren’t going well you probably heard someone talk about a “trace” or “displays.” These are tools enabling developers to look into what is happening inside the code that may not be readily apparent when watching the outcomes of the application. The problem with traces and displays is you have to add them in after

the fact. Consequently, you are somewhat shooting in the dark on where to put them to collect the information that would allow you to pinpoint a problem.

Today many applications are being built on frameworks providing rich information on the use of the application. Included in these frameworks are system logs that can be leveraged to ensure applications are secure.

This new breed of application has many significant benefits. It allows for more in-depth and quicker discovery of issues. It also provides built-in auditability that is sure to make auditors and IT alike very happy.

Also, by leveraging the API Architecture, services can be constructed in a manner that imposes security and control through service inheritance. While providing higher levels of security and auditability, this practice also enhances development speed, as security is built-in rather than “bolted on.”

7.7.6 Cloud Leveraged

Probably the most over-hyped word in technology in the past 5 years other than digital has been “cloud.” As with digital, the term cloud can mean many things to many people. When we discuss cloud, we are explicitly talking about the architecture enabling the access to shared computing resources (such as networks, servers, storage, applications, and platforms), which can be easily configured and scaled.

Clouds are delivered in one of three primary forms:

- **Public**—A third party provides computing resources to the general public using a standard cloud model, delivered via the Internet.
- **Private**—Providing cloud-computing resources to a single (private) organization. The cloud services can be provided internally (behind the company’s firewalls) or delivered as a dedicated service from a third party.
- **Hybrid**—A cloud environment containing a mixture of Public and Private services with a level of orchestration to deliver a seamless experience.

Leveraging cloud architecture is another method to gain speed and agility in your development organization. Leveraging cloud services allows development teams to build test and staging environments through a managed, self-service portal, eliminating the traditional bottlenecks in getting environments ready to use. In fact, the cloud is an essential element to support Agile and DevOps. It provides easy access to services (inside and outside the company) while providing freedom to development teams to innovate and experiment.

The cloud architecture is also used as a means to encourage collaboration and sharing of project artifacts between project team members, regardless of location. In short, cloud architecture in any of its forms is a must to enable speed and agility in the technology organization.

7.7.7 *End User Self-Service*

The final element of changing your development approach is one we discussed earlier in talent and API’s. It requires IT to begin building applications with end-user self-service in mind.

I won’t rehash my earlier comments, but it is essential IT embrace the notion solution delivery is distributed not centralized. Distributed solution delivery requires IT to find ways to build frameworks and tools to enable business developers, without requiring constant intervention from IT.

In one of my previous employers, there was a well-cultivated citizen developer organization in place before I arrived. Once I came on board I talked to many of these groups across the organization. It became apparent to me this group of citizen developers easily numbered 200–250 people in size, not counting part-timers. These 200–250 associates were essentially working full-time on the development and maintenance of (primarily) Excel and Access solutions.

As I looked at what these developers were doing, it was amazingly inefficient. It wasn’t their fault as they were using the only tools they understood. I was confident we could eliminate almost 60% of the work being done just by providing more structured data access and a better class of end-user tool. Assuming an average salary of \$80,000 (which is conservative) and 50% savings, this translates into over \$10 M of annual labor dollars.

Let’s look at these savings in another way. Instead of eliminating the labor, what if the labor was repositioned to add new value? Using labor savings to create new value has a massive compounding effect and can deliver many multiples over the base labor savings.

As I stated before, I don’t see a way for IT to win in a completely centralized model. Enabling the business to respond to rapid changes in a managed, self-service manner is the only way IT can ever win the business demand war.

Deaf Diagnostic

In a digital enterprise, speed and agility are prized characteristics. To achieve these characteristics, IT must adopt modern techniques for application development. Traditional waterfall approaches will not be successful in a digit enterprise.

7.8 Building the Data Backbone

The final of the four steps to transform IT is the building of a data backbone. We should ponder that at the core of all information technology is the first word, “information.” All systems are designed to process information (data) in some form or fashion. This principle isn’t going away. In fact, it is more critical than ever. I

genuinely believe, in today's digital world, a company's future is predicated on their ability to collect as much relevant data as possible and to use it make more rapid, well-informed decisions.

Have you heard this all before? Do you remember phrases like the "data warehouse," "single version of the truth," or "data mining?" What about Artificial intelligence (past iterations)? How about Big Data and Hadoop?

Yes, we have talked about the importance of data in business decision-making processes for a long, long time. However, this time it is different. "Why?" you may ask. You need to look no further than your pocket (or wherever you store your smartphone). We live in a hyper-connected world where smart devices, sensors, and applications are producing data at an unprecedented rate.

As we enter a new age of computing, it only makes sense to "double down" on the reason IT exists in the first place, processing data. However, honestly, I still haven't answered the question of what is different now. To do this, let's do a short review of the history of decision support sciences.

In the past, we had systems producing transactional data that did not provide an easy way to access the data to create insights. In the late 1980s and early 1990s, the first systems began to emerge across industries aimed at providing richer information to enhance decisions. The "data warehouse" grew out of this movement. Unlike the transactional systems, the data warehouse was architected to organize data in a manner enabling ease and speed of queries. Data warehousing was widespread in the 1990s and led to the emergence of many technology companies devoted to building, maintaining, and leveraging data warehouses. Included in this was the emergence of the modern business intelligence platforms. These platforms were purpose-built to provide a simpler way to develop and present reports, dashboards, and analysis.

These technologies were, for the most part, built on the paradigm of relational database technology, which organizes data into structures known as tables. Each relational table contains rows and columns. This structured data view works well in organizing and managing information from traditional transactional systems. New powerful database technologies such as Teradata emerged to provide the capability to query massive amounts of relational data in a fraction of the time previously possible.

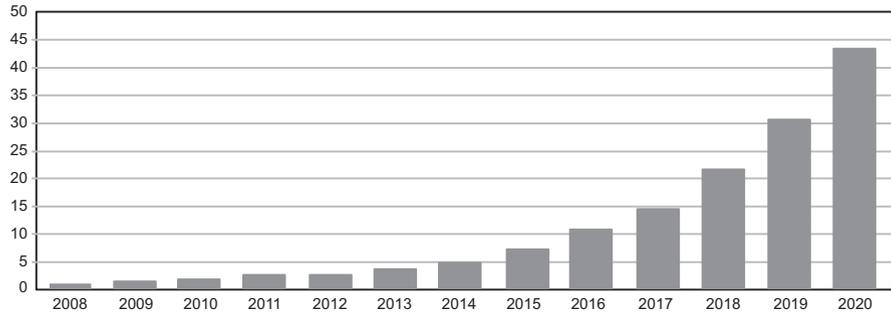
As we moved into the 2000s, the composition of our data began to change. Semi-structured data such as XML became increasingly important to businesses. This data, while adhering to a form of structure, did not follow the traditional relational row/column orientation. As data storage costs continued to drop, more companies sought to mine information from unstructured forms of data such as video, sound (voice), pictures, and unstructured text. These data types do not conform to relational constructs and typically require significant amounts of storage.

Coupled with the growth of these new data structures was an explosion in data created from social applications, mobile devices, sensors, and beacons. The chart below shows the unprecedented growth in data in the past decade (Fig. 7.2).

The massive growth in data and the desire to gain insight from mixed data types led to the creation of the MapReduce programming model. MapReduce models

Data is growing at a 40 percent compound annual rate, reaching nearly 45 ZB by 2020

Data in zettabytes (ZB)



Source: Oracle, 2012

Fig. 7.2 Projected data growth

provide the ability to do distributed processing of extensive, mixed sets of data while providing redundancy and fault tolerance.

The most popular variant of MapReduce is Hadoop, which was developed to improve web searches for Yahoo. Yahoo released Hadoop to the open source community in 2008, and it has grown wildly in popularity ever since. Today, Hadoop is the de facto standard for processing extremely large, complex volumes of data.

Another outgrowth of having all of this data available to be mined and analyzed is Artificial Intelligence (AI). There are multiple varieties of AI today including machine learning, deep learning, and cognitive computing. All are slightly different but follow a similar principle. The more data provided, the more the algorithms “learn” and thus improves the quality of decisions.

I can’t overstate the importance of this trend to digital. In digital transformation, we are changing the speed at which we need to identify patterns, process data, and make decisions. AI algorithms are the foundation of this capability.

Think about what happens today when you are on a website or mobile application looking at products. Suddenly a plethora of related items appear for your consideration. Likely, these recommendations are the outcome of “learning” algorithms. The algorithms have been trained based on patterns from other shoppers, your personal preferences, and your previous purchases. These recommendations do not require human intervention and happen at the right moment to influence customer purchase behavior.

This same process begins to reshape business processes across the organization. AI algorithms will become the norm for decisions that are fact-based and repeatable.

The data backbone of the organization feeds these AI algorithms. Understandably, the data must be of high quality. We don’t want to train AI systems using data fraught with errors. The data is organized in a way machines, and humans alike can access it. The speed of data refresh must be near real-time as decisions are made in the same (near real-time) manner.

The 2018 Retail Digital Adoption survey underscores the importance of data in driving performance. 100% of Digital Leaders were pursuing big data and advanced analytics capabilities, with 80% having completed at least a portion of their initiative. Only 18% of the other respondents had completed a portion of their big data and advanced analytics initiative (Stone, 2018).

To build a data backbone with these characteristics requires thoughtful planning by IT. The architecture of the data backbone must be able to accommodate scale, speed, and data lineage. Achieving this architecture likely requires multiple technologies as different data use cases may be better served by specialty applications. However, it is critical the organization develops and maintains a firm grasp of its data pipeline (where data originates, where it flows, where it is enriched, and where it is archived). Absent this knowledge, response times to business change are elongated.

Deaf Diagnostic

Digital businesses run on data. As such, to enable successful transformation, organizations must have a well-defined strategy and associated architecture for building enterprise-class analytics capabilities.

To further illustrate the importance of analytics, Gartner noted in the 2018 CIO Agenda that 64% of CIOs at top-performing organizations are very or extremely involved in their enterprise's BI/analytics activities, with participation by CIOs at typical or trailing organizations much lower (Gartner Group, 2017).

The challenge for IT is clear. If IT is to be a catalyst for change in the business, it must change its ability to respond. The four steps we covered in this chapter are not simple and do not happen overnight. As such, it is critical for IT organizations to be working on these four steps already or be deep into the planning process for action. In the new world of digital technologies, IT must become more of an orchestrator of services and less of a controlling central figure. This new role isn't something many IT organizations have considered, and it will take some time to make the transition.

Make no mistake about it; we are asking IT to change the tires on its processes while the car is moving. Working changes into existing and upcoming projects will get IT part of the way there. However, the fundamental changes in IT to achieve speed and agility will require focused efforts. It is not just an investment; it is a required investment.

Of course, the investment in IT transformation means very little if you don't have the talent needed to make it successful. In Chap. 8 we will discuss the talent changes and enhancements needed across the organization to help drive digital transformation.

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Chapter 8

Tangled Talent



Abstract All projects and transformation efforts rely on a common component: people. Stone discusses the roles of leadership and talent in transformation. He identifies key characteristics needed by leadership to guide the organization through the complex transformation journey. Stone discusses the significant role of culture in digital transformation. In this discussion he highlights key characteristics needed in organizational culture to enable successful digital transformation.

8.1 The Importance of the Right Talent

To this point in the book, we have covered a lot of ground. We discussed the definition of digital transformation, the importance of corporate alignment, the impact of board of director composition, the need for the appropriate structure, the difficulties in executing projects, and the changes needed by IT to set the table for success.

The hard truth is you can get all of that right and still not succeed if you don't have the right talent dedicated to your transformational effort and the right leadership directing that talent.

I can remember countless discussions in my career where parts of the organization talked about the importance of talent. I can recall having the same debate with my teams as well. We all understand things get done through people and having good people make things a lot easier.

However, we all sometimes forget talent doesn't just develop by itself. We lament the lack of resources skilled in one discipline or another but did not take the steps to build the skills from within. We complain to HR about not getting a specific person due to salary restrictions. However, did we take the time to build a case for the importance of the talent up front and set expectations at the executive level of what the specific skills would cost? We complain about how long it takes to find someone for a particular role only to find out that the way we were describing the position was out of sync with the industry. We see attrition in our organization, but do we dig deep to understand why and take actions to fix it? We see increasing staff augmentation for particular skills in our organization but don't look at opportunities to reskill

internal resources. We don't consider the importance of opportunity in building talent and just assign resources based on "next person up." Alternatively, we accept mediocrity because we believe mediocre is better than a vacancy.

In short, talking about talent and doing something about it are two entirely different things.

The right talent is essential for success on any project, but its importance is even more pronounced when pursuing transformative efforts. When considering transformation, it is crucial to think about talent in three primary groups.

- Leadership
- Transformation Execution
- Transformed organization

8.2 Leadership Talent

We discussed the importance of a singular message at the top of the organization and corporate alignment early in the book. Leaders not only are vital in delivering this message; they are the people who will keep it alive through the dark days of project execution. They are the people who will evangelize the importance of transformation and be there to support their respective groups as they move through the various stages.

Leadership sets the tone and maintains the tone of transformation. Leadership makes it "real" for everyone else in the organization and inspires the team to make the journey. Above all, leadership must be genuine. Leaders must make the transformation message real in their own words and deliver the message with a degree of passion. I used the word evangelize earlier. Can you imagine an evangelist using someone else's words and do so without demonstrated commitment and passion? How effective would that evangelist be?

I observed this many years ago. As you might recall in Chap. 5, I talked about a massive transformation effort that started with a former employer. As I mentioned, the CEO had brought in a number of consultancies to help with the effort. One consultancy, in particular, was brought in as "change experts." The founder of the consultancy, a well-known author on change, led the effort. I watched, on numerous occasions, during this process our CEO attempt to deliver messages around the expected change to the executive team. The problem was the words were not his. Each of his discussions came across as scripted and devoid of inspiration. As a result, executives left the meetings not talking about the excitement of transformation. Instead, they were talking about "the consultants putting words into the CEO's mouth." As you read earlier, the effort did not "transform" the company in the manner in which the CEO was trying to describe. In fact, you could argue no real transformation occurred at all as the business model remained virtually unchanged.

You would have thought a consultancy specializing in change management could have seen this coming. However, they were well compensated and were long gone before the issues began to emerge.

During transformational efforts, there is an amplified need for strong, authentic leadership. I have had the opportunities to work for and with some excellent leaders over the course of my career. I know I learned a great deal about leadership and inspiring organizations from these leaders. One leader I have observed throughout my life is my brother. My brother began his career in the mailroom of Lowe's Companies, Inc. in our hometown of North Wilkesboro, NC. He remained with the company for 43 years, rising through the ranks to the office of President and Chief Operating Officer. Aside from family pride, I always marveled at how he was able to inspire confidence and loyalty in his team. He shared his five traits of a great leader with me many years ago. I keep them handy and find myself referencing them at times when I am in a reflective moment. His five key leadership traits are as follows.

1. *Be authentic.* Don't try to be someone or something you aren't.
2. *Have empathy.* Treat others the way you would want to be treated.
3. *Be passionate.* Have commitment and passion in everything you do.
4. *Be a team player.* Do whatever is needed to help the team win.
5. *Have integrity.* Be fair and do what is right.

Over the years I added three additional items from observing other leaders and reflecting on my personal style.

6. *Be curious.* Don't settle for the status quo. Consider what is possible.
7. *Be accountable.* Accept responsibility and seek to solve, not blame.
8. *Have courage.* Stay true to your beliefs. Respectfully speak your mind.

I do not aspire to write a book on leadership. There are many fantastic books available today that truly challenge us to be better leaders. The purpose of this list is in the spirit of leading transformation. Each of these eight items has an essential role in the leadership of complex transformation efforts.

Additionally, leaders succeeding in digital transformation share a few additional specific traits.

- *Digitally aware*—understands the role of technology in shaping the future of businesses.
- *Innovative*—not afraid to experiment and learn. Risk takers.
- *Adaptable*—possess the ability to change as situations dictate.

After establishing the tone and preparing the team for what is in front of them, leadership must be accountable and present to help the team navigate difficulties and challenges that will inevitably arise. You can't delegate this part of leadership. Leadership must be visible and accessible for the team.

Before starting a major transformational effort, it is critical to assess the leadership talent in the organization. Those that do not share the message and values of the transformation should not be involved in the effort, as their message will not inspire

others. Ensure you have the appropriate number of leaders involved in the effort, their message is consistent, and they are enthusiastic in their support.

Deaf Diagnostic

Leadership in your organization must be “all in” on the benefits and promise of digital transformation. As important, leadership must have organizational credibility and speak as a single voice on the topic of digital transformation.

While leadership is crucial, leaders can’t do it alone. Ensuring the right talent is available to support the execution of the transformation efforts is the next critical step.

8.3 Transformation Execution Talent

When we consider the talent we need to execute this effort, we must study all the skills required to begin and complete the journey. Critical skills will include project and program management, business process experts, organizational change management experts, and various technical specialty experts.

It is entirely likely all the skills you need to execute a digital transformation will not be inside your organization. Consequently, a typical digital transformation team is comprised of in-house and external associates. The key to success in a mixed team environment is to have clearly defined roles and accountability. Team mix is also a critical consideration. The table below illustrates some of the high-level roles needed on the team and which ones are better suited for in-house versus external resources (Table 8.1).

Table 8.1 Transformation roles

Roles	In-house	External
Sponsor(s)	P	
Program, project, scrum management	P	S
Program/project quality assurance		P
Business process subject matter experts	P	
Organizational change management	P/S	P/S
Product owners	P	
Technical business architects	P	S
Technology specialists	P/S	P/S
System integration/development	P/S	P/S

P primary, *S* secondary

Clearly, sponsorship is a role that must be in-house. You can augment the day-to-day management of efforts (programs, projects, agile scrums, or the like). However, to ensure accountability, I would highly recommend keeping the top-level execution oversight in-house. Conversely, I would suggest using an independent third party to perform a quality assurance (QA) role of the overall effort. The independent QA group should report directly to the sponsor(s) and provide unbiased feedback on progress, issues, and risks.

As with sponsorship, business process subject matter experts are sourced from inside the organization. External resources can help in the design of new processes, but the experts on what is currently in place (and why) must come from inside the organization. Organization Change Management (or Business Change Management) is accomplished with a mix of resources. In companies where this discipline is well practiced and staffed, I would suggest leading with your internal group. If the expertise isn't in-house, then use external labor, but build the competency as you go. Given the nature of digital technologies, this is a skill organizations need to invest in for the future.

Product owner is a role that may be foreign to some readers. As companies move towards Agile and specifically Continuous Integration, Continuous Deployment (CI/CD), the typical project construct no longer works. Instead of organizing around projects, teams organize around products. Products are effectively solutions that solve a problem or provide a benefit to the consumer of the product. Whereas a project is a temporally bounded event, a product has a lifecycle and will evolve as time passes. Typically a single person will be designated as the owner of a product. The product owner is responsible for defining the future of the product as well as establishing the priorities for enhancements and additions.

Most people are familiar with Technical Architects. These are the technology experts that help shape how technologies fit together and how they should evolve. Business architects may not be as familiar. A Business Architect is concerned with developing business capabilities aligned with corporate strategy/direction. A Business Architect typically operates at a higher level than a traditional process architect or business analyst. In both instances (Technical and Business Architect) it is important to have primary representation from inside the organization. Business Architecture may be foreign to some companies. Augmenting this role from the outside while building the competency inside will suffice. The Technical and Business Architects need to work closely together to understand how business capabilities will evolve and what enabling technology will be required to support this evolution.

The need for technology specialists will likely be different from organization to organization as there will be different technologies comprising each organization's digital strategy. However, some of the more common specialists needed include:

- Data Scientists (including Artificial Intelligence, Machine Learning)
- Digital security
- Cloud Computing
- Data Analytics
- Mobile
- Internet of things (IoT)

- Blockchain/Distributed Ledger
- Social media

In the 2018 Retail Digital Adoption Survey, Data Scientists and Data Engineers were cited as the most difficult positions to fill by 69% of respondents. Technical developers and specialists were second at 56% (Stone, 2018).

These unique skills may likely need to be augmented or built as part of a digital transformation effort. If these technologies are critical to the ongoing operation of your transformed business, you must create or acquire the necessary skills to ensure a smooth transition to a steady state operation.

I draw a distinction between systems integrators and developers. System integrators are specialists in bringing together subcomponents to form an overarching business solution. In some cases, the system integrators perform extensive configuration activities to achieve business requirements. Developers are, as the name insinuates, builders of new functions. Developers often work with native programming languages and platforms to build custom functionality. Typically, with a systems integrator, you select a resource based on the knowledge of a specific application package or business process. A developer is selected based on knowledge of a development language or platform.

System Integrators and developers comprise the bulk of resources during the technology build activities. These are also among the most natural roles to augment on a technical project. However, exercise care when augmenting. Augmenting an entire functional subject area with external resources makes it very challenging to bridge from “build” to “run,” especially if your internal IT organization will ultimately own the solution. This handoff from development to production is where the adoption of a DevOps approach can provide substantial benefits to your IT organization.

Finally testing. Testing is an area often forgotten when it comes to execution of technology projects. However, I would argue it is among the most important resource to consider.

I recall the “fun” learning the difference between developers and testers early in my career. I was a software engineer at a large software company. I admit I was a little on the cocky side when it came to my code. I had just completed development and unit testing on a new module. I walked over to our assigned quality assurance (QA) representative and announced: “The demand management module is ready to go. You can test all you want, but it won’t break. It is rock solid.” I went back to my office and proceeded to work on another module. About 3 h later the QA representative came into my office and said nonchalantly: “Uh, your unbreakable code blew up. I am printing a large core dump for you to analyze.”

I was incredulous. I walked over to the QA representative’s office and asked to see what he was doing. He walked through the steps he had followed, which included typing incorrect data in one of the screen’s key fields. When he pressed enter (return) the screen flashed the appropriate message “Invalid order key entered. Please enter

a valid order key and press return.” Instead of following the screen’s instructions, he proceeded to begin entering information in the body of the screen and then pressed the update function. Immediately the program failed (back in those days we used the term “abended”).

I said: “Wait a minute. The system told you what to do, and you just ignored it.”

He smiled and looked at me and said “Yeah, but you didn’t do anything programmatically to stop me.”

By now I was getting a little angry. “This is a common error routine used throughout our system. It would require changing over one hundred screens.”

His reply was simply “Sounds like you have a lot of work to do.”

At that point, I understood the difference between developers and testers. Developers test to prove functionality, Testers test to break. They enjoy finding errors. They think outside of the development box and consider what someone “might” do versus what they “should” do. In other words, it is a different skill that is critical in ensuring the solution you are deploying will work in the manner intended.

Over my career as a developer, I quickly learned to appreciate what proper testing can do to prevent significant downstream issues.

As with system integrators and developers, testing is an easily augmented role on the team. The key for testing is to do it in such a way that it is repeatable. Repeatability is accomplished through the building of automated test scripts that can be executed to compare actual results versus expected. Testing automation is essential to provide speed and agility downstream. Don’t let anyone say “we will do that later” with regards to test automation as “later” will never be there fast enough.

A thorough transformation execution plan accounts for all the resources needed. As transformation is a journey, these resource needs will shift over time. Having a sourcing plan providing a level of flexibility will be crucial to navigating detours and obstacles.

Once you understand the roles needed to execute the plan, and the approximate level of resource commitment, the next significant step is to begin “clearing the decks” for the critical resources. Digital Transformation is not a part-time job. People don’t do transformation as a nighttime and weekend effort. Digital transformation requires real, dedicated talent to be successful.

Finally, you must also consider the word “talent.” As we discussed in Chap. 6, putting the wrong people on these types of efforts often results in failure. The best advice I can offer is to choose wisely. You must ensure the resources understand the transformation is their only priority, and then work to minimize any distractions to allow them to succeed.

Failing to free resources from their normal daily duties to focus on transformation activities is a common cause of transformation issues. Those people caught in the “tug-of-war” between their daily jobs and transformation are likely feeling much more stress and anxiety. This stress will impact performance and risk the suc-

cess of the transformation effort. More importantly, it can also lead to organizations losing critical resources for all the wrong reasons.

Deaf Diagnostic

Talent is essential for success in digital transformation. Organizations must have a formal plan for the talent needed to lead, execute, and sustain transformation efforts. The plan must include steps and tools to assist in the acquisition of new talent, retraining of existing talent, and retention of critical talent.

8.4 Transformed Organization Talent

We have considered leadership and the resources needed to execute a transformation effort. The final part of the talent equation is to examine the roles being transformed in the organization.

I have seen this step missed on technology projects in the past. It often results in lost productivity, unwanted turnover, and a lot of frustration in business and IT alike. The bad news is, during digital transformation, the impact is much greater.

If you reflect on our definition of Digital Transformation from Chap. 2, you will understand why this is true. Digital Transformation will fundamentally change processes to improve customer interactions. “Fundamentally” in this context refers to changing the foundation. If we are changing the foundation on which people work, then clearly, this requires a great deal of thought and preparation.

Will any roles be eliminated? What new roles will emerge and what will their responsibilities be? Do we have the people needed to fill these roles? Do we need to provide education to them to prepare them for the new roles? Will we need to eliminate people no longer possessing the skills required to support a particular function or can we repurpose them to another part of the business? Will the current organization structure suffice or will new functions need to evolve as part of the transformation?

These are just a few of the questions that come to mind, as you consider “post-transformation.” Not all the answers will be readily apparent at the beginning of the transformation. It is vital that organizational change management (OCM) be at the core of your transformation efforts. As you progress through digital transformation, you will discover answers for questions not even asked. Leveraging findings, and assessing the organization change allows the OCM team to build programs to better prepare the impacted parts of the organization.

8.5 The Role of Culture in Transformation

To conclude our discussion on talent, I want to spend a few moments discussing culture. We briefly discussed culture in Chap. 3 as part of the topic of corporate alignment. As defined by Merriam-Webster, “culture” is a way of thinking, behaving, or working that exists in a place or organization.

As I consider that definition, it appears that culture will provide the basis for technology and process adoption. In other words, if an organization’s culture doesn’t support change, then attempts to change will likely fail.

As we move into a digitized world, change becomes a constant. Culture must be remade to embrace continuous change and a more rapid pace. We can’t require 15 levels of approval and a long sequential process to get things done. We must be nimble and agile.

Addressing culture is essential to success. It is no surprise in Gartner Group’s 2018 CIO Agenda, *Mastering the New Job of the CIO*, the number one obstacle in moving from initial stages of digital transformation to scale was culture. 46% of respondents noted culture is the most significant barrier. At 46%, culture was double the percentage of the next closest barrier, resources (Gartner Group, 2017).

When you think about the culture needed to transform and sustain the transformation, many characteristics come to mind. Digital organizations empower their staff to operate more autonomously and with greater speed. Digital organizations attract top talent.

Figure 8.1 shows the specific characteristics that should be central to a digitally transformed organization.

While organizations may not possess all of these characteristics, they should aspire to attain these characteristics as part of their digital journey.

It is no mistake that customer centricity is at the core of the diagram. The focus of digital transformation should be on your customer. More specifically, how do you remain relevant to your customer?

A critical enabler for this discussion is customer knowledge. In order to remain relevant, organizations must have deep knowledge of their customer’s behaviors and patterns. Organizations must be able to anticipate changes in these behaviors and patterns and understand the impact to their business models. In simple terms, do you understand the problems you solve and the value you bring to your customers? Is this changing?

A good friend of mine has said: “culture is not an action to be taken, but is the result of actions taken.” I love this quote because it captures the essence of many “culture-changing” programs I have witnessed over time. Executives will mandate a set of behaviors they expect exhibited in their organization. They create posters, hold meetings with their teams, and proclaim: “this is how we will operate in the future.” These executives then scratch their heads when nothing really changes.

The reason for the lack of change is simple. Culture can’t be mandated. Culture is emulated based on the observed behaviors of the individuals in the organization

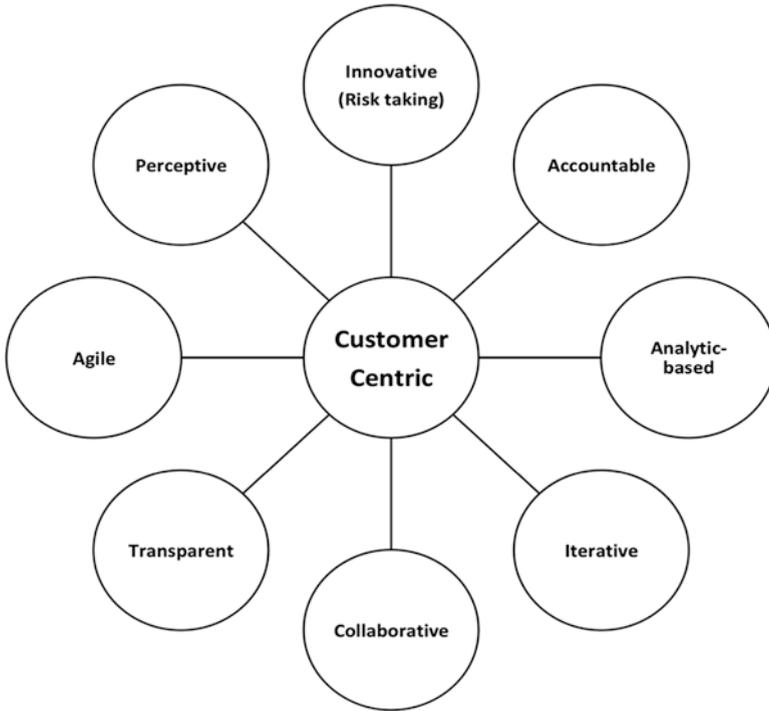


Fig. 8.1 Attributes of a digital enterprise

with the most influence. In other words, if the leaders of the organization don't exhibit the desired cultural attributes, no one else will.

Organizations must consider the evolution of their culture as part of a digital transformation. To be digital is to be perceptive. Digital organizations scan their surroundings and are among the first to capitalize on opportunities.

Not surprising, this was a key finding in the 2018 Retail Digital Adoption Survey. 80% of Digital Leaders had attempted to alter their corporate culture to be more in keeping with that of a digital organization compared to only 36% of their peers. Digital Leaders characterized their organizations as cross-functional (collaborative), customer-centric, accountable, and transparent. In other words, all of their identifying traits were those of digital organizations. Their peers selected customer-centric, but no other digital attribute received more than 36% (Stone, 2018).

Digital organizations are also introspective with regards to their talent. It is impossible to transform a culture if the people in the organization don't share the same traits and beliefs. In fact, if you look at the diagram it isn't hard to think of the opposite of each bubble (risk adverse, deflecting, reporting, sequential, silo, closed, plodding, internally-focused, and product-centric). If you have people that have

these traits and can't change, they likely will not be with you at the end of your digital transformation journey.

Deaf Diagnostic

Culture provides the foundation for any form of transformation. If your organization does not possess any of the characteristics inherent in a digital enterprise, it will be difficult to navigate your digital journey.

At this juncture, we have covered all the critical items to consider when undertaking a digital transformation. As we navigated through the book, we called out many items as “Deaf Diagnostics.” The next chapter deals with these diagnostics, how to identify them, and how to address them.

References

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Chapter 9

Deciphering Diagnostics



Abstract Stone summarizes all of the Deaf Diagnostics identified throughout chapters one through eight. He builds an easy reference guide to explain the importance of each diagnostic, how to identify the diagnostic in an organization, and actions to diminish or eliminate the impact of the diagnostic.

In my career, I had the opportunity to work for five different companies. Each company had its own distinct culture, distinctly different leadership styles, and unique goals. Four of the five companies I worked with had aggressive growth goals as part of their mid-to-long-term vision. While every company I worked for grew, only one met its aggressive growth goals.

When I joined Lowe’s, Inc., it was wrapping up its 1992 business year where it would generate approximately \$3.8 B of revenue in the home improvement retail sector. We ended the year with roughly 300 stores and 10 million square feet of retail selling space. The average store in the chain was approximately 32,000 square feet in size. The company had opened its first big box store during the year as it was beginning to embark on a new business strategy.

I remember some of the first meetings at Lowe’s. The topic was transformation on a massive scale. The goal was simple enough, to grow the company to 600 stores by the year 2000. As meetings picked up momentum it became clear it wasn’t just the about opening new stores; it was also the transformation of the existing store base. Over time, the goal was refined to 600 “superstores” and \$20 B in revenue by 2000.

As we closed the books on the 2000 business, Lowe’s was operating 650 stores totaling over 67 million square feet (an average of 104,000 square feet per store). Revenues totaled just under \$19 B.

I left Lowe’s at the close of the fiscal year in 2010 (January 2011). As I departed, the company was operating nearly 1750 stores with over 197 million square feet of selling space. Revenue was approximately \$49 B.

During my career at Lowe’s the company grew stores by 6X, retail square footage by almost 20X, and revenues by 13X. It is a transformation story almost unparalleled in US retail history.

As I reflect on my 19 years at Lowe’s and think about what drove the fantastic transformation and growth of the company, I come back to a few critical points.

- Continuity of leadership. Three CEOs led Lowe’s during my 19-year tenure. All three of the CEOs came from inside the company. When I left the company, 10 of the 14 top executives had over 15 years experience with Lowe’s. Four of the 14 had over 30 years of experience. This level of experience played a vital role in propagating company culture.
- Simplicity of the message. Lowe’s focused not just on growth, but profitable growth. This theme was pervasive in all meetings and all company messaging.
- Intense focus on the fundamentals. Lowe’s understood its customer and its competition. Lowe’s possessed good sources of information and leveraged it effectively to maintain a firm finger on the pulse of the business.
- Great people. I had the opportunity to work with an amazing group of leaders and associates during my tenure at Lowe’s. The people at Lowe’s were highly motivated and introspective. Lowe’s was Lowe’s worst critic.

I share this story of transformation success as the backdrop for discussing our Deaf Diagnostics. Transformation on a large scale is possible, but not without tremendous effort and focus.

We have been through eight chapters and identified 16 Deaf Diagnostics. These 16 items are ones that, if not addressed, will present major obstacles to your digital transformation efforts.

I chose to prioritize these diagnostics based on my opinion of their importance (most important first). Your priorities may be different depending on your specific situation.

For each Deaf Diagnostic we will provide the chapter in which we identified the diagnostic, a short description, symptoms to look for, why it is important to recognize, and potential actions steps to mitigate (or eliminate) the impact to your transformation journey.

9.1 Digital DNA

Chapter reference	8
Description	Your organization must possess the characteristics inherent in digital organizations, or your transformation efforts will not deliver the desired impact
Why is it important?	Culture shapes the playing field for transformation. Culture is reflected in an organization’s values and beliefs. If the organization does not possess the needed characteristics, it will be unable to foster support for profound, meaningful change
Symptoms	<ul style="list-style-type: none"> • Lots of gossip and sidebar discussions • Unhealthy competition among leaders • Inability to make decisions and move forward • Organization clinging to its silos • “Blame games” • Information hoarding • Everything follows a traditional sequential pattern

(continued)

Mitigating actions	<p>Most of what I can say about improving culture sounds like motherhood and apple pie. The actions of the organization illuminate its culture. Changing the culture requires real effort, with the actions of the leaders amplified in these scenarios. The nine characteristics of digital organizations need to become core to the organization. Ways to do this include:</p> <ul style="list-style-type: none"> • Publish the characteristics you want in the organization and keep them front and center to employees at all times • Develop and cultivate an environment that recognizes and rewards positive behaviors reinforcing the culture you want. Conversely, recognize and call-out harmful behaviors as well • Incorporate these values into your hiring, promotions, and evaluation criteria for leaders
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9.2 Leadership Commitment

Chapter reference	8
Description	Leadership in your organization must be “all in” on the benefits and promise of digital transformation. As important, the leadership must have credibility across the organization
Why is it important?	Leadership establishes the tone for the organization. Clear, consistent, and authentic messaging from leadership builds credibility and elevates the priority staff will place on transformation activities
Symptoms	<ul style="list-style-type: none"> • Leaders disregard or even show disdain for the transformation outside of public forums • Different transformation messages and priorities emerging from various leaders • Organization staff is unclear on the intent and goals of the transformation • Messaging from leaders does not resonate with the organization’s staff
Mitigating actions	<ul style="list-style-type: none"> • Message from the CEO (written and presented) outlining expectations, timelines, and structure • Workshops with leaders to get everyone “on the same page” • Coaching leaders on storytelling and how to make the message personal • Common talking points with emphasis on those items most critical to success • Leaders holding each other accountable for staying on message • Remove leaders not willing to enthusiastically deliver and support the transformation message

9.3 Customer Intimacy

Chapter reference	2
Description	Your organization must be in constant contact with your customer, understanding their preferences and preventing any business practices from interfering with how the customer wants to transact with you

(continued)

Why is it important?	If you don't have a solid understanding of your customer, it will be impossible to set a course for your digital transformation. Our target is to improve customer outcomes. Without strong customer knowledge, we could focus on the wrong outcomes and not generate the returns we would expect
Symptoms	<ul style="list-style-type: none"> • "We know better than the customer" or "The customer doesn't know what they want" • Inability to understand why some promotions work and others don't • Inconsistent performance on new product introductions • High number of customer complaints • Refusal to change business processes that would make it easier for the customer because it would make it tougher on the organization
Mitigating actions	<ul style="list-style-type: none"> • Collect data at every place you touch the customer • Socially connect with your customers (Facebook, Pinterest, Twitter, Instagram) • Invest in customer data integration (CDI) technologies to tie together disparate sources of customer information • Create and staff a role of Chief Customer Officer

9.4 Board Composition

Chapter reference	4
Description	Your board of directors must have membership possessing relevant and in-depth knowledge of digital technologies to provide the level of support needed to ensure a successful transformation
Why is it important?	Digital transformation is a significant and impactful event for an organization. If pursued, it will be a core component of any organization's strategy. The Board must be in a position to understand, approve and fund the resources needed to support the transformation
Symptoms	<ul style="list-style-type: none"> • No board members with in-depth or relevant digital knowledge • Technology initiatives seldom discussed at board level (note, this does not include Audit Committee) • Funding requests for digital technologies denied. Funding held up while the board deliberates or while a third party, appointed by the board, reviews the request
Mitigating actions	<ul style="list-style-type: none"> • Include digital technology expertise as a prerequisite for future board member searches • Select a knowledgeable, independent, third party to augment the board until new, digitally literate, members are added • Consider creating a separate committee or sub-committee dedicated to digital transformation

9.5 Clearly Defined Governance

Chapter reference	2
Description	Your organization must define a governance structure for your digital transformation effort that clearly details the roles, responsibilities, authorization, approval, and funding processes
Why is it important?	Governance sets the framework for transformation execution. Understanding who owns the overall effort, how to manage change, how to receive funding, and the expectations of transformation execution teams, are all prerequisites for any transformation effort
Symptoms	<ul style="list-style-type: none"> • People are not clear about who is leading the transformation effort • Authorization and approval processes are not clearly defined, are time-consuming, or both • Funding mechanisms for the transformation are time-consuming and bureaucratic • Transformation execution teams are not clear on their mandate or are receiving direction from multiple points in the organization
Mitigating actions	<ul style="list-style-type: none"> • Clearly define the governance model for the transformation effort including explicitly stating the roles and responsibilities of key stakeholders • Review authorization, approval, and funding processes, to ensure they are streamlined and aligned with the message of the transformation • Define and create a formal Digital transformation steering group/committee if this has not already been done. Digital transformation is not a typical organization undertaking. It requires different treatment

9.6 Transformation Messaging

Chapter reference	3
Description	Developing a transformation message and communicating it to the organization is a critical enabler for digital transformation. Messaging must be clear, targeted, and crisply delivered to have the anticipated impacts on the organization. Delivered correctly, the message will resonate in meetings and hallway conversations
Why is it important?	Once leaders establish the tone of the transformation for the organization, ongoing messaging and updates keep the effort alive. Associates need to understand their role in the transformation and why it matters
Symptoms	<ul style="list-style-type: none"> • Associates making disparaging remarks about the transformation • Alternatively, no one is talking about the transformation • Confusion over roles and the impact the transformation will have on individual responsibilities • Associates being unaware of transformation status and not preparing for new responsibilities

(continued)

Mitigating actions	<ul style="list-style-type: none"> • Reference item 2, as the leaders must establish the tone for the transformation • Strive for transparency in all communications regarding the transformation. Holding back information will only drive people to create their version of the truth • Ensure the governance of the effort is working • Realize you can't over communicate vision and business outcomes. For transformation efforts, the frequency should be a factor of 5–10 times more than usual • Ensure people have the time to work on the transformation. It can't be a part-time job • Find and eliminate silos of information and misinformation
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9.7 Talent Management

Chapter reference	8
Description	Your organization must have a practical and executable plan for the talent needed to lead, execute, and sustain digital transformation
Why is it important?	Organization talent is the foundation of transformation. Having the right skills, in the right quantity, available at the right time is key for transformation execution
Symptoms	<ul style="list-style-type: none"> • Critical skill gaps exist within the organization • No sourcing plan exists to find the talent needed to fuel the transformation • Lots of consultants, not many internal people working on the transformation • People in the organization are not prepared to operate in the new digitized environment
Mitigating actions	<ul style="list-style-type: none"> • Identify the skills needed to drive the transformation and develop a <i>detailed</i> sourcing plan (internal and external resources) • Develop evaluation and education plans for groups most impacted by the transformation • Build transition plans for all critical external resources

9.8 Technology Leadership

Chapter reference	5
Description	Your organization must have the right leader at the helm of your technology function reporting to the CEO. The structure of the technology function must be aligned to eliminate confusion and set the table for crisp execution

(continued)

Why is it important?	The technology leader (regardless of title) in the organization must provide the vision, strategy, and structure to enable execution of the technologies to enable digital transformation. Spreading this responsibility to multiple parts of the organization adds complexity and can lead to conflicts that hamper or slow transformation efforts
Symptoms	<ul style="list-style-type: none"> • No organizational plans in place supporting digital transformation • Technology leader does not report to the CEO • Technology treated as an expense (leveraged) versus a strategic capability (enabling) • The business does not regard IT as a partner
Mitigating Actions	<ul style="list-style-type: none"> • There are no shortcuts. If you don't have the right leader of your technology organization, you need to be searching • Dependent on having the right leader, technology should report directly to the CEO and participate in board meetings • If technology is in multiple parts of the organization (such as operational IT, Analytics, Digital Transformation), unite it under a single leader

9.9 Technology Demand Management

Chapter reference	7
Description	Your IT organization must possess a mechanism to collect, categorize, prioritize and fund demand in a systemic manner. These capabilities provide the needed visibility to identify dependencies, focus resources, and ensure the highest priority efforts are understood
Why is it important?	Can you imagine trying to forecast inventory requirements without a firm understanding of your capacity? The same issue exists for technology. Technology is a scarce resource with more demand than capacity. Therefore, the business must determine the priority of efforts based on value. IT must then develop an execution plan based on their computed capacities
Symptoms	<ul style="list-style-type: none"> • Lack of a centralized IT demand management capability • IT is asked to prioritize efforts for the business • IT can't articulate their capacity (to the role level) to execute programs and projects • No process exists for the business to review and prioritize technology efforts • A published timeline does not exist for the execution of technology projects • Lack of either an IT or Business Program Management Office (PMO)
Mitigating actions	<ul style="list-style-type: none"> • Creation of a PMO to oversee programs and projects within the organization • Creation of a Technology Steering Committee and associated governance processes • Business demand function within IT responsible for vetting and consolidating demand requests from the business • Centralized IT Planning function responsible for the creation and publishing of the technology timeline balancing demand and capacity

9.10 Analytics Capability

Chapter reference	7
Description	It is essential your organization build and communicate a well-defined strategy and associated architecture for the building of an enterprise-class analytics capability
Why is it important?	Digital technologies are creating massive amounts of new data enabling new insights to be discovered by any organization. Also, emerging capabilities through advanced algorithms associated with machine learning and artificial intelligence provide substantial opportunities for further growth and efficiencies. Organizations will not be able to capitalize on these opportunities without a strategy and associated architecture to capture, store, analyze, and leverage data
Symptoms	<ul style="list-style-type: none"> • The organization is still reliant on paper-based reporting for decision-making • Multiple versions of “the truth” exist in the organization • The organization lacks the skills to build and leverage predictive analytics • Lack of standards and common tools for developing new reports and dashboards • The organization struggles to assimilate new data sources to produce new insights • Requests for new reports or dashboards, using pre-existing data, take longer than a couple of days to complete • There are no plans to begin leveraging machine learning, artificial intelligence (AI), or cognitive computing in the next 6 months
Mitigating actions	<ul style="list-style-type: none"> • Creation of an architectural plan encompassing the collection, storage, and aggregation of data into a single, trusted (virtual or physical) source • Creation of an advanced analytics team (this could be an organizational structure or a project team) to determine the most critical use cases for predictive analytics within the organization • Creation of a governance process (and potentially governing body) to oversee data and analytics within the organization • Development of standardized tools and associated self-service processes to allow the business to build and leverage new insights much faster • Education for IT and the business on the “art of the possible” regarding AI, cognitive computing, and machine learning • Develop new positions and associated job descriptions for advanced analytics roles. Begin the hiring process

9.11 Platform Mindset

Chapter reference	6
Description	Your organization must view digital transformation as the creation of an interdependent platform of business processes and technology providing the basis for launching and sustaining business models

(continued)

Why is it important?	Digital business needs a platform to be successful. A digital platform is extensible and is built through a combination of technology and business process. As business cycles shrink and new digital ecosystems grow, the platform can adapt and enable new value opportunities
Symptoms	<ul style="list-style-type: none"> • Not considering impacts to business process when introducing digital technologies to the organization • Project mindset to deploying digital technologies. Little or no consideration given to the evolution of the technology • The organization lacks a clear understanding of “platform” and is unsure how to go about building one
Mitigating actions	<ul style="list-style-type: none"> • Education on digital platforms is available from many sources. Gaining organizational awareness of the importance of platforms and how they are different is essential for success • Align on the key capabilities and use cases to be addressed by the first iteration of your platform. Customer and business partner sessions should be considered as understanding how to reduce friction in these relationships is tantamount to success • Align business capabilities with technology enablers including integration, security, and applications to ensure technical architecture integrity

9.12 Global Technology Talent

Chapter reference	7
Description	Your IT organization must define and execute against a global talent strategy
Why is it important?	The demand for technology talent is growing at an unprecedented rate. Technology talent hotbeds have emerged in a variety of countries including Canada, India, Argentina, Chile, Israel, South Korea, China, various countries in Europe, and Singapore. Limiting your search for talent to a single country or region could likely result in missing opportunities to upgrade skills within your organization
Symptoms	<ul style="list-style-type: none"> • All technology resources in the organization reside in a single country • Little or no diversity in hiring new technology talent • Third-party consultants often used due to lack of specific, hard to find, skills • No processes exist within the technology organization to operate across geographies or time zones
Mitigating actions	<ul style="list-style-type: none"> • Do your homework. Look at the skills you are lacking and use these needs to drive locations for talent searches. Use this combined information to build a talent-sourcing plan • Consider establishing at least one global integration center (GIC) in a location meeting your talent needs • Consider support for work visas (H1-B, NAFTA) as part of your recruitment process • Develop processes to leverage multiple locations and time zone differences

9.13 Federated Technology

Chapter reference	7
Description	Your IT organization must embrace the notion of line-of-business (LOB) technology (or “Citizen Developers”) and build the appropriate self-service platforms to increase overall speed and throughput of technology solutions
Why is it important?	There has, and likely always will be, been more demand for technology resources than can be supported with existing capacity. The lack of resources results in long wait times for even simple technology requests and propagates un-managed and potentially dangerous “shadow IT” factions. By embracing the notion of “citizen developers” IT can enable business speed and agility in a managed environment
Symptoms	<ul style="list-style-type: none"> • The business is dependent on their desktop (such as Excel and Access) applications to execute critical business processes • A large backlog of technology requests in IT • Standardized tools and processes are not provided to business users enabling them to build or extend applications • IT frequently criticized for being “too slow” and “unresponsive”
Mitigating actions	<ul style="list-style-type: none"> • Creation of an architectural framework enabling business self-service. Critical components of this framework would include a managed data repository (see item # 9 above), an application program interface (API) layer enabling application extensibility, a set of business tools promoting the exploitation of the data and API layers, and automated testing and release • Establish a keen understanding of business pain points and where requests for technology are underserved. These are areas where self-service can provide • Development and execution of a self-service initiative within IT. The self-service initiative should include promoting the service to the business, educating users on the new toolsets, and establishing governance of the new self-service environment

9.14 Modernizing IT

Chapter reference	7
Description	Your organization (IT and business) must adopt modern techniques and methods for the development and deployment of new technology solutions
Why is it important?	Business cycles are shrinking, and the technology introduction cycles are increasing. The need for speed and agility in technology has never been higher. To support the level of speed and agility required by the business, IT adopt new techniques, tools, and methods
Symptoms	<ul style="list-style-type: none"> • Project-oriented mindset for new technology initiatives (versus product-oriented) • Current technology project duration exceeds one year • Silos exist within the IT organization resulting in miscommunication and inefficiency • Cloud technology seldom leveraged for new applications

(continued)

Mitigating actions	<ul style="list-style-type: none"> • Undertake a cross-functional initiative with IT and the business to establish the groundwork for the adoption of agile techniques for future development efforts. Once everyone is grounded, pick a pilot effort and get started • Creation of product teams versus project teams • Adoption of a DevOps approach within the IT organization to knock down traditional silos between application and operation teams • Alignment with the business on the role Cloud technologies will play in future efforts. Establishing a common understanding of the pros and cons of Cloud technology with the business is a prerequisite before embarking on a Cloud journey
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9.15 IT Efficiency

Chapter reference	7
Description	Your IT organization must become more efficient to free up valuable resources to assist with the development and deployment of new digital technologies
Why is it important?	Technology resources are scarce. The more resources tied up with the status quo, the less is available to help drive new business value. Investments in IT efficiency (that work) pay for themselves many times over
Symptoms	<ul style="list-style-type: none"> • IT can't quantify the amount of time spent on various activities (development, maintenance, enhancements, innovation) • More than 50% of IT resources are devoted to maintaining existing systems • Lack of plans to drive efficiencies in IT operations • Technology capital investments (CAPEX) not pursued due to high technology operating costs (OPEX)
Mitigating actions	<ul style="list-style-type: none"> • It is vital for the IT organization to have a firm grasp of where time is spent. Some form of time tracking solution must be implemented to provide this visibility • Benchmarking of primary operational tasks and costs (dollars and resources). Leverage these benchmarks to identify targets for improvement efforts • Establishing goals for efficiency efforts and monitoring against progress to goal

9.16 Digitized Information Consumption

Chapter reference	1
Description	Your organization must embrace the digital consumption of business performance and other relevant information
Why is it important?	Paper-based reporting is obsolete the moment it's printed. As business cycles continue to decrease it is imperative for business executives to have access to information at intervals up to and including real time

(continued)

Symptoms	<ul style="list-style-type: none"> • Pervasive use of paper reports throughout the enterprise • Reluctance of executives and board members to use digital media (such as tablets) • Lack of real-time information demands in the business. Over-reliance on historic data
Mitigating actions	<ul style="list-style-type: none"> • User awareness sessions on alternatives to paper reporting • Ensure the desired information is provided in the form, frequency, and quality needed to support decisions by aligning technical data architecture with business requirements • Develop a mobile strategy (phone and tablet) for providing information to consumers • Find and equip digital information “evangelists.” These evangelists will be the outspoken advocates that drive acceptance in the business community

I am hopeful that you will scan your organization using these diagnostics. Digital transformation needs a solid foundation and culture to succeed. It doesn't mean you can't start a transformation effort before you address all of the inhibitors in your organization. However, you must, at the very least, be mindful of the existence of the inhibitors and plan your contingencies accordingly.

I will borrow a favorite phrase from American football and adapt it to digital transformation. During digital transformation, you have to keep your head on a swivel. Challenges and inhibitors are always lurking. Identify them early and stay on top of them to prevent your journey from being derailed.

Chapter 10

Hearing Aids



Abstract How do organizations avoid becoming digitally deaf? Stone defines the COMPETE framework that establishes the foundation elements for an organization’s digital journey. He highlights how executive leadership can use the outputs of the COMPETE model to establish the right messaging and tone to drive digital transformation initiatives across the enterprise. Stone closes with a discussion of the relationship between the business and IT and the need for continuous feedback during transformation efforts.

10.1 The Framework for Hearing

I will admit as I was writing this book, this chapter was always fuzzy to me. I wanted it to provide something (sage advice, roadmap, checklist, or some other topic) that would help people and organizations in their digital transformation journey. However, as I reviewed various ideas for the chapter, I always seemed to find reasons why each wouldn’t work for a potential class of reader.

I then harkened back to the story in Chap. 1. How do leaders know if their organization “hears” digital versus just “listens” to digital? What do organizations that succeed in their digital transformation efforts do differently from those that struggle or fail?

A recent article I read outlining retail store closings for 2018 underscored this thought on differentiation. Thirty retail chains are planning to close nearly 5000 stores in 2018. Overwhelmingly, the number one reason for the store closings was a shift in customer demand away from brick-and-mortar shopping to e-commerce. However, many other retailers are not shutting down stores and are, in fact, significantly expanding their brick and mortar presence. What are the differences between these retail organizations? What role does digital play in retailers that are expanding and those that are contracting?

One specific example in retail is Ulta Beauty, an Illinois-based retailer. Ulta Beauty plans to open 100 additional locations in 2018. Ulta’s CEO is an outspoken advocate for using technology as a critical component of transforming the customer experience. Their stores feel fresh and exciting and leverage technology to create a

more seamless shopping experience for their customers. A quick scan of Ulta's board composition reveals 2 of the 12 members are technology experts. While many retailers are retreating in 2018, Ulta Beauty is expanding through their leverage of digital technologies.

Organizations that succeed in their digital transformation efforts are the organizations that truly understand the importance and impact of digital technologies. These organizations develop a clear transformation vision and align the entire enterprise on the value and benefits they expect to receive.

As I further contemplated these facts, I began to envision a model or framework that would pull all of the information we have discussed together. Admittedly, I have always been drawn to the simplicity of a pyramid. The base of the pyramid serves as the foundation for all other layers. The layers of the pyramid build upon one another until we reach the pinnacle. As I thought the pyramid and digital transformation the following model evolved (Fig. 10.1).

As we discussed in Chaps. 3 and 8, culture is foundational to digital transformation. An April 2018 article by the Boston Consulting Group (BCG) underscores this importance. In their assessment of 40 digital transformation efforts, BCG found that 90% of organizations that focused on culture as the basis for their digital transformation achieved "strong or breakthrough" performance versus only 17% of those organizations that did not focus on culture. The BCG study also found that focus on culture played a significant role in the ability of an organization to sustain strong performance (Hemerling Jim, 2018).

As companies begin their digital transformation journey, some of the vital cultural questions they must ask include:

- Why do we exist as a company? Digital transformation challenges the purpose of an organization. It can change the market focus, the types of customers served, competitors, and the business models operated by the organization. Failure to

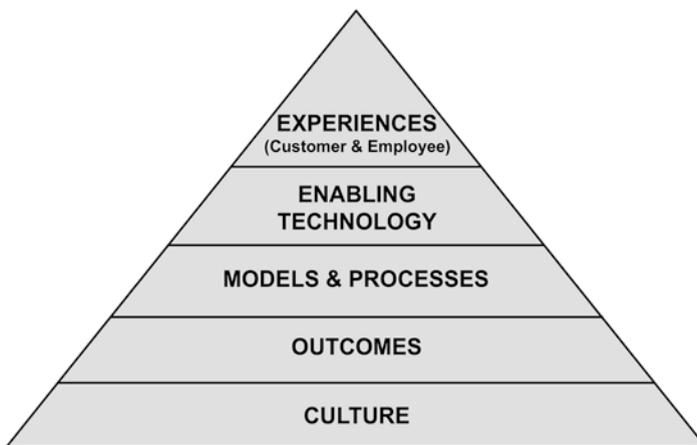


Fig. 10.1 COMPETE framework

understand the essential elements of purpose will make it difficult for a company to transform successfully.

- Can our organization be bold and innovative in decision-making and direction or will we only seek incremental or marginal gains? Transformation is about fundamental change. It is not incremental. If the organization is seeking only incremental change or impact, it is not seeking to transform.
- Are we, as an organization, genuinely customer-centric? Do we know our customer and can we anticipate their needs? Having an intimate understanding of the customer is elemental for digital transformation.
- Can we eliminate biases and look at our organization through a different lens? Organizations must be able to enter transformation without preconceived notions or assumptions that successes or failures of the past are still relevant.
- Are we, as leaders, ready to listen to our associates, our customers, and our partners? Digital challenges our preconceived notions as to what is possible. Leaders can't summarily dismiss new ideas just because it doesn't conform to their notion of plausible.

As we discussed in Chap. 2, it is critical that an organization has a strong sense of the outcomes they hope to achieve in their digital transformation journey. The development of a digital transformation vision and associated outcomes should emanate from the leaders in the organization with a vested interest in the success of the transformation.

An outcome should:

- Provide a detailed, achievable goal that results from some aspect of the digital transformation.
- Define a specific impact on products or services provided to customers, vendors, and associates. In doing this, the outcome should also detail the impacts to associated processes, roles, technology, or all of these items.
- Link to defined business strategies and describes potential obstacles and constraints.

Inevitably there will be a need to define some form of prioritization for outcomes. A good rule of thumb is to identify those outcomes that are "non-negotiable." In other words, which outcomes are mandatory?

With culture and outcomes defined, the organization should be in a position to describe the future state business model(s) and associated processes. The definition of the future state models should include the products and services to be provided, the supporting business processes, roles and responsibilities, organization structure, and technology platform. In other words, the model brings together all the pieces of the transformation puzzle and brings the picture to life.

Perhaps just as important to the definition of the business model is the identification of partners. I even contemplated calling this slice of the pyramid *Business Models and Partners*. Organizations realize they can't be all things to all customers. Organizations must identify and focus on their core strengths and differentiators.

They will leverage partners to provide services and capabilities that are considered non-core.

For example, an innovative manufacturer has developed a great idea for a product. Instead of going through traditional retail channels, they may choose to market their product via Amazon's marketplace and allow Amazon to manage the distribution of the product to the end customer.

The choice of what processes will be core and which will leverage partners is an important part of developing an overall business model definition.

Once the model(s) is created, the organization should have a clear understanding of the desired end state of the transformation and how operations will need to change to achieve the end state.

With the future state operating models in place, enabling technologies are identified in support of the new processes and products. Identifying these new technologies is not a trivial task as the IT organization will need to clearly define the prerequisites, dependencies, and sequencing of the technology and ensure it aligns with the sequencing of the desired business outcomes. Not understanding the interplay between the enabling technology and the business outcomes is a common problem during transformation efforts.

The pinnacle of our model is the experience that our organization will provide to our customers, our associates, and our business partners. Providing illustrated and detailed stories of these experiences help anchor the organization on the envisioned future. The stories should highlight those aspects of the transformation that will have the most positive impact on the customer experience. In the same vein, illustrating how the transformation will impact the associates in the enterprise is just as important to obtain buy-in to the overall vision.

With that we have our COMPETE model:

Culture

Outcomes

Models & Processes

Emerging Technology

Experiences (Customer, Associate, Partner)

As the name suggests, the COMPETE model defines how our organization will compete in a digital future. The output of the COMPETE model establishes the critical foundation for all digital transformation activities to follow.

10.2 Setting the Table

Armed with the output of the COMPETE model, the organization must now "set the table" to execute transformation successfully.

Setting the table in this context means developing consensus and alignment across all leadership and conveying a vibrant unified message to the enterprise.

As we discussed previously, this is where the voice of the organization's leader (we will use the CEO title for purposes of discussion) is needed the most.

The CEO should have participated in the COMPETE model exercises to define the envisioned future of the organization. At worst, the CEO should have spent substantial time reviewing the output of the process and be entirely on board with the direction. Participating will allow the CEO to provide the necessary messaging to (1) organization leadership (2) all associates and (3) key partners/vendors.

As we covered in Chaps. 3 and 8, it is essential that the organization's leadership be aligned and unified in their messaging. There are multitudes of ways to inform and align organization leaders. It is incumbent on the CEO to choose the approach that best fits his/her style and the culture of the organization. The two most critical elements in communicating this message are authenticity and candor.

The CEO must be authentic and demonstrate full commitment to the effort. Leaders should be free to surface candid concerns and ask detailed questions. This discussion is not the time or place for leaders to become shrinking violets. Open discussion and debate are critical to ferreting out concerns and issues BEFORE taking the message to a broader audience.

Once leadership consensus has been reached it is time to turn attention to the board. Just as the discussion with the leaders, the board discussion should be candid. If digital transformation is considered an essential element to the organization's future, the board should recognize this and seek to develop a mechanism to stay informed and support.

Finally, after achieving leadership alignment, it is time to communicate the message to the organization as a whole. Again, this should be communicated in keeping with your organization's culture. It is also crucial that associates be given the same level of opportunity to discuss, learn, and opine as was given to leadership.

If successful, digital transformation will no longer be a topic limited to a few senior executives and the board. It will be broadly discussed in the organization and will begin to shape the content and focus of meetings, projects, and events.

There is one final item to address before embarking on your digital journey. This item is often overlooked and is a vitally important element in setting the table. The item is assessing the current relationship between your IT organization and your business organization.

10.3 Achieving Common Ground Between IT and the Business

As a primary focus of digital transformation will be deploying new technologies to enable the business vision, it is vital that leaders assess the relationship between IT and the business with the same degree of candor used to build the digital vision.

The IT and business leaders should have an open discussion on the state of their relationship. Any existing fracture will become a chasm during transformation. Addressing strained relationships up front is vital to building the level of trust and partnership needed to succeed with anything as ambitious as digital transformation.

Both IT and the business must be honest and diligent in addressing any outstanding issues. Addressing issues may require challenging individual biases, personalities, or even rehashing past failures. No one wants to rewind “old tape,” but sometimes it is necessary to take a step back to chart a new path forward. Having this type of dialogue is important, as I am supremely confident in saying broken relationships will not heal during transformation.

Achieving a true partnership between the business and IT is essential to success in any technology effort. As with most other organization relationships, transformation amplifies the importance of the business and IT association. Providing transparency and setting expectations up front is critical for both the business and IT. IT shouldn't promise what it can't deliver and neither should the business.

IT must act as a trusted partner, delivering new innovations and ideas to the business. In order to serve in this capacity, it is critical for IT to understand the goals of the business and the interdependencies of corporate value chains. IT must invest the time to understand business' perspective on the challenges they face in the achievement of business goals. More often than not, at the core of these challenges are technology solutions that are either non-existent or lacking.

Another place to develop a shared understanding is resources. Specifically, both IT and the business must be realistic in defining the level of staffing capacity that exists to build new technology capabilities. Both groups must step up to the table with regards to enabling critical staff to participate at the levels needed to drive success. When discussing critical resources and skills, there can't be enough transparency.

Also, jointly defining a governance process that works for both groups will help establish expectations and should provide a framework for communication and execution.

IT needs to be very introspective about its ability to carry out its mission to serve the business. As we discussed before, many IT organizations need to evolve to be able to create a responsive and agile environment to deliver on business demands. Achieving speed and agility does not happen magically. IT must build a realistic and clear path to these capabilities. IT must be transparent in communicating the plans to improve and enlist the business to help define the appropriate measures and metrics to determine if IT is genuinely improving. Some of the areas to consider when defining measures and metrics include:

- **Speed of Delivery.** How quickly can IT deliver the solution to the business for use?
- **Usability.** How easy is the solution to use? Often highly usable systems require additional work to mask complexities from the end user.
- **Reliability.** Does the solution do what it was designed to do? The level of testing performed and how well the testing mimics real-world scenarios often dictates reliability.
- **Availability.** Is the solution always ready to be used? Architecting for high availability typically requires additional infrastructure, development, and testing.
- **Scalability.** Can the solution grow to handle larger volumes of transactions or usage?

- **Securability.** How well is the solution protected against cyber criminals?
- **Extensibility.** How easy is it to extend or add new features to the application?

None of these “ilities” happen without forethought and planning. In the past we considered some of these capabilities as we started new projects. However, we often neglected building the “ilities” in order to achieve delivery speed. As we covered in Chap. 7, modern technology development and integration practices allow IT to create an environment that builds the “ilities” into their normal processes.

It is essential that IT build the capabilities to support the continuous development of deployment of solutions based on the “ilities”. With that platform in place, we can focus on the execution of the digital transformation vision.

10.4 The Loop

We have all involved in projects and processes where we worked without the benefit of good, reliable information. Leaders are forced to lean on their experience and intuition when making decisions without all the facts. We can all probably point to decisions we have made in these circumstances and say, “if I had known xyz, I would have probably made a different decision.”

When executing an effort as diverse and complex as digital transformation, it is likely there will be times when we have to make decisions based on incomplete information. However, this can be mitigated by considering and building feedback mechanism throughout the transformation lifecycle.

What is a feedback loop? A feedback loop is a set of processes (which can be enabled with technology or not) that provide information to decision-makers on the state of an activity. In simple terms: you build something (product, system, service), you capture information about the status of your efforts and use this information to improve the outcome. It forms a perpetual cycle or loop of measuring, monitoring and improvement.

The first component of a feedback loop is a trigger. A trigger’s sole purpose is to prompt the collection of information. Triggers can be temporal (for example: every Friday, last Monday of each month) or event-based (status changes on a project, meeting or discussion takes place). The definition of a trigger should contain the time or event that prompts information collection, the specific information to be collected, and who (person or process) is responsible for collecting it.

The second major component of the feedback loop is the routing. Once a triggering event occurs, and the information is collected, it must be sent to the appropriate people inside the organization. A conventional method used to construct routings is the RACI diagram. RACI is an acronym for responsible, accountable, consulted, and informed. RACI is most often used to define the participation level of the members on a team. This RACI diagram can be used to help build routings for information collected via triggers.

Table 10.1 Temporal feedback loop example

Weekly status update	
Trigger	Every Friday, by 10:00 am EST
Information needed	<ul style="list-style-type: none"> • Sprints planned, sprints completed • Net story points added • Cumulative story points added • Defect trends • Burndown chart • Outstanding issues for management
Collected by	Scrum master
Routing	Product manager Business sponsor Technical sponsor PMO contact
Actions	Status information only, no actions Issue resolution handled by separate routing

The final component of the feedback loop is the action (decision made or problem solved). Certain feedback loops are built only to inform, while others require taking a specific action. As part of a feedback loop, it is critical to explain what action you expect from the people/roles on the routing as well as the timeline the action is needed.

The table below provides an example of a temporal-based feedback loop (Table 10.1).

Using this construct of a feedback loop at the critical points of digital transformation is essential. Structuring the digital transformation effort into shorter duration and tightly scoped deliverables aids in keeping the information flows crisp and encourages rapid decisions.

Finally, the best type of feedback loop is one in which information is always available. In other words, it is real-time. Leveraging digital technologies to build real-time dashboards, alerts, and collaboration capabilities are great ways to keep the digital transformation efforts moving forward. This practice also establishes the mindset of organization leaders on what it means to be digital. Information moves in real-time, decisions are made rapidly, course corrections occur seamlessly, and the information is fully transparent.

Armed with a robust vision for transformation, excellent organization alignment, solid governance, comprehensive communications, and an effective set of feedback mechanisms the opportunity for your organization to execute a successful digital transformation is greatly enhanced.

10.5 Final Thoughts

The advent of digital technologies both excites and terrifies many organizations. The proper adoption and use of these technologies present incredible opportunities for defining new business models, penetrating new markets, acquiring new

customers, and improving efficiency and profitability. Conversely, failure to embrace these technologies could spell the demise for many organizations as more nimble competitors erode their market share.

It is also an exciting and terrifying time for the technology organizations tasked with developing, integrating, and deploying these technologies. IT has long wanted its moment “in the sun.” With digital transformation, IT has never had a better opportunity to build meaningful partnerships with the business.

However, a question remains, “Are we all ready?”

This question is what drove me to write this book. As I observed in my organization and countless others I have talked with; there is a great deal of confusion regarding digital technologies. Digital transformation is a buzz phrase encompassing many other buzz terms. There is tremendous hype, but quite often a lack of clarity. Early attempts at digital transformation have resulted in high failure rates and disappointment. I am hopeful that we have covered many of the reasons behind these failures and outlined ways in which your organization can avoid the same fate.

As we started this chapter, think back to the dialogue from *White Men Can't Jump*. Many leaders read books and listen to seminars and presentations regarding digital transformation. How many of these leaders really “hear”?

To hear is to believe in the power and opportunity of digital transformation. Believing is the backbone of vision. As we have discussed, vision is the foundation for transformation.

It is my profound hope that this book has shed a different light on the topic of digital transformation. I am hopeful, by sharing experiences and research into the current state of digital transformation, we illuminated some of the pitfalls and obstacles that may be facing your organization. Equipped with this perspective, I am optimistic that organizations can avoid these issues and successfully complete their digital transformation journey.

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Index

A

Advanced analytics, 17, 19, 68, 73, 91, 112
Agile, 30, 77, 82–84, 87, 97, 101, 115, 122
Agile Release Train (ART), 31
Agility, 19, 21, 32, 65, 67, 74, 76, 77, 79, 80, 84, 86–88, 91, 99, 114, 122
Alibaba, 3, 14
Amazon, 3, 14, 19, 20, 68, 120
Amazon Echo, 20
Amazon Web Services (AWS), 19
Apple, 3
Application programming interface (API), 82, 84–87, 114
Architects, 96, 97
Artificial intelligence (AI), 3, 7, 19, 45, 89, 90, 97, 112
Audit, 5, 8, 36, 39, 40, 82, 86, 87, 108
Audit committee, 5, 8, 36, 39, 40, 108
Augmented reality, 3, 17

B

Backlogs, 69, 76, 114
Back seat technologist, 70
Beacons, 17, 89
Big data, 3, 4, 17, 43, 44, 73, 89, 91
Blackberry, 2
Blockbuster, 2, 12
Blockchain, 3, 73, 98
Board of directors, 8, 32, 33, 35, 93, 108
Borders, 2, 12
Business adjacencies, 20
Business cases, 30, 47, 57, 61
Business initiatives, 25, 26

Business intelligence, 18, 89
Business leaders, 1, 11, 12, 21, 34, 47, 49, 50, 58, 83, 121
Business models, 12, 20, 27, 56, 71, 79, 94, 101, 112, 118–120, 124
Business partners, 20, 56, 83, 113, 120
Business plan, 24
Business sponsor, 60, 61, 64, 80, 124
Business strategy, 23, 25, 35, 41, 105

C

Camelot Music, 12
Canada, 64, 113
Chief Analytics Officer (CAO), 43, 44
Chief Compliance Officer (CCO), 41
Chief Data Officer (CDO), 8, 43–45, 49
Chief Data Science Officer (CDSO), 43, 44
Chief Digital Officer (CDO), 8, 11, 29, 43–46, 49
Chief Executive Officer (CEO), 11, 25, 26, 29, 34, 37, 41–46, 48, 49, 57, 71, 72, 94, 107, 110, 117, 120, 121
Chief Financial Officer (CFO), 25, 41, 43, 45, 64
Chief Human Resources Officer (CHRO), 41
Chief Information Officer (CIO), 8, 20, 25, 26, 29, 37, 39, 41–46, 48, 49, 64, 70, 71, 91, 101
Chief Information Security Officer (CISO), 43, 44, 49
Chief Innovation Officer (CINO), 8, 43, 44
Chief Marketing Officer (CMO), 41, 43, 46
Chief Operating Officer (COO), 43, 95

- Chief Technology Officer (CTO), 39, 40, 43, 44, 46, 49
- Circuit City, 2
- Cloud technology, 3, 114, 115
- Coaching, 48, 107
- Cognitive computing, 68, 90, 112
- Collaboration, 39, 42, 82, 84, 87, 124
- Company values, 27
- Compensation Committee, 39
- COMPETE framework, 118–121
- Containers, 5, 86
- Corporate Governance and Nominating Committee, 36, 39
- Credit Suisse, 35
- Culture, 6, 7, 12, 18, 27, 29, 42, 43, 101–103, 105–107, 116, 118–121
- Customer experience, 11, 14, 15, 21, 37, 117, 120
- Cybersecurity, 36, 44
- D**
- Data Engineer, 98
- Data Scientists, 97, 98
- Data warehouse, 89
- DevOps, 74, 76–79, 84, 87, 98, 115
- Digital Explorers (from the 2018 Retail Digital Adoption Survey), 17
- Digital Leaders (from the 2018 Retail Digital Adoption Survey), 17
- Digital platform, 18–21, 65, 113
- Digital strategy, 38, 97
- E**
- Eastman, 2, 12
- E-commerce, 3, 12, 17, 26, 117
- Encyclopedia Britannica, 12
- Enterprise alignment, 28
- Enterprise resource planning (ERP), 7, 56, 84
- Environmental scan, 20
- F**
- Facebook, 3, 68, 79, 108
- Federal Information Security Management Act (FISMA), 68
- FedRAMP, 68
- Feedback loop, 78, 123, 124
- FlipKart, 14
- Fortune 250, 12
- Fortune 500, 3
- Funding, 21, 24, 30, 31, 46, 108, 109
- G**
- General Data Protection Regulation (GDPR), 68
- Google, 2, 3, 68, 79
- Governance, 28–32, 43, 46, 50, 53, 57, 59, 109–112, 114, 122, 124
- H**
- Hadoop, 89, 90
- Health Insurance Portability & Accountability (HIPPA), 68
- Helix, 3
- Hybrid cloud, 87
- I**
- Information Technology Infrastructure Library (ITIL), 68
- Innovation, 1, 8, 13, 16, 19, 34, 39, 44, 71, 77, 115, 122
- Internet of things (IoT), 19, 73, 97
- iPad, 5, 7
- IT demand and capacity, 61, 71–73
- J**
- Journey, 4, 7–9, 13, 15, 17, 19, 20, 27, 28, 30, 32, 38, 39, 46, 50, 67, 94, 96, 99, 101, 103, 106, 115–119, 121, 125
- K**
- Kodak, 12, 13
- L**
- Lowe's, 95, 105, 106
- M**
- Machine learning, 3, 7, 18, 68, 90, 97, 112
- MapQuest, 6
- MapReduce, 89, 90
- Messaging, 17, 85, 106, 107, 109–110, 121
- Minimally viable product (MVP), 83, 84
- Mission statement, 27
- Mobile, 3, 4, 15–17, 24, 68, 73, 84, 89, 90, 97, 116
- Motorola, 2
- My Space, 2

N

National Institute of Standards & Technology (NIST), 68
 Netflix, 3, 79
 Nokia, 2

O

Offshore, 74
 Omnichannel, 11
 Organizational change management (OCM), 59, 96, 100
 Organization structure, 18, 45, 46, 78, 100, 119
 Outsource, 74

P

Payment Card Industry (PCI), 68
 The Phoenix Project, 79
 Point of sale (POS), 25, 26, 56
 Portfolio, 24, 27, 46, 54, 59, 61, 73, 75, 85
 Prioritization, 24, 25, 29, 46, 119
 Prioritize, 25, 60, 71, 106, 111
 Private cloud, 87
 Product owner, 79, 96, 97
 Project demands, 59, 61
 Project goals, 56, 57
 Project manager, 60, 61
 Project plans, 54, 60, 61
 Public cloud, 87

R

Radio frequency identification (RFID), 15, 16
 Rand McNally, 12
 Replenishment, 18
 Reporting, 4, 5, 7, 36, 37, 42–45, 49, 102, 110, 112, 115, 116

S

SaaS, 76
 Sarbanes Oxley (SOX), 68
 Scaled Agile Framework (SAFe), 31
 Scope creep, 31, 57, 61, 82
 Sensors, 15, 17, 89

Shadow IT, 70, 71, 76, 114
 Shareholders, 13, 19, 36
 Smartphones, 3, 15, 89
 Social, 3, 17, 73, 82, 84, 89, 98
 Social networks, 3
 Specific, measurable, achievable, results-focused, time-bound (SMART), 27
 Speed, 18, 19, 21, 26, 34, 37, 65, 67, 68, 74, 75, 77, 79, 84, 86–91, 99, 101, 114, 122, 123
 Sponsorship, 55, 57–59, 61, 64, 65, 97
 Staff augmentation, 72, 74, 93
 Steering committee, 26, 29, 46, 48, 71, 111
 Stephen Covey, 12
 Store system, 25, 26, 48, 49
 Sun Microsystems, 2
 System integrators, 98, 99

T

Teradata, 89
 Title-itis, 42
 Toys ‘R Us, 2
 Tranche, 30, 31

U

Uber, 3
 Ulta Beauty, 117, 118
 Universal Product Code (UPC), 15, 16
 Urs Rohner, 35
 USPS, 2

V

Virtual reality, 73

W

Waterfall methodology, 83
 White Men Can’t Jump, 1, 125

Y

Yahoo, 90
 Y2K (Year 2000), 33